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CORRECTION:

Story has been corrected
Correction published Saturday, June 21, 2008: An article on page A1 Friday about alternative energy at the Chewonki Foundation should have said the cost of a new solar heat and power system was not available. It was a reporter's error.

Embracing energy alternatives

The Chewonki Foundation puts renewable systems to the test on its property in Wiscasset.

By JOHN RICHARDSON, Staff Writer

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Doug Jones/Staff Photographer

Peter Arnold, head of the Chewonki Foundation's renewable energy program, stands beside part of its hydrogen-powered backup electrical system.

WISCASSET — The Chewonki Foundation's campus looks the part of an environmental education center where thousands of kids come each year to learn about nature.

There's a farm, a dining hall, classrooms, a wildlife rehabilitation center and a lot of woods to explore.

But a closer look reveals what is perhaps the state's premier real-life laboratory for renewable energy.

Maine's first hydrogen energy system provides backup power for one building. A next-generation solar system on the roof of the dining hall provides both electricity and hot water. A small solar-electric car is parked next to a gravel path, soaking up sunshine and charging its battery.

There is a fueling station where used cooking grease is dispensed as biofuel. And soon there will be a windmill and a geothermal system that will use well water to heat part of a building next winter.

As Maine and the rest of the world look for energy sources that might someday replace oil, Chewonki is busy testing them out.

"We're not the R&D part. We're not on the commercial side," said Peter Arnold, who heads the organization's renewables program. "We play a role in between by putting up a system, a beta system," he said, using his term for product testing.

Chewonki is a nonprofit founded in 1915 as a camp for boys. It occupies a 400-acre peninsula on Montsweag Bay and now provides environmental education and wilderness expeditions to more than 40,000 boys and girls a year.

Its leadership in alternative energy goes back to the 1970s and the center's first composting toilet, said Don Hudson, Chewonki's president.

Since then, every construction project has been designed for energy efficiency. When the dining hall was built in 1983, it was the most energy efficient building in Maine, Hudson said.

Chewonki also has been especially sensitive to energy issues because it sits a mile from the former home of the Maine Yankee nuclear power plant. A piece of the old nuclear plant now covers part of Chewonki's hydrogen system.

Chewonki's energy programs shifted into high gear 11 years ago when it hired Peter Arnold, who is gradually weaning the campus from fossil fuels and making it a showcase for alternatives.

Chewonki's annual spring renewable energy conference draws experts from throughout the Northeast. And now, with oil prices at historic highs and the alternatives looking more attractive, its work is getting even more attention.

"I feel like we're inching up again to the place where a lot of these technologies are economically viable," Arnold said.

"We're doing the background work so as soon as the economics come into focus, we'll be ready."

Manufacturers have already made efficiency improvements based on the experience gained at Chewonki, Arnold said.

"As you move to commercialization, a lot of the problems are encountered and solved," Arnold said. "It really feels like, to me, we're making significant contributions to whatever is going to replace fossil fuels."

The \$250,000 hydrogen power center unveiled nearly three years ago may still be the only one in the state. Like most of its projects, Chewonki combined fundraising with grants to pay for the project.

It puts treated groundwater through an electrical charge to make pressurized hydrogen, which is stored in eight tanks behind the main building. The hydrogen is like a battery that never loses power and can make electricity whenever needed. Chewonki uses it to power critical parts of the building when the power goes out, as it did for three days last winter.

"You could run your cars with it, heat your homes with it, power your grill, anything you want," Arnold said. The

technology appears most viable for powering vehicles, and there now are hydrogen fueling stations in some parts of the country, he said.

The newest demonstration project is a \$350,000 solar heat and power system on the dining hall installed in May.

Created by Ascendant Energy of Rockland, the panels include photovoltaic cells that make electricity together with a plumbing system that heats water for the kitchen's industrial-sized dishwasher. Heat captured from the dishwasher discharge is even fed back into the system.

The combination of heat and power makes the system more efficient, and very unusual, according to Arnold.

"This is the Beta system," he said, again emphasizing Chewonki's role as a tester. "No one's ever commercialized it. And the second install is going to be more efficient because this one's in place."

In the first month of operation, the system generated 800 kilowatt hours of power, he said. And when the sun is shining, the kitchen doesn't need propane to heat its water.

Ascendant Energy CEO Chris Straka said Chewonki is filling an important role.

"We're at a point where, energy being where it is, we really have to break the mold of some of our existing systems," he said. "A place like Chewonki is a great venue to validate technology in a cold climate."

Some of the alternative energy technologies Chewonki uses and demonstrates are cost effective today, such as traditional solar hot water heaters. But even the more experimental projects are important, said John Kerry, director of the Governor's Office of Energy Independence and Security

"This is the future," he said. "We have to go through a transition period were we develop these technologies and employ them. I see Chewonki as one of the primary educators regarding energy and environmental issues in the state of Maine."

And not just because the organization is talking about new systems, he said. "What they do, which is great, is they actually install them and use them."

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