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Solar panels create Cumberland's first 'net zero' home

By Michael Futch
Staff writer

Self-reliance ranks high on the list for Randy and Anke Darling.

The couple lives on a small homestead in the country near Eastover, where the two of them make their own compost in a bin, can food from the garden, and maintain a menagerie of chickens, ducks, geese and rabbits.

"That's part of who we are," Randy Darling said. "Back to nature, definitely. I think the world goes too fast. If something should happen, we have food and vegetables."

On Wednesday afternoon, the Darlings raised the bar on self-sufficiency, when their home became the first solar interconnected residence in Cumberland County. Their solar grid-tied system makes this the county's first "net zero" home, too.

"That means it's providing more power than using," said Jim Wood of Alternative Energy Concepts of Fayetteville. "Actually, it's providing significantly more power than it's using."

A solar hot water system also has been installed at the home. The two solar thermal collectors are fastened to the roof of their two-story, cedar-siding home.

Alternative Energy Concepts of Fayetteville did the work, including the installation of the south-facing solar array in the yard. That 6.2-kilowatt ground-mount system is made up of 32 200-watt photovoltaic modules, or panels, placed over four rows by a pond. The way Randy Darling looks at it, he and his wife are reaping the financial rewards from land they weren't using.

Their grid-tied photovoltaic system is big, and larger than what most people would be interested in investing in, according to Wood.

As a general rule of thumb, people pay \$8,000 to \$10,000 per kilowatt for this system. As prices become more competitive, the costs are expected to drop.

Total price for the Darlings' alternative energy system?

The Darlings paid \$41,000 for the solar array and another \$6,800 for the hot water heater. Nearly \$50,000 is a hefty expenditure, but he said they get so much sunlight, they figured why not harness some of it.

"He's got a significant investment there," said Catherine O'Dell, a spokeswoman for the South River Electric Membership Corp. "But take into consideration federal and state tax credits."

On Friday, the state General Assembly ratified an extension of the renewable energy tax credits. A 35 percent North Carolina tax incentive is available on the cost of a solar array, along with a 30 percent federal tax credit.

In addition, South River EMC offers a \$1,000 rebate for solar water heating.

"I just think you'll see more and more of this as time progresses," said Randy Darling, a 54-year-old Army veteran and rural route carrier in Dunn. "It just seemed like the smart thing to do. It'd be foolish not to do it."

A grid-tied photovoltaic system allows homeowners to harvest energy from the sun, convert it into electricity and use it to power their home.

"What I will produce out there," Darling said, "will be enough to run my own house."

Getting paid for energy

The system, Wood said, should average about \$220 a month in energy. In a year's time, the solar array will produce an estimated 8,500 kilowatt hours of electricity, Darling said, with 100 percent of that to be sold to South River. That's their electric company.

"We will pay them for the energy," O'Dell said, at an avoided cost of 4.823 cents per kilowatt hour.

The Darlings will be making an additional 15 cents per kilowatt hour by participating with NC GreenPower. That independent, nonprofit organization was established to supplement the state's existing power supply with more green energy.

Altogether, the Darlings' anticipated payback will be about 20 cents per kilowatt hour.

"That's where it becomes feasible," O'Dell said. "Those two (paybacks) and the tax credits."

Through their partnership with NC GreenPower, the Darlings will be selling electricity for twice what they pay for it from South River EMC. That's 9.8 cents per kilowatt hour on their monthly electric bill compared with the 19.8 cents per kilowatt hour they earn from their new system.

As a result, Randy and Anke will continue to pay their monthly electric bill. So far this summer, that has ranged from \$165 to \$264.

Their grid-tied photovoltaic system, with a life expectancy of more than 25 years, should be paid for in seven years, according to Wood.

"Mr. Darling and his family made a significant investment because they believe in green energy, and that's important for our environment," O'Dell said. "We believe in protecting the environment, as well, and we want to serve our members. If this is what they've chosen to do - to put in this solar array - we help them get connected with the grid."

This is the third interconnection for South River EMC, she said, but its first in Cumberland County. The company has grid-tied a residence in Harnett County and a commercial business in Johnston County.

The switch to solar power lags in Cumberland County because many homeowners have had no way to sell the extra electricity they generate to the Public Works Commission. PWC started offering interconnection service about a week ago, Bill Berry, the company's manager

