

Sustainable Energy Resources for Consumers (SERC) Success Story: Montana

Montana Delivers Strong Changes through Targeted Low-Income Weatherization Efforts

Montana has developed an innovative strategy for helping low-income families save energy through the U.S. Department of Energy's (DOE) Sustainable Energy Resources for Consumers (SERC) program. The DOE Weatherization Assistance Program (WAP) granted Montana \$923,270 to install a variety of renewable and energy efficiency approaches across a thirteen-county territory. Low-income homeowners in this area benefitted from high-efficiency heating and hot water appliances; home energy monitors (HEMs) (including detailed instruction and energy education); solar hot water, photovoltaics; and extensive client education workshops. All of Montana's efforts have helped clients achieve meaningful and long-lasting reductions to their energy bills.

Montana SERC was administered by the Montana Department of Public Health and Human Services and was carried out by three local weatherization agencies: Rocky Mountain Development Council (RMDC) – Helena, Community Action Partnership of Northwest Montana (CAPNM) – District X – Kalispell, and Human Resources Council District XII – Butte.

Montana agencies took great care to match eligible low-income client homeowners with appropriate technologies. Many clients had received weatherization services previously. The local weatherization agencies had therefore previously collected energy usage data, thus aiding in the selection process. Local agencies cross-referenced client files and energy use to assist them in the pre-screening process.

Noticeable Savings with Solar PV Systems

Montana SERC installed a total of 38 photovoltaic (PV) systems in low-income single-family homes. In Butte, Montana, the Human Resources Council in District XII installed seven solar PV panel systems on low-income homes. By partnering with the local utility, Northwestern Energy, assistance in the form of rebates allowed the RMDC to install roof-mounted PV system for an additional 10-unit low-income multifamily complex in Townsend, Montana.



SERC funded pole mounted PV system near Anaconda, Montana.
Photo by Eliza Hotchkiss, NREL

The This multifamily unit provides low-income housing to elderly residents. PV system was installed with ten separate inverters, with an output rating of 230W for each panel.

Weatherization measures installed prior to the PV installation included roof repairs, window replacements with triple-paned window units, blown-in insulation, and ventilation.

The homeowners were enthusiastic about learning how the PV systems operated and how much energy it would save. They also took interest in the maintenance and operation checks, signaling the installations proved to be a good match of technology to client. Candi Standall of the RMDC, reported that Townsend complex residents are very happy with their \$7 electric bills!

Other SERC Upgrades Offered

Throughout Montana SERC's 13 county territory, several other energy upgrade measures were installed:

- Seven high-efficiency heaters with duct systems
- Two high-efficiency boilers with domestic hot water systems
- Eight tankless hot water heaters with air handlers
- Eight solar hot water heat systems

Overall, the SERC project was very successful and assisted 147 households with energy efficiency systems that will impact client



SERC funded pole mounted PV system in Deer Lodge, Montana. Photo by Eliza Hotchkiss, NREL

energy bills by an estimated 30%. Both clients and staff gained a wealth of new information on energy efficiency, and they will utilize this knowledge with the WAP program, based on results from the Oak Ridge National Laboratory's (ORNL) evaluation on real energy savings.

Increasing Energy Efficiency through Behavior Change

A creative aspect of Montana's SERC program was the energy education work done by both the Human Resources Council District XII in Butte and Rocky Mountain Development Council in Helena. The agencies used SERC funds for nine "Energy Saver Workshops" and HEMs. Through creative outreach, the agency attracted 136 attendees. Of these attendees, 55 received HEMs. The client education materials developed will be used by the Montana State WAP to further increase client knowledge and awareness of energy use and savings opportunities.

The client learning objectives identified in the Energy Saver Workshop are:

- Differing sources of alternative energy
- The impact of small energy savings measure on overall energy savings
- The impact of saving energy on a family's expendable income
- The amount of energy typically used by household appliances and phantom load
- The amount of energy saved by lowering the thermostat at night and during home absences.

Having funds to support extended client interface allowed Montana SERC to enhance the effectiveness of energy efficiency measures, such as programmable thermostats. For example, field staff could show clients that using the thermostats to lower heat at night could save up to \$180 annually, as stated on the ENERGY STAR® website: www.energystar.gov/index.cfm?fuseaction=find_a_product.&s=m. Montana believes that client engagement was high and clients stated their energy costs were reduced. ORNL will be evaluating energy costs and a report will inform the WAP network of the results.

The National Renewable Energy Laboratory (NREL) monitored Montana's SERC technologies in August of 2012 and found the installations to be quality, sound investments for low-income homes. Predicted energy savings to investment ratios (SIRs) indicated that there is value in using the energy education information and possibly the on-demand hot water systems in the regular WAP program. The SERC knowledge transfer coupled with results from ORNL's evaluation will benefit weatherization planning in the future, and subsequently Montana feels that SERC has been successful for their state.



SERC-funded tankless hot water heater installed in a residence in Montana. Photo by Eliza Hotchkiss, NREL