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JANUARY 15, 2009 ISSUE

Build Your Own Power Company

Blowing Rock Couple Installs Solar Power System In Backyard, Sells Power Back To BREMCO

Story by Sam Calhoun

A Blowing Rock couple is learning that the best way to beat the power company is to become your own power company.

A full remodel job is nearing completion on a home located on Green Hill Road in Blowing Rock owned by Dr. John and Mrs. Alicia Gaul. The remodel job includes the installation of a solar power system in the backyard that feeds power into the Blue Ridge Electric Membership Cooperative (BREMCO) grid. The 3.69-kilowatt solar power system contains no batteries, so power is fed directly into the grid and the couple will receive a quarterly check in payment once the system is completed.



Al Lewis Construction is putting the finishing touches on a 30-foot by 12-foot solar power system from Weaverville's Sundance Power Systems in the backyard of a home on Green Hill Road in Blowing Rock. The Al Lewis Construction team is, from left to right, Joey Selby, Kenny Ward, Gary Sigmon, Al Lewis, Zack Spiegel and Dan Haigler. Photo by Sam Calhoun

Green Remodel

Dr. John Gaul's grandfather built the home at 831 Green Hill Road in 1948, so it was important for John to preserve some of the materials and design from the original structure during the remodel. In January 2008, Al Lewis Construction started the project.

"[John] was passionate about saving as much as possible of the existing house," said Al Lewis. "He thought it was important to keep the materials; let them live on."

To start, Lewis replaced the locust posts under the house with a concrete foundation. Then, Lewis' crew removed old tongue and groove paneling from the walls, planed it and then cut it so it could be used to finish the home's new doors and windows. The tongue and groove is used for the home's doorjambs, face trim and interior trim.

The crew took out the home's original chimney, reusing the stones to accent the front of the house. Oak from all over the original home was reclaimed, cut, planed and then used as the home's new wainscoting. Radiant floor heat was installed and then covered with bamboo flooring, a renewable resource. The whole house features either bamboo flooring or tile—no carpet.



The 3.69-kilowatt solar power system will produce about \$70 worth of energy credit every month for the Gaul family in Blowing Rock. The power produced from the system will be fed back into the BREMCO grid, and the homeowners will receive a payment for the power quarterly. Photo by Sam Calhoun



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LOCAL WEATHER FORECAST

In the kitchen, Lewis used reclaimed wood for the cabinets and shetkaSTONE, a material made from recycled paper, for the countertops. Materials from the original structure that were not used went to the ReStore.

One of the energy-saving features of the home is the two tankless water heaters that heat water on demand with propane.

Mini Backyard Power Company

Sundance Power Systems from Weaverville worked with Lewis to install the solar power system at the Gauls' home. Sundance Project Manager Grayson Newell designed the system and is overseeing the project. He expects to commission the system, or turn it on, by February.

The biggest challenge of the project, according to Lewis, was the amount of paperwork required to get it off the ground. No permits exist in the Town of Blowing Rock for a solar structure, so Lewis had to fill out separate permits for the system's foundation, electrical components and engineering. Because the structure will feed into BREMCO's grid, BREMCO and the Town of Blowing Rock enacted stringent permitting standards to ensure safety.

"It was basically like we were building a whole other house," said Zack Spiegel of Al Lewis Construction.

"And it was a challenge because we are in a 125 mile per hour wind zone," added Lewis.

But the crew persevered and, with Newell's help, installed the system that features 18 4-foot by 5-foot solar panels arranged in a 30-foot by 12-foot rectangle. Twelve Sona Tubes, or concrete pilings, support the system.

The solar power system is rated at 3.69 kilowatts, meaning that it will produce roughly 442 kilowatt hours per month if the system receives four hours of sunlight per day. An average two-bedroom house consumes roughly 500-kilowatt hours per month, according to Newell.

The average price per kilowatt hour through BREMCO is 8 cents, meaning that the residents of a two-bedroom house pay roughly \$40 per month if they use 500-kilowatt hours of electricity. For the power this system produces, the Gauls will receive 12 cents per kilowatt hour from NC GreenPower and an additional 3 cents per kilowatt hour from BREMCO because the cooperative pays its wholesale rate for the green power.

NC GreenPower is an independent, nonprofit organization established to improve North Carolina's environment through voluntary contributions toward renewable energy. The goal of NC GreenPower is to supplement the state's existing power supply with more green energy—electricity generated from renewable resources like the sun, wind and organic matter. To promote private renewable energy systems like the Gauls', NC GreenPower buys back green power at a higher rate than wholesale. The practice allows homeowners who install green systems to get paid back on their investment and feeds more power back into the grid.

In total, the Gauls will receive roughly 15 cents per kilowatt hour. Newell estimates that the Gauls will receive approximately \$70 per month from their solar power system.

"It's like a little power company in your backyard," said Natalie Lewis of Got Green Goods?.



In addition to installing the solar power system, the Gaul family also remodeled the house reusing materials used in the original house. Contractor Al Lewis reclaimed oak from the former structure and reused it as the wainscoting in the remodel. Photo by Sam Calhoun



Natalie Lewis, owner of Got Green Goods?, shows off the home's new shetkaSTONE countertops that are made from recycled paper. Photo by Sam Calhoun

"Since the Gauls get a higher rate for selling the power, it makes sense to sell it instead of using it," explained Newell.

Newell said the state mandated utility companies to use a certain percent of renewable power a few years ago and projects like this help utilities like BREMCO beef up their green portfolio.

"Hopefully, it makes it so they don't have to build any more power plants," he said.

Newell said solar power systems like the one installed at the Gauls' home cost \$7 to \$8 per watt installed.

For more information on Sundance Power Systems, call 828-645-2080 or click to www.sundancepower.com.

For more information on Al Lewis Construction, call 828-295-0049.