DOE Recognizes 10 Storm Window and Window Attachment Programs

The Department of Energy (DOE) Storm Window and Insulating Panel (SWIP) Campaign recognized 10 organizations for impactful and innovative commitment to energy efficiency and environmental responsibility in 2023, through their programs to facilitate the adoption of storm windows and other window attachments. The organizations were recognized by Katie Cort of the SWIP Campaign team during an Energy Efficient Building Association (EEBA) Summit session on High Performance Building Envelopes.

Now in its second year, the SWIP campaign is part of DOE's Residential Buildings Integration Program. The campaign is designed to encourage and facilitate the upgrade of old, inefficient single and double-pane clear glass windows by attaching modern, high-performance window attachments, such as exterior storm windows, interior window inserts, insulating shades, solar screens, and more.

Recognized Storm Window Programs

Con Edison is recognized for its commercial secondary window (CSW) program. As the utility that provides energy to New York City, Con Edison serves some of the largest commercial and industrial buildings in the country. These massive buildings have huge windows, which presents a significant challenge for energy efficiency—but also a seemingly endless opportunity. This is why the utility offers a $200 per MMBTU incentive for energy savings their customers achieve by installing CSW. These window inserts improve the thermal performance of existing windows through an additional layer of glazing—and are far easier and less expensive to install compared to full window replacement.

Energy Resource Center (ERC), a nonprofit organization that provides energy efficiency upgrades to income-qualified residents across 27 Colorado counties, is recognized for its innovative storm window program. After a vendor ERC relied on started experiencing supply chain issues, ERC partnered with a window insert manufacturer on a unique solution: an interior storm window kit that can be assembled on the jobsite, reducing both shipping costs and carbon footprint. The solution has provided significantly improved comfort and utility bill savings for ERC clients.

Xcel Energy, an electric and gas utility that powers millions of homes and businesses across eight states, joined a storm window replacement pilot initiated by Pacific Northwest National Laboratory (PNNL) and the Center for Energy and the Environment (CEE) to test energy savings and comfort improvements of storm windows in Minnesota. During the pilot, six properties within Xcel Energy service territory will receive modern, energy-efficient storm windows to replace old, leaky storm windows. Xcel Energy included three income qualified multifamily buildings in the scope. At the end of the pilot, data will be collected to test the improvement of air leakage between the old and new storm windows, which will be used to model energy savings.

"In Minnesota, storm windows are already common, but some customers have not upgraded them for 20-30 years, so they no longer provide the same level of insulation they once did," said Isaac Smith, Senior Manager of Market Transformation Products at CEE, a community-based clean energy nonprofit working closely with Xcel Energy on this project. "We're still in the early phases of the pilot, but our goal is to better understand the costs involved and gather data to help quantify the potential energy savings of such a measure."

Benton Rural Electric Association (REA)—a consumer-owned electric cooperative serving portions of Benton, Yakima, and Lewis counties in Washington State—is recognized for its new storm window rebate program. With the goal of helping its residential customers reduce their electric bills (while also contributing to the reduction of regional energy use), the utility offers $2 ($10 for income-qualified customers) per square foot of window space covered by ENERGY STAR Certified Storm Windows. The selection of energy-saving measures and the rebate levels are informed by the Northwest Power and Conservation Council's Regional Technical Forum* analyses. Offering residential rebates for energy-savings measures is part of Benton REA's mission to provide affordable and reliable power to its members, and the utility promotes these rebates to customers through its newsletter.

> **The Regional Technical Forum is a technical advisory committee to the Northwest Power and Conservation Council established in 1999 to develop standards to verify and evaluate energy efficiency savings.*

The Chelan County Public Utility District (PUD) in north-central Washington State is recognized for its storm window rebate program, including its creative outreach efforts to bring energy efficiency to lower income households and a local historic homes district. Historic buildings often present a dilemma: They tend to be energy inefficient due to their age, but are usually subject to modification restrictions. Determined to help local historic homeowners and other customers lower their energy bills, Chelan PUD found a storm window solution that meets a variety of needs. Today, the utility offers up to $8 per square foot of window space covered by eligible storm window attachments.

"We were looking for a way to save energy in our historic home without changing the architectural integrity of the home," one customer said. "We had an energy audit done with Chelan PUD and they encouraged us to look at storm windows. They were much more affordable than full window replacement. A side benefit we did not expect is that our home is much quieter with these storm windows installed as well."

Recognized Window Attachment Programs

The team behind the **Minnesota Technical Reference Manual (TRM)—**which puts forth standard methodologies and inputs for calculating the savings impacts and cost-effectiveness of energy conservation improvement programs (CIP) throughout the state—is recognized for its efforts to analyze and include insulating cellular window shades in the TRM's CIPs. Cellular shades can help achieve significant heating- and cooling-related energy savings for homeowners by decreasing heat loss in winter and solar heat gain in summer.

This result is the culmination of more than four years of collaborative work with the Attachments Energy Rating Council (AERC) and DOE national laboratories (Pacific Northwest National Laboratory and Lawrence Berkeley National Laboratory) for analytic support. An Oak Ridge National Laboratory field study also supported and validated the value of AERC-rated cellular shades in homes and buildings, demonstrating that cellular shades achieved up to 24% heating energy savings compared to generic venetian blinds, and that carbon emissions could potentially be reduced up to 3 million tons on the national level.

Xcel Energy, a utility that provides the energy that powers millions of homes and businesses across eight Western and Midwestern states, is recognized for the impact of its cellular shade rebate program available to the utility's Colorado customers.

In 2020, Xcel Energy began offering a rebate of $1.33 per square foot of window space for qualifying single-family homes to install AERC-rated insulated cellular shades. According to DOE, such products can lead to significant heating- and cooling-related energy savings for homeowners by decreasing heat loss 40% or more in winter and solar heat gain up to 60% in summer. The rebate has been very popular among customers.

"We are now offering our customers more energy solutions than ever to help them keep their energy bills low, and meet their environmental and sustainability goals," said Tyler Petersen, Program Manager at Xcel Energy. "For other utilities looking to implement similar programs, we recommend following an existing rating system, such as AERC, to simplify program execution for customers and utilities alike."

The Orlando Utilities Commission (OUC) is recognized for providing—among a range of incentives offered to customers through its rebate and Efficiency Delivered program—rebates for window technologies that prevent solar heat gain, including solar screens and solar films. The utility offers 55 cents per square foot of eligible screen or film installed on customers' east, west, and south-facing windows. OUC customers who have benefitted from the program have reported improvements in both comfort and energy efficiency. The utility is gearing up to expand promotion of their program—and recommends that other utilities considering offering similar incentives start thinking about their audiences and promotional tactics early in the process for maximum customer impact.

United Cooperative Services (United), a Texas electricity distribution cooperative, is recognized for its 2023 solar window screen program, which helps residential members reduce their utility bills by minimizing solar heat gain. For every 15 square feet of east, south, or west-facing window space a member covers with a screen product that blocks at least 70% of solar heat gain, United provides $5 (up to $50 total). Depending on the material used, solar screens have the potential to block up to 90% of solar heat gain before it even reaches the window. Many United members who have benefited from the solar screen incentive learned about it and other rebates during the free home energy audits that the cooperative offers to all members.

Baltimore Gas and Electric (BGE) in Maryland is recognized for its window shade automation pilot program—an initial step to help the utility understand the potential energy savings such a measure could bring to its customers. In partnership with AERC, as well as manufacturers who provided the materials and installation, the utility offered the upgrade to 15 residential customers with south and west-facing windows that didn't already have a fixed shading solution (e.g., awnings, patio covers, large trees, etc.) in place. The automated opening and closing of the shades followed an AERC-developed schedule designed to minimize solar heat gain during the summer months—and pilot participants reported a noticeable improvement in thermal comfort. The pilot participants were surprised and impressed that such a simple and convenient solution could have such a significant impact on their utility bill, with some reporting a decrease of up to 14%. Participants were also especially pleased with the added comfort, convenience, and aesthetics that came with the automated shade installation in their homes.

The SWIP campaign aims to leave no poor-performing window uncovered, especially where full window replacement is impractical, too expensive, or prohibited (as in historic properties). The campaign is a collaborative effort between DOE and key stakeholders including home performance contractors, weatherization programs, utilities and efficiency program providers, and storm window and other window attachment manufacturers to identify and pursue market transformation actions that support the broader use of affordable window attachments to save energy, improve comfort, and reduce carbon emissions.