

Sustainable Energy Resources for Consumers (SERC) Idaho Highlight

Communities Increase Energy Savings through Tankless Hot Water Systems, Solar Photovoltaics and Behavioral Changes

Through Idaho's Sustainable Energy Resources for Consumers (SERC) grant from the U.S. Department of Energy's Weatherization Assistance Program, weatherization clients now have access to proven alternative energy options.

The Idaho SERC grant was awarded to the Idaho Department of Health and Welfare (IDHW) and administered by the Community Action Partnership Association of Idaho (CAPAI). The purpose of the grant is to identify technologies and new approaches in space conditioning, tankless hot water systems, cool roofs, home energy monitors, and social marketing in order to improve energy savings through weatherization services provided to low-income clients.

A review of 10 energy education programs showed an average energy savings from education ranged from 2.5% to 12.5%. Across all programs, the most significant savings were found from residents who participated in multiple education sessions.¹

Idaho's six weatherization providers were selected to receive nearly \$7 million to install conditioning system retrofits, which includes: solar photovoltaics (PV), cool roof technologies, tankless water heaters, and in-home energy use feedback displays. The agencies will also receive the necessary support to conduct a community-based social marketing (CBSM) campaign. The selected agencies are:

- CCOA - Aging, Weatherization and Human Services, based in Caldwell
- Community Action Partnership (CAP), based in Lewiston
- Eastern Idaho Community Action Partnership (EICAP), based in Idaho Falls
- El-Ada Community Action Partnership, based in Boise
- South Central Community Action Partnership (SCCAP), based in Twin Falls
- SouthEastern Idaho Community Action Agency (SEICAA), based in Pocatello



On-site installation of solar PV system. Photo from Chad Urie, South Central Community Action Partnership

Behavior Changes Result in Energy Efficiency

An exciting and innovative component of this grant is the inclusion of a Community Based Social Marketing (CBSM) approach. As a part of Idaho's CBSM strategy, a founder in the field, Dr. Doug McKenzie-Mohr was invited to Idaho to provide training on how to develop and implement effective CBSM pilot projects. Leveraging this training and strategy, plans were developed for implementation. Some examples of this program include:

- Community Action Partnership Association of Idaho (CAPAI) has partnered with early childhood education Head Start programs to develop a replicable curriculum for energy-efficiency awareness and savings, aimed at parents and students. The pilot, which also involves Eastern Idaho Community Action Partnership and Western Idaho Community Action Partnership, utilizes a soft interview process and targets electric energy conservation, along with water and recycling. The students' lifetime energy savings behavior is at the epicenter of the pilot project's scope, rather than an immediate lowering of the families' utility bills.
- Energy-saving curricula and low-cost materials were provided to 24 families in the Caldwell-area, as a part of their CBSM pilot project. These families qualified for weatherization services but were unlikely to receive them due to their low-priority rating on the waiting list. The rating is based upon Idaho's definition of vulnerable individuals (elderly, disabled, or children under six years of age), current efficiency of home/mechanical equipment, and length of time on the waiting list. The 24 Caldwell-area families attended a day-long training in October 2011 for an energy-savings seminar where they received information packets, low-flow showerheads, faucet aerators, compact fluorescent light bulbs and furnace filters.

1. Drakos, J., M. Khawaja, & A. West. "Impact of Flipping the Switch: Evaluating the Effectiveness of Low-Income Residential Energy Education Programs." Prepared for the International Program Evaluation Conference, 2007. Accessed April 23, 2012: <http://www.cadmugroup.com/pdfs/FlippingTheSwitch.pdf>



On-demand or tankless hot water heater installed in a northern Idaho attic. Inset: Recommended water heater temperature setting. Photos from Brandon Bandy, El Ada Community Action Partnership and Mark Fleming, Community Action Partnership

“I have never run out of hot water...it’s amazing.”

- SERC tankless hot water heater recipient

Energy-savings education included instruction on how to change furnace filters, overall furnace maintenance and the use of programmable thermostats.

- A multimedia residential energy-efficiency education CBSM pilot project was launched in the South Eastern Community Action Association (SEICAA) region, headquartered in Pocatello, Idaho. SEICAA produced eight 15-second public-service announcements (PSAs), featuring young children offering simple tips on how to save energy at home. The PSAs primarily targeted low-income children and their families and were aired on the local television station, at a local movie theater during matinee hours and posted on YouTube. Since then, other entities have requested permission to broadcast the video tips, such as Idaho State University and local charter schools. Some of the topics covered were:

- Using power strips to stop energy “leaks”
- Comparing water usage, bath vs. shower
- Compact fluorescent light bulb savings
- Replacing dirty furnace filters.

Tankless Hot Water Retrofits

The Idaho SERC program installed 60 on-demand or tankless hot water systems for low- and moderate-income clients. Most of these low-income households had already received basic

weatherization services, so the agencies were able to offer these clients a high-efficiency hot water system after the home had been sealed and other energy-efficiency retrofits had been performed. To select low-income clients for this upgrade, the agencies considered the house fuel type, the efficiency of the existing hot water system, if the household had four or more members, and if the house construction would support the appliance size and ventilation needs.

“The tankless unit has a functional, clean design and provides a quality alternative to standard water heating. The unit’s high efficiency makes it ideal for an on-demand system, and it’s rated for both residential and commercial use. The response from participants who received a tankless water heater through the SERC program has been overwhelmingly positive.”

- Kevin Viggers, Weatherization Manager, El-Ada Community Action Partnership

Solar Photovoltaic Systems

Idaho SERC requested to install a small number of solar PV systems in the service territory of South Central Community Action Partnership (SCCAP). Four systems have been installed. SCCAP volunteered to pilot the Solar PV measure using SERC funding. Their findings have been shared with the other Idaho agencies, as well as at the National Weatherization Training Conference in December 2011.

Program Evaluation

Oak Ridge National Laboratory is performing an energy evaluation of all SERC installations, including Idaho’s work in CBSM and energy education. The U.S. Department of Energy’s objective in the SERC grant is to pilot technologies that may prove to be cost-effective for the traditional Weatherization Assistance Program. Results from the evaluation should be available by September of 2013.

At the end of Idaho’s SERC grant, they will have completed CBSM energy savings programs in three regions, delivered 14 energy education workshops, installed over 60 tankless hot water units, and four solar photovoltaic systems.