

*CASE STUDY:****Solar Space Heating System Warms Rooms for Sebeka Family***

By Rin Porter, Central CERT



A Sebeka family has become the first in their neighborhood to have a solar space heating system installed on their home. The solar

space heating system will heat two bedrooms with energy from the sun. It does not use electricity or any other energy source for its operation.

The solar space heating system was installed through the Minnesota state fuel assistance program funded by the federal government. The fuel assistance program provides money to pay part of a family's heating bills during the cold Minnesota winter.



Once a family has qualified for fuel assistance for the cold weather months, they also become eligible for the solar assistance program, which is administered by the Rural Renewable Energy Alliance (RREAL), a 501(c)(3) nonprofit organization whose primary purpose is to bring solar heat to low-income households.

Project Snapshot:

Technology: Solar space heating system

Benefits:

- Family will no longer need fuel assistance with renewable heating system
- RREAL places renewable energy within the reach of low income families
- Involvement of local youth

While fuel assistance is a valuable aid to low-income families to help them stay warm in the winter, it does nothing to deal with what RREAL sees as the real problem: dependence on expensive fossil fuels. A family may receive fuel assistance for many years, and that money is simply burned up with the coal, natural gas, or propane that the family is using to heat their home.

But if the family changes over to a renewable energy heating system, it will no longer need fuel assistance. That is where the Rural Renewable Energy Alliance saw the opportunity to make a difference for many low-income families: provide them with a new heating system that uses the sun, not coal, natural gas, or propane.

RREAL installs solar energy-based technology as an alternative to coal, natural gas, or propane fuels because solar energy is

renewable and nonpolluting. Renewable energy sources include wind, biomass, and water, along with solar. Yet, renewable energy remains out of reach of many lower income households due to financial and informational barriers.

Here is how the solar space heating system works. First, Jason Edens, director of RREAL, visits the home where the system is to be installed to find the best location for the solar panel to be put up. The panel must be installed on a south facing outside wall. The panel will absorb heat from the sun and produce warm air. Flexible tubing will bring the warm air from the solar panel to a room inside the house.

Next, Edens examines the inside wall of the room or rooms to be heated, to plan how to run the tubing from the outside of the house to the room or rooms. A hole is cut through the exterior wall siding and interior wall covering to allow the tubing to enter the home. The tubing is connected to the solar panel, and the solar panel is installed on the exterior of the home.

In the Sebeka home, Edens ran the tubing into the house through a bedroom closet. Using a Y-connector, tubes were run through that closet and another one in the adjacent room to provide space heating to two bedrooms. Both rooms will be heated by the solar space-heating panel on the outside of the home.

“We are thrilled about this,” said Mary, one of the homeowners. “This solar heating system is completely self-contained and not electric at all. If the power goes off, this system will still work, and at least during the day we’ll be warm.”

Mary learned about solar energy from her

parents, who have a solar electric system to power part of their home. She heard about the RREAL solar assistance program from her dad.

“This is the first year we’ve had to apply for fuel assistance,” Mary said. “We’ve lived in our home for five years, and we managed to pay for everything up to now. But this has been a difficult year for us. My husband was out of work for six months, but now he’s working again part-time.”

Mary’s home uses a natural gas furnace as the main source of heat. The furnace heats the main rooms of the house well, but leaves two of the bedrooms cold. These two rooms will be heated by the new solar space heater.

Connie Warner, energy assistance coordinator with Otter Tail-Wadena Community Action Council in New York Mills, which operates the Otter Tail and Wadena County fuel assistance programs for the state, said in a telephone interview that during the 2004-2005 heating season, 944 families in Wadena County received fuel assistance. So far this fall, 795 families have already applied for fuel assistance for the 2005-2006 heating season.

Fuel assistance is based on family income for the ninety days preceding their application. For a family of one, the income limit is \$4,987. For a family of two, it’s \$6,527. For three, it’s \$8,056. For four, it’s \$9,591.

The RREAL solar space heating installation in Sebeka is the first one in Wadena County. Systems have been installed in Cass County, Crow Wing County, and the White Earth reservation. Up to 15 other installations are planned for the next 12 months.

As often as possible, RREAL involves

local “at-risk” youth referred by Community Concern for Youth or other agencies in the solar installations, teaching them how to assist in the process. Involvement in meaningful service projects like this has led some of these young people to decide to complete their high school education, take more science classes, and continue to volunteer in their communities.

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individuals and grants from the University of Minnesota Central Region Partnership, the Rural Poverty Fund, the Initiative Foundation, Otter Tail-Wadena Community Action Council, and White Earth Land Recovery Project. If you would like more information about the solar assistance program, or would like to purchase a system, contact RREAL at 218-587-4753, or visit their website at www.rreal.org.