

Man's Energy Innovations Power His World Off The Grid



By TIM KNAUSS

c.2007 Newhouse News Service

COLTON, N.Y. — The wire that once delivered electricity to Jerry Bartlett's house has a new purpose. He hangs laundry on it.

To run his computer, his TV, his refrigerator and the rest, Bartlett relies on a home generating system he has cobbled together over the past few years.

"Crazy Jerry" lives only 30 feet from the nearest utility pole, but his little house in St. Lawrence County, built in 1920 to run without electricity, is off the power grid once more — and he says he can show anyone how to do it.



Jerry Bartlett in the yard of his Colton, N.Y., home with his retrofitted Suzuki and solar panels mounted on an old van. (Photo by Gary Walts)

Bartlett is not the only person to leave the grid in the North Country of upstate New York, where there is a strong tradition of homesteading and self-reliance.

But few are as self-reliant as Bartlett, who has forged ahead on a shoestring by making much of his own equipment.

Bartlett's setup is a testament to the pioneer spirit.

He's hung 19 secondhand solar panels on the sides of three rusty vehicles — a van, a bucket truck and a trailer — that are parked in his yard in the rural town of Colton.

"In a lot of towns, I couldn't get away with this," he said.

His old racing bicycle stands in the front hallway, its rear wheel connected to a generator he made from a car alternator.

Out near the pole barn, a homemade windmill spins atop a 46-foot aluminum tower. Rather than build a concrete pad, Bartlett bolted the tower to a big rock and secured it with guy wires connected to, among other objects, a junk car.

The windmill contains a motor salvaged from an old NordicTrack treadmill that Bartlett found at the Colton town dump.

"I'm a regular shopper there," he said.

With little money, but with a willingness to tinker, Bartlett, 42, began his experiment in electric self-sufficiency four years ago. It hasn't been entirely easy.

His system depends as much on homespun trial and error as it does on off-the-shelf technology, and Bartlett has endured his share of hard lessons.

The exhaust pipe on his diesel generator, which he runs only in winter and keeps inside to take advantage of its heat, once dislodged and filled the house with smoke. During an experiment heating

water with his wood stove to make baseboard heat, the water got so hot it melted the solder in his pipes, allowing liquid and steam to spurt all over the room.

His solar panels, bought secondhand on eBay, came with no wiring instructions.

"I'm not going to lie to you," he said, "I've been zapped a few times."

But Crazy Jerry, as he calls himself, has persevered to create a household that runs most of the year on clean, renewable energy. During the winter, he spends about \$75 on diesel-fueled generation, which provides both power and heat. The rest of his heat comes from a wood stove.

He says others can follow his lead. He gladly shows them how.

Bartlett lives alone with his Jack Russell terrier, Dottie. But his house attracts a growing stream of visitors, mainly during "green home tours" sponsored twice a year by Community Energy Services, a group based in Canton, N.Y., that promotes renewable energy.

A recent tour drew 30 visitors.

Unlike other houses on the tour — most of which are sparkling new Energy Star models — Bartlett's is a ramshackle cottage with drafty windows, a tin roof and poorly insulated walls.

About five of the 30 homes on the tour are off the grid, said Patricia Greene, energy events coordinator for Community Energy Services. All but Bartlett's were built to be that way.

Bartlett's home was retrofit on a shoestring.

Inside the 840-square-foot house, knickknacks and antiques jostle for room with batteries, inverters and generating equipment, all against a backdrop of exposed pipes and wires. It's part home, part workshop, part classroom.

"It's all like an unfinished symphony," said Greene.

Bartlett learned to work on diesel engines and electrical systems during four years in the Army. Among other jobs, he worked for 10 years at National Grid, the Northeast power utility, in positions such as meter reader and fleet mechanic.

In 2006, after earning a two-year liberal arts degree (with highest honors) from the State University College of Technology at Canton, Bartlett took his current job as an online learning technician at the college.

His hobby is energy efficiency, and friends say he is fearless about making things.

Bartlett modified his Suzuki motorcycle to run on biodiesel fuel. The new Changfa diesel engine didn't fit inside the Suzuki frame, so he welded a new frame out of black iron pipe.

He used a U-bolt as a foot rest. He threaded together pieces of kitchen sink drain to make a chrome exhaust pipe.

The bike, which Bartlett calls a "Changzuki," averages about 115 miles per gallon, about double its mileage on gasoline.

For \$25, Bartlett sells a CD with instructions about how to make the Changzuki. He says he refunds the

money to anyone who sends photographic evidence that they did the conversion.

"He is off the wall," said friend Peter Popiel, a retired music professor who makes biodiesel and shares Bartlett's interest in renewable energy.

Few people choose to live as Bartlett does, Popiel said. But many can learn from his energy innovations.

"The guy is brilliant," he said. "He's a real master with things that most people would throw away."

From March through October, Bartlett pulls virtually all his power from his solar panels. When the sun is shining, he does extra laundry. When it hides, he scales back.

From November through February, when the skies tend to cloud up, 30 percent of his power comes from the panels. But he gets more production from his wind generator, and he rides his bike generator about two hours a day.

Typically, about half the power in winter comes from a diesel generator, which he runs about two hours a day. An Indian-made knock-off of an out-of-production British generator called a Lister, the "Listeroid" starts with a hand crank and runs much slower and quieter than a modern generator.

His system powers a full complement of electric appliances. Bartlett has three computers, two TVs, a refrigerator, a microwave, a washer and dryer, and so on.

"I have everything everyone else has," he said.

But his stuff probably looks different from yours.

His refrigerator, for example, is a 5.8-cubic-foot chest freezer that he operates as a fridge. With 4.5-inch-thick insulation, the unit uses about one-seventh of the energy of an average fridge, according to statistics from the Association of Home Appliance Manufacturers.

His clothes dryer uses no heat, but spins clothes fast for three minutes like a washer's spin cycle gone haywire. The clothes emerge clammy, but nearly dry. He hangs them up for a short time to finish the job.

By scrupulously scaling back, Bartlett has cut his electric use to 75 kilowatt-hours a month, about 12 percent of the average upstate New York household.

Solving the nation's energy problems, Bartlett says, "has to start with the usage."

About 180,000 households in the United States are off the grid, estimates Richard Perez, who has published Home Power magazine since 1987. Perez, who lives off-grid in Oregon, bases his estimate on surveys of readers.

Although many off-gridders in the early days were tinkerers like Bartlett, that is seldom the case today, he said.

"These days, most people hire a dealer to do it for them," Perez said. "We see less of the tinkerers and more of the people who just write a check."

Costs for home power systems range from about \$8,000 for a very small system to \$40,000 for the top of the line, Perez said. Most systems cost \$15,000 to \$17,000, he said.

People give various reasons for moving off the grid, Perez said. Some live in remote areas where it would be too expensive to bring in a line; others want to reduce their impact on the environment; others have a strong streak of independence and self-reliance.

Ask Bartlett for reasons, and he gives a meandering answer.

"It depends on what mood I'm in," he said. "It's one of them things. It starts out as something small, and then ... "

It started small five years ago with his bike.

Until recently, Bartlett competed in triathlons, for which he spent hours training on a racing bicycle. He preferred riding indoors on a stationary training stand, because sharing the narrow roads with cars had become nerve-wracking.

Out of curiosity, Bartlett made a crude generator by connecting the roller on the training stand to an alternator taken from a junk car. He ran the current through a small inverter, a device that turns direct current into alternating current.

Then he hopped on the bike and tried to power a small black-and-white TV. Sixty watts, no problem. He added a tabletop fan. No problem.

Then he plugged in his old refrigerator. Unnh.

"I tried three or four times, but it didn't happen," he said.

That sent Bartlett on a quest to lower his electric use. He replaced the refrigerator with a more efficient model. He put all his appliances on power strips to avoid "phantom loads," the power consumed by many appliances even when they are off.

But the lower Bartlett drove his consumption, the less payback there was on his National Grid bill. Because of the flat monthly customer charge, Bartlett's minimal use often cost him 65 cents or more for each kilowatt-hour.

In part, his decision to go off the grid was to eliminate the utility bill. The payoff depends on whether his purchased equipment — notably, his solar panels, batteries and diesel generator — lasts as long as it's supposed to.

Also, Bartlett went off the grid to help reduce fossil fuel use, although he says he is not, at heart, a "tree hugger."

At this point, he enjoys teaching people about what he's done. But the bottom line, the tinkerer said, is that he saw opportunities to make his house and the gadgets in it more efficient.

"I'm going to make it better," he said. "Why? Because it can be better."

(Tim Knauss is a staff writer for The Post-Standard of Syracuse, N.Y., and can be contacted at tknauss (at)syracuse.com)

Close Window