



Efficient, high-performance window solutions for California's commercial buildings

The Commercial Replacement and Attachment Window Solutions (CRAWS) Market Transformation Initiative (MTI)

ABOUT

The **CRAWS MTI** aims to increase market share of affordable alternatives to full window replacements through retrofit technologies that improve envelope performance, save energy, and deliver comfort to occupants.

HIGHLIGHTS

- The CRAWS MTI supports an “envelope-first” approach that helps building owners maximize the efficiency of their decarbonization efforts, such as installing a downsized heating, ventilation and air conditioning (HVAC) system for the updated windows.
- The retrofit technologies of Commercial Secondary Windows (CSW) and Vacuum Insulated Glass (VIG) provide lower-cost and easier-to-install alternatives to full window replacements.
- Both CSW and VIG installations minimize disruption to occupants, often avoiding displacement and maintaining building operations.
- Energy benefits include reduced HVAC load in both heating and cooling-driven climates, reduced peak load impacts, and overall decreased energy consumption—even in California’s mild climate.
- Non-energy benefits include increased thermal comfort, noise reduction, maximized daylighting, climate resilience during extreme weather events, and more comfortable participation in demand response events.



VALUE

The CRAWS MTI is expected to cost nearly **\$45 million** and **will deliver a forecasted Total System Benefit (TSB) of \$509 million** to California through 2046. The MTI is expected to be cost-effective—its Total Resource Cost (TRC) of 1.31 means that for every dollar spent on the program, \$1.31 in energy system benefits is delivered.

EQUITY

The CRAWs MTI aims to expand access to affordable, high-performance window solutions in Environmental and Social Justice (ESJ) communities, delivering lower operating costs, enhanced comfort, and increased resilience. By reducing cost and disruption, the initiative helps overcome barriers that disproportionately affect ESJ communities, including underperforming building envelopes, inefficient HVAC systems, and limited access to capital and financing.

These barriers will be addressed through the following interventions:

- Conducting project demonstrations in ESJ communities, in partnership with community-based organizations, to showcase the technology's energy, non-energy, and resiliency benefits.
- Engaging the supply chain to support inclusive trainings for installation contractors located in or serving ESJ communities.
- Collaborating with ESJ advocates to build community understanding of the technology and promote accessible financing mechanisms.



About CalMTA

CalMTA works to deliver cost-effective energy efficiency and decarbonization benefits to Californians through a unique approach called market transformation. CalMTA-developed market transformation initiatives also aim to advance state goals on demand flexibility, workforce development, and equity.

Learn more: calmta.org

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