

Minnesota Success Stories: *Tribe Combines Solar & Weatherization*

Daniel Stover Residence

Location: Fond du Lac Reservation

Weatherization Improvements: Insulation, air sealing, furnace tune-up, duct-leak sealing

Solar Air Heat System: Two 4- x 8-foot panels, complementing a propane heating unit (500-gallon tank)

Fond du Lac family receives energy combination—weatherization and solar air heat system

Daniel Stover said it used to take three to four 500-gallon propane tanks each year to heat his home on the Fond du Lac Indian Reservation. But after receiving weatherization assistance in 2007 and a solar air heat system in 2009, his home's fuel consumption decreased by more than 50 percent.

The Stover family, part of the Fond du Lac Band of Lake Superior Chippewa (about 20 miles from Duluth), qualified for Energy Assistance to help pay for their heating bills; subsequently they also qualified for weatherization and a special grant to install a solar air heat system. Two 4- x 8-foot, vertically mounted solar air heat panels were installed on the south-facing wall of the Stover house to produce heat. The result was what might be considered a model for incorporating energy efficiency improvements with emerging technologies in homes of low-income families.

"I'm very fortunate," Stover said. "A weatherization crew came in and plugged air leaks, blew in insulation, tuned up our furnace, and sealed duct leaks. That all made a big difference—and then we had the opportunity to add solar. Solar [air heat] panels became the main heating source for our upstairs." At about \$2 per gallon for propane, Stover said he saved more than \$2,000 on fuel costs for the past heating season.

Breaking the 'renewable energy divide'

The Stover household is a great example of breaking the "renewable energy divide," where the more affluent communities have greater access to solar energy than low-income people, said Mark McLaughlin, a senior energy



Daniel Stover, a Fond du Lac tribal member, says he's been pleased with the performance of his two 4- x 8-foot solar air heat panels.

specialist in the state's Weatherization Assistance Program. McLaughlin administered the Renewable Energy Equipment Grant Program that provided Stover's solar system. During 2008 and 2009, the \$190,000 state grant allowed for the installation of 38 solar air heat systems and four low-emission wood boilers for low-income households across Minnesota.

“We think often about reducing our carbon footprint. We’ve gotten a toe into [renewables] and now we’re looking at dipping a foot. . . .” —Karen Diver, Fond du Lac Tribal Chair

Making renewable forms of energy (such as solar) more accessible to low-income families was a goal of the grant, and that is the mission of the Rural Renewable Energy Alliance (RREAL), a nonprofit group based in Pine River, Minnesota. RREAL conducted the site visits and designed and installed most of the solar air heat systems in the grant program. RREAL also makes its own solar panels.

“By delivering solar heat to low-income families on public energy assistance, our goal is to make solar energy accessible to people of all income levels,” said Jason Edens, director of RREAL. “It is our lower-income communities that are most gravely affected by the energy crisis. When energy costs spike, they have to devote a larger percentage of personal income to the basics of heat and electricity. By mitigating the impact of energy cost volatility, solar energy can dramatically reduce one of the root causes of poverty.”

The process of expanding renewables

The Stover home was one of two Fond du Lac households to receive a grant for solar air heat systems. Tribal Chair Karen Diver said she welcomes more funding to expand renewable energy on the 100,000-acre reservation. Renewable energy development is a priority of the reservation, she said. Fond du Lac adopted the Kyoto Protocol in 2007 by pledging to obtain 20 percent of its electricity from renewable energy resources by 2020.

“We think often about reducing our carbon footprint,” said Diver. “We’ve gotten a toe into [renewables] and now we’re looking at dipping a foot. We’re

implementing renewable energy in several ways. We’ve retrofitted our school buses, and we have a small biomass unit in place and are looking at the feasibility of expanding it. We’re studying wind energy, and we’re also doing a feasibility study on solar panels.”

Diver lauded the Tribe's Environmental Program for helping to achieve sustainable energy goals. Converting to higher efficient light bulbs, conducting energy seminars, and performing energy audits are just a few program activities. Said Wayne Dupois, manager of the Environmental Program: “We need to protect our environment and use our resources in the wisest way.”

The Stover household took the energy-smart way to conserve energy, said McLaughlin. It initially invested in weatherization, a key first step in cost-effective energy efficiency. By having an energy audit and then making some basic energy upgrades first, a home can optimize the returns on a renewable energy system, said McLaughlin. “Reducing demand for energy through efficiency helps reduce the size and cost of a renewable energy system.”

To learn more...

For information about renewable forms of energy, funding sources, and Minnesota's Weatherization Assistance Program—including service provider contacts and qualification requirements—visit the Division of Energy Resources Web site at www.energy.mn.gov.



Minnesota Success Stories
creating jobs • saving energy
energy.mn.gov