



Commercial Replacement and Attachment Window Solutions Market Transformation Initiative

Appendix E: External Program Alignment & Coordination

June 26, 2026

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List of Abbreviations¹

Abbreviation	Definition
C&S	Codes and Standards
CEC	California Energy Commission
CEDA	California Energy Design Assistance
CEE	Consortium for Energy Efficiency
CPUC	California Public Utilities Commission
CRAWS	Commercial Replacement and Attachment Window Solutions
EPIC	Electric Program Investment Charge
EPRI	Electric Power Research Institute
ESJ	Environmental and Social Justice
HVAC	Heating, Ventilation, and Air Conditioning
LADWP	Los Angeles Department of Water and Power
LBNL	Lawrence Berkeley National Laboratory
MT	Market Transformation
MTAB	Market Transformation Advisory Board
MTI	Market Transformation Initiative
MUSH	Municipal, University, School, Hospital
NEB	Non-Energy Benefit
NEEA	Northwest Energy Efficiency Alliance
OBF	On-Bill Financing
PA	Program Administrator
PG&E	Pacific Gas and Electric Company
PNNL	Pacific Northwest National Laboratory
RA	Resource Acquisition
REN	Regional Energy Network
RFI	Request for Ideas
RFP	Request for Proposals
SCE	Southern California Edison
SEM	Strategic Energy Management
SoCalGas	Southern California Gas Company
SoCalREN	Southern California Regional Energy Network
USGBC-CA	U.S. Green Building Council California
WE&T	Workforce Education and Training

¹ Acronyms for organizations and programs referenced only once in this Appendix are not included in this list.



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1 Introduction

This document describes CalMTA's approach to engaging with external programs and efforts throughout development of the Commercial Replacement and Attachment Window Solutions (CRAWS) Market Transformation Initiative (MTI) as well as plans for future coordination with these entities during MTI implementation.

The Market Transformation (MT) Framework attached to the California Public Utilities Commission (CPUC) D.19-12-021, which established CalMTA, called for MT ideas that are developed to "carefully consider" potential impacts on resource acquisition (RA) program(s) and codes and standards (C&S) implementation. The framework recognizes the value of collaboration within a target market, noting that CalMTA and "any impacted [program administrator(s)] [PAs], 3P implementers (3PIs) of RA programs, and C&S teams each have a role in charting a course that enhances the efficiency outcomes [...] of the proposed MTI as well as of RA and C&S programs. Each may also have a role in eliminating or minimizing and mitigating any conflict between the MTIs and RA/C&S programs. The parties should work collaboratively toward these objectives as much as possible."²

CalMTA built on this guidance and proactively engaged external program stakeholders at each stage of our MTI development process to leverage and align with other programs and efforts in a mutually beneficial way. Market transformation views the presence of other programs working in a target market as leverage – the type of "positive overlaps" described in D.19-12-021.³ Traditional RA or incentive programs serve as a point of leverage the MTI will use to drive increased adoption and sustained market change; the strategic market-level interventions identified for the MTI will in turn complement and add value to existing energy efficiency efforts in the state for the mutual benefit of each program. CPUC Decision 25-11-023, which approved CalMTA's first MTIs for market deployment, affirmed this, stating: "Our thinking is most aligned with the comments of the Northwest Energy Efficiency Alliance (NEEA), where they point out that MTIs and resource acquisition programs that are coordinated can achieve synergies and deeper savings than either approach may be able to accomplish on its own."

As such, CalMTA's coordination with external programs seeks to identify "points of alignment" that explain how an MTI will work synergistically with an existing program and will be critical to successful MT implementation in order to: 1) limit consumer and market confusion, 2) enhance the ability of programs to achieve their goals, 3) overcome barriers to a program serving a unique market segment, and 4) ensure effective use of program and CalMTA resources by aligning activities. Because the MT ideas under development vary, their relationship and need for alignment with established or emerging programs in the energy efficiency portfolio vary. However, our approach and process for minimizing overlap of these MTIs with existing efforts and

² See D.19-12-021, p. 133.



optimizing alignment for the benefit of both the MTI and the established program are consistent across all MTIs in development.

The sections below describe the engagement completed to date as well as plans for formalizing the ways in which the CRAWs MTI and current programs will align in Phase III: Market Deployment to maximize leverage and enhance outcomes.

2 Alignment in each development phase

CalMTA conducts engagement activities for each MTI throughout our [three-phase development process](#). Recognizing that Phase III activities will commence after the MTI Plan is approved by the CPUC, we have described the activities we will pursue at that time in Section 2.3. While Phase I activities and preliminary outreach on Phase II activities were completed prior to the filing of this plan, ongoing engagement will take place to further evolve collaborative relationships and better understand points of alignment between the MTI and external programs prior to market deployment.

At every phase, coordination activities seek to identify points of alignment that: 1) eliminate duplication or redundancy in market activities, 2) ensure that the MTI adds value to the market and fills any gaps needed to drive long-term market change, and 3) increase the scalability and efficiency with which desired results are achieved by leveraging existing work.

2.1 RFI to Phase I MT Idea Selection (Aug. 2023 – Sept. 2024)

CalMTA identified the CRAWs idea through a Request for Ideas conducted by CalMTA during the summer of 2023. Staff officially prioritized this idea in collaboration with the Market Transformation Advisory Board (MTAB) through threshold review, two stages of scoring, and official approval to move forward to Phase I in Jan. 2024.

During Phase I, CalMTA identified a preliminary set of local, state, and national programs for future coordination and summarized in Section 6 of the [CRAWs Advancement Plan](#) that concluded Phase I development. We finalized that Advancement Plan in Sept. 2024.

Channels to engage directly with these and other interested parties during the development and review of the Advancement Plan included direct collaborative meetings that allowed for an exchange of information, as well as formal opportunities to provide feedback on the plan through public meetings and public comment through the CPUC Energy Division's Public Document Area (PDA). These engagements sought to identify additional programs or activities to consider for coordination as well as to assess the extent of potential overlap between the MT idea and current energy efficiency or related programs. Specifically, CalMTA's external engagement activities included the following:



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- **MTAB meetings**, which are open to the public, allow CalMTA to share information and receive feedback about developing MT ideas. MTAB members can ask questions and make comments; public attendees can also do so at a designated time and through an online form.
- CalMTA offered **official opportunities to comment** on the CRAWs Advancement Plan via the CPUC's PDA site from June 19 – July 11, 2024. We received a total of 22 comments from eight submitters, including energy efficiency program implementers, manufacturers, and MTAB members. CalMTA provided [a formal response to these comments](#) and integrated feedback into the final Advancement Plan when applicable.
- We held **regular meetings with the IOU Codes & Standards working group**, which includes representatives of the Statewide Codes and Standards Advocacy Program and related subprograms. These meetings allow CalMTA to identify relevant codes/standards activities that can be leveraged in each market, ensure alignment and consistency when engaging with market actors, and share key findings from each team's product research and testing.
- **Regular coordination calls with California's electric Emerging Technology Program (CalNEXT)** inform participation in CalMTA's request for ideas (RFI) and public comment processes and seek to enable collaboration related to CalNEXT's Technology Priority Maps and focused pilot scoping.

2.2 Phase II Advancement Plan research to MTI Plan finalization

Throughout Phase II, the activities described in Section 2.1 continued but expanded to yield deeper knowledge about other program/research efforts and how they related to the developing MTI. These activities included the following:

- **Expanded research.** We further developed our list of potentially overlapping external programs through additional research and discovery. Identified programs and related organizations reflected those that are currently active in the target market for this MTI and offer opportunities for potential leverage, alignment, or co-creation/partnership. Related programs with potential alignment needs are described in Section 3 of this Appendix.
- **Market characterization work.** Structured interviews with key stakeholders and subject matter experts, including program administrators and implementers, helped inform CalMTA's understanding of the current market as summarized in Appendix D: Market Characterization Report.
- **Direct engagement.** In addition to ongoing meetings with the IOUs' C&S programs and energy efficiency portfolio directors, CalMTA's MTI research and development efforts in 2025 were supported by individual and small groups of stakeholders working in this market. Because envelope measures like CRAWs are not yet a significant component of traditional energy efficiency incentive programs in California, direct engagement prioritized market transformation, research, and emerging technology efforts from organizations and programs



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that include the California Energy Design Assistance Program, the CEC Electric Program Investment Charge (EPIC) program, the Electric Power Research Institute (EPRI), Lawrence Berkeley National Laboratory, Pacific Northwest National Laboratory (PNNL), Self-Help Enterprises, and the U.S. Green Building Council California (USGBC-CA).

- **Idea to Initiative Educational Campaign.** To help educate MTAB members, program representatives, and other interested parties about the CRAWs MTI Plan, CalMTA deployed an educational campaign with a series of presentations to share vital aspects of the plan. Individual sessions focused on the MTI theory and logic model, product assessment, market characterization research, market progress indicators, market forecasts, cost-effectiveness analysis, and other vital components. Information delivered through the Idea to Initiative educational campaign can be found at <http://www.calmta.org/idea-to-initiative>.
- **MTAB and public review of draft MTI Plan.** The Draft MTI Plan was posted for review and comment by MTAB members and the public via the CPUC Energy Division's PDA site in May 2026. Appendix I of this MTI Plan provides a summary of CalMTA responses to comments from MTAB members and the public.

2.3 Planning for collaboration in Phase III: Market Deployment

Prior to moving the CRAWs MTI into Phase III implementation, CalMTA will continue to engage external programs and entities promoting this technology to stay current on the changing mix of program offerings, continue to strengthen relationships, and ensure the MTI adds value to the market while avoiding duplication of efforts. Because the MTI is unlikely to enter the market deployment phase until mid-2027, we anticipate that new programs will have launched and that current programs may ramp down or evolve by then. Our ongoing engagement will help us refine our coordination strategy as needed upon CPUC approval of this MTI.

Planned activities in this stage include the following:

- **Coordination agreements with external programs.** CalMTA recognizes the need for formal documentation, developed jointly with PAs working in markets that have potential overlap with the CRAWs MTI, describing the coordination approach used 1) eliminate duplication or redundancy in market activities, 2) ensure that each MTI adds value to the market and fills any gaps needed to drive long-term market change, and 3) increase scalability and the efficiency with which CalMTA and PA offerings achieve their respective goals. The resulting memos will document identified areas of alignment between the MTI and relevant PAs' portfolios, as well as the agreed-upon approach to mitigating overlap between our respective work. Memos will be updated annually or as needed and will guide the cadence and intensity of coordination efforts based on potential for overlap.
- **Ongoing monitoring and tracking.** As previously mentioned, CalMTA understands that the statewide and national energy efficiency market will evolve before this MTI moves into Phase III and will closely monitor planned future programs with potential alignment/overlap to



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supplement the list of currently identified programs found in Section 3. As new programs launch or existing programs re-launch, we will meet with PAs and implementation teams to ensure early alignment on implementation planning and coordinate related activities between that program and the MTI. This engagement may result in deeper collaboration that allows for co-creation or co-delivery of mutually beneficial activities, such as workforce development or product testing.

- **Request for Proposal (RFP) planning.** After CPUC approval of the CRAWs MTI Plan (expected in 2027), CalMTA will issue an RFP to solicit an implementation contractor. Leading up to that event, CalMTA will use regular meetings with key stakeholders to further develop details related to the points of alignment between the MTI and external programs. This coordination will surface and provide transparency on issues that may need to be addressed in the future.
- **MTI contracting and implementation.** In alignment with guidance in the CPUC MT Framework, the future RFP for CRAWs MTI implementation will include a distinct scope of work related to external program coordination and alignment. Describing their approach to this implementation area will require bidders to, as described in the CPUC Decision, “include a discussion of how their potential MTIs would dovetail with existing RA/C&S implementation effort(s).”³
- **Implementation collaboration.** After the MTI moves into market deployment, CalMTA will continue to monitor established points of alignment to ensure they address all potential overlaps between the MTI and existing external programs. We will report and discuss these efforts through regular meetings with IOUs and third-party implementers of related programs, especially for activities that involve end-use customers that may be solicited by or likely to participate in a statewide or local efficiency program. These milestones and ongoing touchpoints will help avoid market confusion, ensure points of alignment stay consistent, and provide an opportunity to adjust strategies, if needed.
- **Market progress evaluation.** As part of the MTI implementation, CalMTA will also contract with a third-party evaluator to review ongoing activities and measure progress toward MTI objectives. The resulting Market Progress Evaluation Reports are public documents and will be shared with external program teams and other interested parties. If a strategic intervention that impacts external programs does not result in the expected outcomes, the MTI may change course. In that case, CalMTA program managers will work with external teams to adjust as needed.

³ See D.19-12-021, p. 136.



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3 Priority programs for alignment

Table 1 below summarizes the key areas for external program alignment and coordination identified by CalMTA during development of the CRAWs MTI Plan. We do not intend for this to be a fully comprehensive list but rather illustrative of CalMTA's proposed approach to coordinating with specific types of programs. We also recognize the importance of market-level coordination and alignment beyond the California energy efficiency/decarbonization program landscape, including local BPS/benchmarking ordinances or green certification programs like LEED.

Table 1. CRAWs external program coordination approach

MTI alignment goal	Targeted program(s)
Codes and standards programs and other regulatory efforts provide a critical point of coordination and leverage as CalMTA seeks to align MTI activities with California code development/ enforcement and collaborate on engagement with federal test procedures, standards-setting, and qualified product lists.	IOU Codes & Standards Working Group U.S. Department of Energy/ENERGY STAR
Existing research and development projects/programs provide leverage for CalMTA to develop and launch the MTI more quickly. They also create opportunities to collaborate on research, including pilots, to better understand product performance and necessary enhancements.	The IOUs' Emerging Technologies Program (ETP), which includes CalNEXT, the electric ETP, and Gas Emerging Technologies Program (GET), the gas ETP U.S. Department of Energy (DOE) National Labs (e.g., LBNL or PNNL) and research universities California Energy Commission Energy Research and Development Division projects, particularly the Electric Program Investment Charge (EPIC) and Gas Research and Development Program
Statewide or regional incentive programs provide important leverage for reducing upfront product cost directly through inclusion of CRAWs in the measure mix or bundling with other measures. CalMTA also seeks to collaborate with these programs on awareness-building and education about the benefits of CRAWs technology - a key intervention designed to address this significant market barrier.	California Energy Design Assistance (CEDA) Program major retrofit projects Southern California Edison (SCE) Commercial Energy Reduction Initiative (CERI) Program and Willdan's Comprehensive Commercial Program IOU Energy Savings Assistance (ESA) Multifamily Energy Savings Program (whole-building)



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Specifically, CalMTA is interested in alignment with: - Commercial sector programs that encourage whole building energy optimization or incentivize custom projects that are likely to include heating, ventilation, and air conditioning (HVAC) - Multifamily programs that include common area or envelope measures - Programs focused on the MTI's beachhead municipal, university, school, hospital (MUSH) market.	Southern California Regional Energy Network (SoCalREN) Multifamily Program Los Angeles Department of Water and Power (LADWP) Comprehensive Affordable Multifamily Retrofits (CAMR) SCE Public Energy Performance (PEP) and Higher Education Energy Performance programs SoCalGas Public Direct Install Program PG&E Government and K-12 Comprehensive Program CEC California Schools Healthy Air, Plumbing, and Efficiency Program (CalSHAPE)
Programs or services that address whole building energy performance improvements or strategic energy management may opt to include "envelope first" upgrades, and specifically CRAWs measures, in building energy plans. These programs create a particularly appealing opportunity for collaboration on market education and awareness-building efforts, as they are not focused on a single measure but rather holistic energy performance.	SCE Local Commercial Strategic Energy Management (SEM) Program SoCalGas Commercial SEM Program PG&E's Commercial SEM Program Technical/planning support programs (e.g., Central California Rural Regional Energy Network Public Equity Program) Local reach codes and Climate Action Plans
Workforce education and training (WE&T) programs will be a critical point of coordination for the training activities and partnerships described in strategic intervention #6, particularly those focused on job creating in ESJ communities.	The IOUs' Statewide WE&T programs (Energize Careers and Energy is Everything [EisE]) SoCalREN E-Contractor Program Central California Rural REN Climate Careers MCE's Green Workforce Pathways

In addition to leveraging existing market activities and minimizing any potential duplicative efforts, CalMTA's coordination with these programs will allow us to share resources and deploy services that will enable external offerings to meet their goals more efficiently and effectively. Potential support for external programs through the CRAWs MTI may include:

- 1) CalMTA messaging research and subsequent marketing materials that can be shared with and customized for other parties to utilize



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- 2) Increased product availability and product enhancements through CalMTA's market actor engagement
- 3) Data-sharing, including any data obtained by CalMTA through field testing or demonstration products, as well as sales data obtained through supply chain engagement.

More detailed information about these programs and their targeted impact on the CRAWs market can be found in Appendix D: Market Characterization Report.

4 Applying an equity lens

The Adopted MT Framework attached to D.19-12-021 establishes high-level principles that every MTI should aim to achieve, including a directive to "integrate strategies to maximize equity."⁴ To better understand opportunities to align potential MTIs with environmental and social justice (ESJ) community needs, CalMTA held a series of listening sessions with ESJ representatives in fall 2023. Cross-cutting insight from these sessions informed development of internal guides for integrating equity into MT research practices, logic model development, and intervention strategies, which are now in use across the MTI teams and were referenced throughout Phase II CRAWs activities. A [report summarizing key takeaways from the listening sessions](#) is available on CalMTA's website.

In 2025, formation of CalMTA's Equity Sounding Board enabled additional engagement that helped shape the CRAWs MTI Plan. Comprised of professionals who advocate for or work within ESJ communities, the Equity Sounding Board seeks to ensure that MTIs positively impact ESJ communities by guiding outreach activities, identifying actions that may cause unforeseen harm, and serving as a resource of equity-oriented feedback on CalMTA's work. In 2025, CalMTA coordinated two consulting sessions with the Equity Sounding Board to help shape logic model inputs for the CRAWs MTI, as well as the market progress indicators used to measure its success in achieving equitable outcomes. CalMTA also engaged Equity Sounding Board members in identifying connections to potential contacts for CRAWs market research focused on California clinics and hospitals.

These consultations yielded important insight into market barriers that need to be removed and the strategic interventions that should be deployed for the MTI to have its desired impact, with a focus on topics with particular relevance to ESJ communities, as well as how to best track the MTI's progress from an equity perspective. Specific feedback received and integrated into this MTI Plan includes:

- Efficient windows have traditionally faced greater barriers to adoption compared to other measures due to their cost and payback period. The CRAWs logic model's market-level interventions target medium-term outputs that will mitigate the upfront cost of these products

⁴ See D.19-12-021, p. 102.



through increased availability of incentives for CRAWs products and evaluating envelope as part of HVAC upgrades, Strategic intervention #3, which seeks to build an “envelope-first” business case for building retrofits, will also help clarify the overall return-on-investment for these products as a component of building energy performance.

- There is a significant need for CRAWs upgrades in schools located in high pollution areas and/or with high rates of childhood asthma, as well as other environmental impacts. In addition to informing CalMTA's decision to conduct our Phase II field study at a public school in a high-pollution area, with the location identified through an Equity Sounding Board member's organization, the CRAWs MTI will focus initially on the MUSH market, which will benefit schools like these. Strategic intervention #2, which focuses on in-field demonstrations, will build on this initial work to target ESJ communities with projects that can evaluate IAQ improvements and engage with diverse CBOs for workforce development.
- The need for more equitable and widely accessible financing surfaced repeatedly in conversations with ESJ community representatives. Strategic intervention #7 (*Demand-side marketing and support: awareness-building, education and financial tools*) is designed to prioritize financing models with the potential to reduce or eliminate upfront costs in ESJ communities, such as green banks, green bonds, C-PACE, California's GoGreen Financing Program, and on-bill financing. Monetizing the non-energy benefits (NEBs) of CRAWs technology and educating financing providers about their value will further bolster the financial support available to consumers who most need it.



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