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 $44.9 million and **will deliver a forecasted Total System Benefit (TSB) of $628 million** to California through 2046. This means that for every dollar invested in the initiative, California will receive approximately $14 worth of energy savings, greenhouse gas reductions, and electric grid benefits.

EQUITY

- This MTI addresses barriers faced disproportionately by ESJ communities, including poor-performing envelopes, inefficient HVAC systems, and limited access to financing.
- Project demonstrations in ESJ communities, conducted in partnership with community-based organizations (CBOs), will highlight affordable CRAWS solutions and validate energy, non-energy, and resiliency benefits.
- By promoting window upgrades as a step before HVAC right-sizing, the MTI's "envelope-first" business case will support long-term affordability and reduced peak energy demand.
- The CRAWS MTI will also engage the supply chain to increase inclusive training for installation contractors located in or serving ESJ communities. CalMTA will work 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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CalMTA is a program of the California Public Utilities Commission (CPUC) and is administered by Resource Innovations