

Sustainable Energy Resources for Consumers (SERC) Vermont Highlight

Energy Efficiency Coaches Aim for Long-Lasting Changes Through Solar and Weatherization

Vermont 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 Vermont to give its weatherization clients access to solar energy systems and one-on-one assistance from energy efficiency coaches to help clients achieve meaningful and long-lasting reductions in their energy bills.

Vermont-SERC is administered by the Vermont Office of Economic Opportunity and is carried out by five local weatherization agencies. The purpose of the program is to identify technologies and new approaches—in this case, solar energy and energy efficiency coaches—that can improve weatherization services to low-income clients.

The program selects households that have previously received weatherization services. This has several advantages. First, the clients already understand how weatherization works and are willing to strive for additional energy savings.

Second, the weatherization agencies are working with clients who have previously had weatherization and therefore have complete energy usage data from utility bills collected during the first energy upgrade installation. This allows the agencies to select the best potential candidates for solar energy. Agencies have existing knowledge of the homes and can pre-screen them for potential structural problems or lack of south-facing exposure.

Reducing Thermal Loads with Solar Systems

Vermont-SERC uses two types of solar systems to reduce home heating loads, depending on the type of building. Small single-family residences and mobile homes receive solar hot-air panels that are driven by small, solar photovoltaic - driven motors. These small solar systems are very popular among weatherization recipients because they provide “free heat” whenever the sun shines. The systems



A resident of Burlington, Vermont, received energy coaching to reduce her home energy use, including instructions on using her new programmable thermostat. *Photo by Kristin Lyons, NREL/PIX 19924*

are mechanically simple and require little maintenance. Vermont-SERC is installing 500 of these systems; 100 for each participating weatherization agency.

According to Vermont-SERC Program Director Graham Dewyea, due to improved solar hot air systems, they are ready for use in weatherization programs. The heat-absorbing Trombe Wall panels are easy for technicians to install, and due to a bulk purchase from Vermont-SERC, they are relatively low in cost. The maintenance and technology is also manageable for residents.

Larger residences and multifamily buildings are receiving solar hot water systems that preheat domestic water. Vermont-SERC is installing 250 of these systems; 50 at each of the five participating agencies.

Increasing Energy Efficiency through Behavior Change

Vermont-SERC is also addressing innovative energy efficiency measures and behavior change among weatherization clients that could result in long-term savings. “We know that the home’s occupants are a key driver of energy demand,” says Paul Zabriskie, weatherization director for Central Vermont Community Action Council, the lead agency for Vermont-SERC. “We can make the house more energy efficient, but to really reduce the energy cost burden, we have to help the people in the home change their habits.”

The program has hired five energy efficiency coaches who are trained in low-income outreach, energy efficiency strategies, and community-based social marketing concepts. The energy coaches visit with weatherization clients to determine how well previous energy efficiency upgrades worked and what additional measures might be effective. For example, the interviews would determine if weatherization clients are using the ventilation fans properly for moisture control and if they are changing furnace filters, etc.

“We do a lot of education and coaching in these areas,” says Kristin Lyons, energy efficiency coach for Champlain Valley Office of Economic Opportunity in Burlington, Vermont. “We discuss many ways people can save energy, including electrical savings, but we are focusing on saving home heating and cooling costs. People get really motivated when they realize they can save quite a bit of money, plus we provide hands-on support to help them learn new habits.”

The one-on-one coaching allows Vermont-SERC to support energy efficiency measures such, as set-back thermostats that might otherwise be challenging. Although the energy savings from setting back the thermostat at night

is well-known, at approximately \$180 annually¹, set-back thermostats have been difficult to put into practice in nationwide energy efficiency programs because they can be difficult to understand and work with. Vermont’s efficiency coaches install programmable thermostats in many homes and train residents on how to use them. “I’ve always found these very confusing,” says Nancy Kirby of Burlington, “but Kristen was able to set it up, and show me how to use it. It’s actually pretty simple. I think we’ll save a lot.”

The results of the Vermont SERC grant will be monitored by Oak Ridge National Laboratory (ORNL). Due to the variations in metrics for tracking the impact of behavior change on energy conservation, it will be a complicated task. But according to Graham Dewyea, the benefits are clear. “The work the Efficiency Coaches have been doing has been received quite well,” says Dewyea, “There have been a lot of “ah-ha” moments in terms of people better understanding how they can save. The solar has been a big hit as well as it is typically not as available for low income Vermonters due to the upfront costs.”

¹ Figure from ENERGY STAR® <http://www.energystar.gov/>. Accessed November 2011.