

## Energy Efficient Window Inserts for New York View

### SWIP Campaign Case Study

The U.S. Department of Energy (DOE) **Storm Window and Insulating Panel (SWIP) Campaign** encourages 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.

About 40 percent of energy used in U.S. buildings is for heating and cooling.<sup>1</sup> Currently, more than half of homes and commercial buildings have single-pane or double-pane clear glass windows and replacement of these poor-performing windows happens at a slow rate. Upgrading the windows in these buildings with easy-to-install efficient window attachments can reduce year-round energy usage by 10–30 percent and decrease carbon emissions, while also improving acoustics, aesthetic appeal, and occupant comfort.<sup>2</sup>

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.

### How Secondary Windows Work

Secondary windows (also known as storm windows, secondary glazing, window inserts, and insulating window panels) typically consist of a single pane of glass or plastic in an aluminum or wood frame installed on the interior or exterior of the primary window. They improve the primary window's performance by creating a dead air space which reduces convective and conductive heat losses.

### Skyline's the Limit

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, in 2023, the utility offered a \$200 per MMBtu incentive for energy savings their customers achieve by installing of commercial secondary windows. 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.



**Figure 1.** Commercial secondary windows are far easier and less expensive to install compared to full window replacement. (Photo courtesy of Intelligent Energy Group)

### Utility Quick Facts

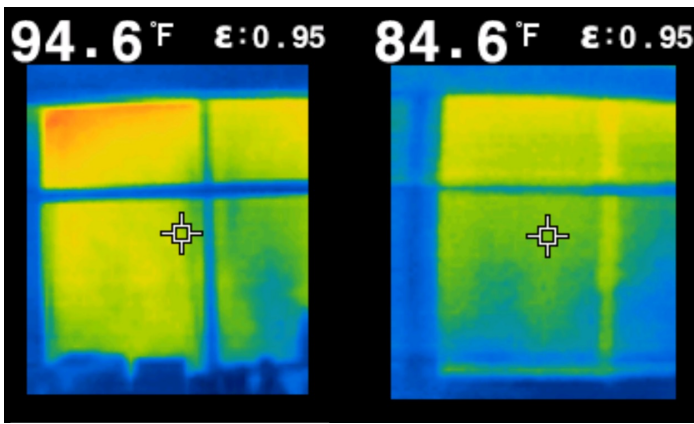
#### **Consolidated Edison, Inc.**

Consolidated Edison, Inc. (commonly known as Con Edison) is a regulated utility and one of the largest investor-owned energy companies in the United States, providing energy for the 10 million people who live in New York City and Westchester County. The utility is constantly looking toward the future and exploring ways to innovate and take advantage of developing technology.

**Location:** New York, New York

**Founded:** 1823

[ConEd.com](http://ConEd.com)



**Figure 2.** Commercial secondary windows improve the thermal performance of existing windows through an additional layer of glazing. These thermal images show the difference in temperature before (left) and after (right) secondary window installation. (Image courtesy of Intelligent Energy Group)

## New Regulations

Such measures are even more critical in light of New York City's Local Law 97 (LL97), which requires most buildings over 25,000 square feet to meet new energy efficiency and greenhouse gas emission standards. The goal of the law is to reduce emissions produced by such buildings 40 percent by 2030 and 80 percent by 2050.

"Local Law 97 generated greater interest in energy efficiency among our customers and accelerated the conversation about building envelope measures," said Con Edison's Section Manager of Energy Efficiency Strategy, Peter Goldberg. "Con Edison wants to help our customers successfully meet LL97 requirements by facilitating a variety of energy efficiency upgrades."

The utility anticipates that window inserts will be popular among customers because they support not only energy efficiency, but also occupant comfort and noise reduction. "New York real estate is exceptionally expensive and occupants expect to be comfortable if they are paying premium rents. Window inserts provide thermal comfort by minimizing solar heat gain in summer and heat loss in winter," Goldberg said. "New York City is very noisy, so the need for noise reduction can also motivate customers to install window inserts."



## Proving Ground

Con Edison's window insert measure is still new, but it's quickly gaining momentum. "We already have half a dozen applications and have seen interest from several more," Goldberg said, adding that the utility has heard positive feedback from contractors.

"Contractors are introducing customers to the benefits of window inserts by demonstrating their impact on occupant thermal comfort in individual offices," Goldberg said. "Our job is to help decision-makers move forward with building-wide implementation."

"As customers see more window insert installations, they'll feel comfortable making the investment as well," Goldberg added. "If window inserts gain acceptance in in New York, hopefully other large cities will follow suit."

## References

1. EIA. *Annual Energy Review*. <https://www.eia.gov/totalenergy/data/annual/>
2. Culp, T. D., and K. A. Cort. 2015. *Energy Savings of Low-E Storm Windows and Panels across US Climate Zones*. Pacific Northwest National Laboratory PNNL-24826. Richland, WA. [https://www.pnnl.gov/main/publications/external/technical\\_reports/PNNL-24826.pdf](https://www.pnnl.gov/main/publications/external/technical_reports/PNNL-24826.pdf).

## Interested in participating?

Please reach out if you are interested in joining the campaign as a partner, receiving technical assistance, or being recognized for your organization's innovative use of energy efficient window attachments.

**Contact us:** [techchallenge@pnnl.gov](mailto:techchallenge@pnnl.gov)

**Learn more:** [www.energy.gov/eere/buildings/storm-window-and-insulating-panel-campaign](http://www.energy.gov/eere/buildings/storm-window-and-insulating-panel-campaign)



\*<https://paws.energy/working-group-commercial-secondary-windows/>

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