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Stage 1 Disposition Report

January 2024

CalMTA is a program of the California Public Utilities Commission (CPUC)
and is administered by Resource Innovations

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1. Introduction

In December of 2019, the California Public Utilities Commission (CPUC) issued [Decision 19-12-021](#) (Decision) establishing a comprehensive market transformation (MT) framework. The MT Framework called for the creation of a market transformation administrator (now known as CalMTA) and an advisory board to CalMTA (the Market Transformation Advisory Board or MTAB). It also provides funding for CalMTA to develop and implement a portfolio of market transformation initiatives (MTIs).

Market transformation is a proven strategic process of intervening in a market to create lasting change. In the context of CalMTA, these lasting changes work to deliver long-term, cost-effective energy efficiency and support California's goals on greenhouse gas (GHG) reduction, workforce development, and equity.

Resource Innovations was named in late 2022 as the administrator to create and manage a portfolio of market transformation initiatives for the CPUC using the program name CalMTA and for the benefit of California ratepayers. In collaboration with the MTAB, CalMTA developed a process to solicit, score, and prioritize concepts that may be developed into MTIs. Through a Request for Ideas (RFI), stakeholders and market actors were invited to submit information about viable technologies or practices that would support CalMTA's goals.

The CPUC Decision directs CalMTA to document the RFI results in a report to the MTAB along with a list of submissions rank-ordered by their score.¹ This **Stage 1 Disposition Report** fulfills that requirement. In addition, the Decision directs CalMTA to prepare a second, more comprehensive report that summarizes all activities related to scoring and selection of submitted ideas along with CalMTA recommendations for ideas to advance to Phase II: Program Development². This **Phase I Disposition Report** will be delivered to the MTAB in June 2024 and include the work completed under the scoring process described below. For more information about the phases of MT development, visit <https://calmta.org/mti-development>.

1.1 Overview of MTI Scoring & Selection

CalMTA has developed a multi-stage process to select an initial set of MTIs to submit to the CPUC for approval. The process builds on a two-stage scoring and selection method described in the MT Framework with additional steps to provide clear guidance to submitters and support CalMTA's portfolio development. The steps are illustrated in Figure 1 and summarized in this section. Figure 1 steps depicted in orange are the first three steps described in this initial Stage 1 Disposition Report. These and subsequent steps to complete the Phase 1 Disposition Report are further described in the Submission Scoring Results section on page 16.

¹ [CPUC D. 19-12-021, pp. 107](#)

² [CPUC D. 19-12-021, pp. 110](#)

Figure 1. Overview of CalMTA scoring and selection



Self-Screening: The RFI submittal form asks several screening questions to ensure submitter ideas meet the CalMTA requirements. If the submitter responds “no” to any of the self-screening questions, they are encouraged to further develop their idea before submitting.

Threshold Review: This initial review by the CalMTA team ensures that basic requirements are met. The primary objective is to confirm that the ideas would save energy and that there is enough information to be scored.

Stage 1 Scoring: Scan & Identify Ideas: An initial pass at the scoring of each idea provides a basis for ranking the ideas so that only those with the best potential are advanced to the next stage: Develop & Assess Ideas. The Stage 1 scores are based on the CalMTA team’s expertise and judgement, so the Stage 1 scoring can be conducted quickly and with limited investment of resources.

Stage 2 Scoring: Develop & Assess Ideas: The ideas that advance to Stage 2 are scored with additional rigor around Total System Benefit (TSB) and cost-effectiveness potential. Scores for this stage are based on preliminary estimates developed using secondary data sources, light research, and energy modelling.

Portfolio Optimization: This comprehensive view of the ideas occurs after Stage 2 scoring to sort among qualified ideas to ensure that the set of MTIs eventually selected delivers on the desired portfolio characteristics as described on page 8.

2. Scoring Framework

Building on the established process, the CalMTA team developed a framework to score, select, and recommend MTIs for MTAB review before moving them into Phase II: Program Development. The framework consists of the following elements:

1. **Scoring categories** are broad categories under which one to three criteria are grouped. The scoring categories represent the policy or other priorities that drive the selection of the MTIs.
2. **Scoring criteria** are the specific metrics or values that are used to calculate the scores. The criteria roll up to the categories.
3. **Category and criteria weights** are the value placed on each category and criterion to determine the MTI score.
4. **Scoring rubric** provides the structure and definitions for each criterion that allows the scorer to assign the score to each idea.
5. **Portfolio characteristics** are the policy objectives that need to be reflected in the ultimate mix of MTIs.

2.1 Scoring Categories & Criteria

The scoring categories and the individual criteria within each are presented in Table 1. These are the same across the two stages except for the Participant Cost/Cost-effectiveness criteria:

Stage 1. The scorers’ assessment of the reasonableness of the participant cost is used to score Participant Cost as a proxy for Cost-effectiveness in this stage. At this stage, there is not enough information on the ideas to assess cost-effectiveness more accurately.

Stage 2. In this later stage, Program Administrator Cost Test (PAC) and Total Resource Cost Test (TRC) are estimated to score Cost-effectiveness. The TRC represents the effects of an MTI on the entire market and gives an indication of the rate of return of the MTI to both the utility and participants. The PAC measures the costs of an MTI based on program administration costs (including incentives) but excludes any costs incurred by participants. This means that the costs in the PAC are defined similarly to supply-side resource alternatives which do not include direct customer costs.

Table 1. Scoring categories and criteria

| Category | Criteria |
|--|---|
| Total System Benefit (TSB) A single metric that encompasses energy savings, grid benefits and reliability, and GHG impacts | Energy TSB |
| | Grid Benefits TSB |
| | GHG Impacts TSB |
| Product Readiness An indicator of the supply chain maturity/product availability | Readiness |
| Participant Cost/Cost-effectiveness Assesses the overall estimated cost of the MTI against its benefits | Participant Cost (Stage 1) PAC & TRC (Stage 2) |
| ESJ Impacts (Equity) Assesses whether the MTI will provide beneficial impacts to ESJ communities or leverage existing community resources in its execution | Beneficial Impacts to ESJ Communities |
| | Partnership Opportunities with ESJ Communities |
| Non-energy Impact Captures the benefits or impacts (in addition to energy savings and greenhouse gas emissions reductions) that the MTI will deliver | Non-energy Impacts |
| MT Alignment Ensures that the MTI aligns with key aspects of MT theory and presents a strong MT opportunity | Innovation Characteristics |
| | Leverage Points |
| | Sustained Benefits |

The CalMTA team considered including “workforce development” as a standalone scoring category but determined that it was more appropriate to capture workforce development within the other categories. This is because from the standpoint of evaluating an MTI, insufficient workforce is often identified as a barrier that might limit the potential market diffusion. Workforce development is an effective strategy for removing the barrier of lack of contractor awareness and support for a technology or practice. In other cases, an MTI could provide an opportunity to grow a contractor base, improve the skills and capabilities in the industry, or create a new delivery or support channel. This could provide significant value, specifically when targeted toward rural or low-income communities.

Similarly, the team discussed including “risk” as a standalone scoring category but determined that MTI risk is best managed through the careful selection of MTI ideas using a robust scoring and selection process. With MTI selection, risk is minimized by ensuring the technologies or practices are commercially or near-commercially available, and opportunities have strong MT alignment. These two categories specifically reduce the likelihood of investments that would not effectively result in savings. In addition, the portfolio optimization exercise, discussed in a later section, will examine overall risk at the portfolio level to confirm that the MTIs selected are expected to bring the value and benefits that most align with CalMTA goals. This will provide a conscious assessment of risk and value across the portfolio.

2.2 Category & Criteria Weights

The CalMTA team established scoring weights to prioritize each of the six categories and the criteria within them. Table 2 presents the proposed weights for each category and criterion. Because Stage 2 uses PAC and TRC calculations to score Cost/Cost-effectiveness, but Stage 1 only uses Participant Cost as a proxy, the weight for cost effectiveness is increased in Stage 2 to give more weight to TRC and PAC.

Table 2. Category and criteria scoring weights for Stages 1 & 2

| Category | Category Weights | Criteria | Criteria Weights |
|-------------------------------------|------------------------------|--|------------------|
| Total System Benefit | 25% | Energy Savings | 30% |
| | | Grid Benefits and Reliability | 30% |
| | | GHG Impacts | 40% |
| Product Readiness | 10% | Readiness | 100% |
| Participant Cost/Cost-effectiveness | Stage 1: 5% Stage 2: 10% | Participant Cost (Stage 1) | 100% |
| | | Cost-effectiveness: TRC (Stage 2) | 50% |
| | | Cost-effectiveness: PAC (Stage 2) | 50% |
| ESJ Impacts (Equity) | 15% | Beneficial Impacts to ESJ Communities | 65% |
| | | Partnership Opportunities with ESJ Communities | 35% |
| Non-energy Impacts | Stage 1: 15% Stage 2: 10% | Non-energy Impacts | 100% |
| MT Alignment | 30% | Innovation Characteristics | 20% |
| | | Leverage Points | 50% |
| | | Sustained Benefits | 30% |

The CalMTA team used an Excel-based scoring tool to calculate weighted scores for each idea and objectively rank them based on the criteria and weightings. The scoring tool ensured that the ideas were scored consistently using the defined criteria. The tool applied weights to the individual criterion score and aggregated them across scoring categories to develop a total, weighted score for each idea.

2.3 Scoring Rubric

A scoring rubric was developed to guide the process by defining the scale and values used to score each criterion. Each criterion has a set of clearly defined score options that were developed to be applicable to all types of ideas (for instance, technologies, services, practices, delivery approaches, etc.) and have been appropriately differentiated for use in Stage 1, which is a high-level assessment. Stage 2 includes an assessment based on more in-depth information from research and analysis of available secondary resources.

The scoring rubric is presented in Table 3 and more detailed score options and instructions are provided in Appendix B.

Table 3. Scoring rubric

| Category | Stage 1: Scan & Identify Ideas | | Stage 2: Develop & Assess Ideas | |
|-------------------------------------|--|-------------------|--|-------------------|
| | Criteria | Scoring Scale | Criteria | Scoring Scale |
| Total System Benefit | Energy Savings Potential | Low, medium, high | Energy TSB | Low, medium, high |
| | Grid Flexibility Potential | Low, medium, high | Grid Benefits TSB | Low, medium, high |
| | GHG Reductions Potential | Low, medium, high | GHG Impacts TSB | Low, medium, high |
| Product Readiness | Readiness | Low, medium, high | Readiness | Low, medium, high |
| Participant Cost/Cost-effectiveness | Reasonable Participant Cost | Yes/No | MTI Cost-effectiveness: PAC | $\leq 1, >1$ |
| | | | MTI Cost-effectiveness: TRC | $\leq 1, >1$ |
| ESJ Impacts (Equity) | Beneficial Impacts to ESJ Communities | 1-5 | Beneficial Impacts to ESJ Communities | 1-5 |
| | Partnership Opportunities with ESJ Communities | 1-5 | Partnership Opportunities with ESJ Communities | 1-5 |
| Non-energy Impact | Non-energy Impacts | 1-5 | Non-energy Impacts | 1-5 |
| MT Alignment | Innovation Characteristics | 1-5 | Innovation Characteristics | 1-5 |
| | Leverage Points | 1-5 | Leverage Points | 1-5 |
| | Sustained Benefits | 1-5 | Sustained Benefits | 1-5 |

2.4 Portfolio Characteristics

A set of portfolio characteristics identified and shown in Table 4 below represent the policy priorities that need to be sufficiently addressed within the portfolio but may or may not be addressed within each individual MTI.

Table 4. CalMTA portfolio characteristics

| Portfolio Characteristic | Key Portfolio Question |
|---|---|
| Geographic, Sector & Technology Diversity | Is there sufficient balance and coverage across market sectors, end uses, and technologies? Do the initiatives' potential benefits sufficiently cover California? |
| Ramp Rate/Timing | What percent of forecast savings will accrue before 2030? |
| ESJ Relevance | Does the portfolio address equity sufficiently? |
| WE&T Support | Does the portfolio sufficiently address WE&T? |
| Risk Profile | Is the risk profile of the portfolio acceptable? |
| Investment Required | What mix of MTIs optimizes the portfolio budget? |
| Policy Alignment | Does the portfolio align with California's clean energy and climate goals? |

CalMTA, in collaboration with the MTAB, will monitor the portfolio against these characteristics over time and may propose rebalancing or specifically targeting characteristics through an RFI if the portfolio has gaps or begins to deviate.

2.5 Intake Questions

The intake questions, completed by the submitters and presented in Table 5, were designed to solicit information in narrative form rather than data points corresponding to the scoring criteria. The CalMTA scoring team used their expertise to take the information provided by the submitter and relate it to the scoring criteria.

Table 5. RFI intake questions

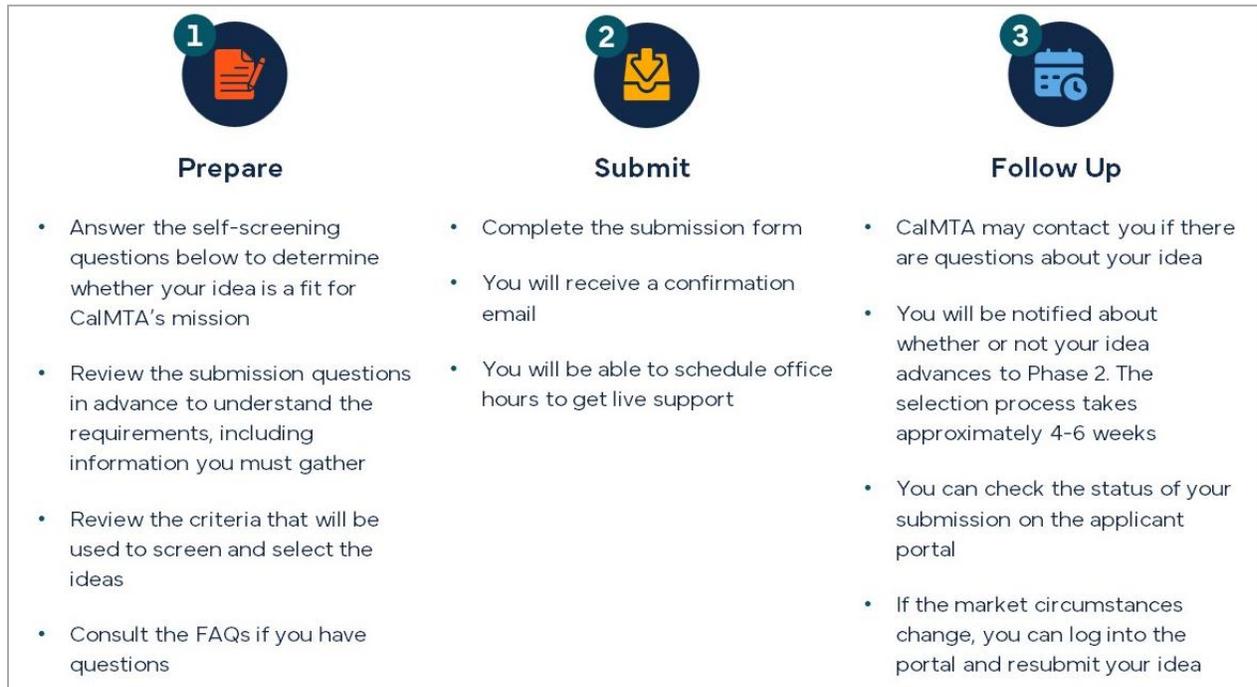
| Product Description & Benefits |
|---|
| Please describe the technology or practice. <i>(2,000 characters)</i> |
| Describe how the technology or practice saves electricity or natural gas, reduces peak demand, and/or reduces GHG emissions. <i>(800 characters)</i> |
| Are there additional benefits that your technology or practice will provide? If so, please describe these benefits. <i>(800 characters)</i> |
| Target Market Description |
| Describe the target market sector and customers that will benefit from your technology or practice in California. For example, commercial, industrial, single family residential, multifamily residential, agricultural, etc., and, if applicable, key subsector. |
| Be sure to specify whether it will benefit hard-to-reach customers, low-to-moderate income markets, disadvantaged communities, etc. and how. <i>(800 characters)</i> |

| |
|--|
| Where, specifically, is the technology or practice available? Is it available to consumers in California? Please provide an example of a specific outlet or service provider, if possible. (800 characters) |
| Describe how the technology or practice is (or will be) delivered to the market. For instance, will it be available for direct purchase by the consumer through traditional retail establishments, or will it be available only through installation by a licensed professional, or something else? Is there a well-established distribution channel that can be used, or would one need to be developed or adapted? Also include information about any partnerships, including those with community-based or environmental/social justice organizations, if applicable. (4,000 characters) |
| What is your best estimate of current market adoption of the technology or practice? For instance, how many units or what percentage of the target market(s) have already adopted the technology or practice? (1,200 characters) |
| Market Adoption Barriers |
| What is keeping the market from adopting your technology or practice? Please list the key market barriers. (2,000 characters) |
| What limitation(s), if any, does the technology or practice have that must be overcome? What are the technical barriers, if any? (4,000 characters) |
| Beyond the standard or base case technology or practice, what are the alternative competing products or services (direct and indirect), and how does your technology or practice compete with them? (2,000 characters) |
| What type of market interventions, assistance, or support do you think are necessary to overcome the identified barriers? (2,000 characters) |
| Additional Information |
| Is there any additional information that would be helpful in evaluating your proposed idea? (800 characters) |
| If available, please provide names and links to any recently completed studies, workpapers, measure packages, whitepapers, industry publications, articles, interviews, and other supporting documentation related to this idea. (2,000 characters) |

2.6 Intake Portal

Decision 19-12-021 directed CalMTA to develop an intake portal where market actors and other stakeholders could submit their ideas for MTIs. The team developed such a portal with a process and requirements that were clear and easy-to-follow, and the submitters had access to supporting resources. Self-screening questions provided the submitter a way to determine whether their idea was a good candidate for market transformation. Guidance language navigated submitters through a logical flow of information from the broader CalMTA website, to the Participate landing page, and ultimately to the Idea Portal for submission. A simple graphical element illustrated the stages of the intake process and included links to supporting information.

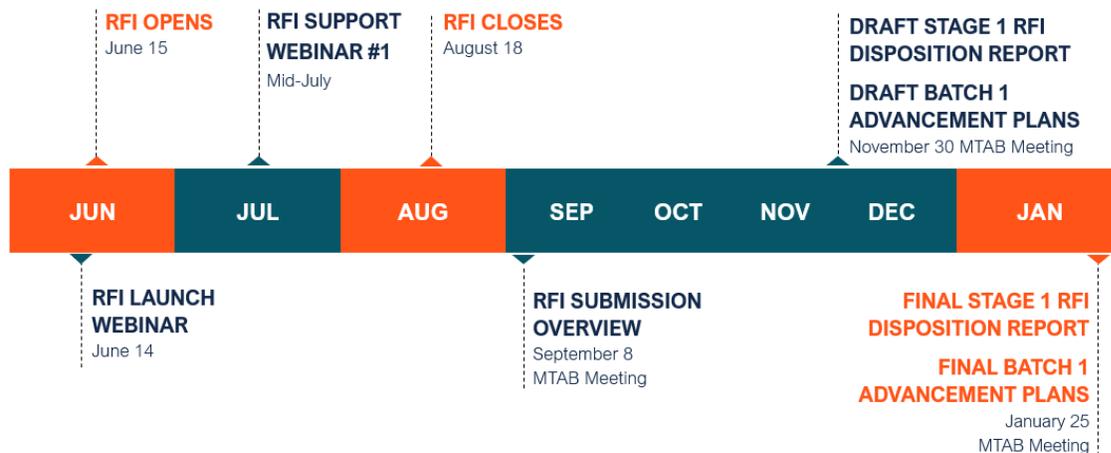
Figure 2. Steps to submitting an idea



3. RFI Outreach

The Idea Portal was opened for the initial round of solicitation, which lasted from June 15 to Aug. 18, 2023. CalMTA anticipates reopening the RFI portal in 2024 and reviewing submittals on a semi-annual basis. The figure below illustrates milestones in the 2023 RFI timeline.

Figure 3. RFI timeline



3.1 Key RFI Outreach Activities

The RFI was an opportunity for CalMTA to engage with stakeholders to both promote the chance to submit, but also to educate various audiences about market transformation and the creation of a portfolio of initiatives for California. As such, we took a tiered approach to outreach, including general notices, RFI briefings, and direct invitations to submit.

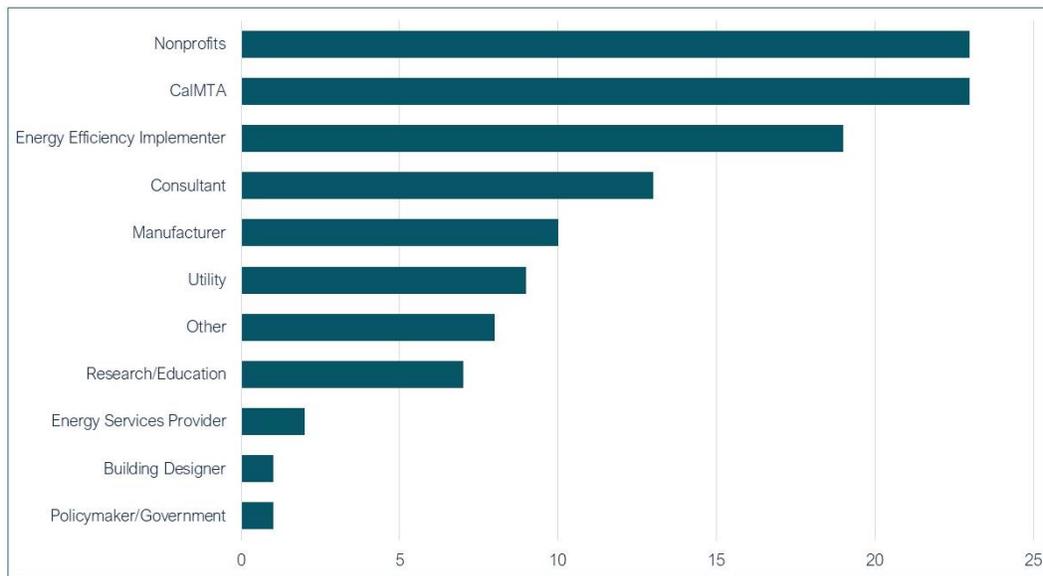
Stakeholder Segments

RFI outreach efforts engaged energy efficiency organizations, market actors, and potential allies and advocates with the intent of reaching stakeholders that were: (1) likely to have interest in submitting an idea; and/or (2) able to share the RFI with a network of potential participants. In addition to MTAB members and subcontractor firms, outreach segments and example organizations included:

- **Industry experts and implementers with California presence** such as the American Council for an Energy-Efficient Economy (ACEEE), the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Building Decarbonization Coalition, California Efficiency and Demand Management Council (CEDMC) members, Center for Energy and Environment (CEE), Electric Power Research Institute (EPRI), New Buildings Institute (NBI), U.S. Green Building Council, The Energy Coalition (TEC), and VEIC.
- **Research laboratories and centers** such as the Center for the Built Environment (CBE) at the University of California, Berkeley; Lawrence Berkeley National Laboratory (LBNL); National Renewable Energy Laboratory (NREL); and Pacific Northwest National Laboratory (PNNL).
- **Environmental and social justice (ESJ) and workforce, education, and training (WE&T) organizations** such as the Association of California Community and Energy Services (ACCES), Association for Energy Affordability (AEA), Build it Green, California Advanced Lighting Controls Training Program (CALCTP), The Climate Center, Climate Resilient Communities, Energy Efficiency Council (EEC), Redwood Community Action Agency, Rising Sun Center, Self-Help Enterprises, and Suscol Intertribal Council.
- **Regional utilities and energy providers** such as the California Investor-Owned Utilities (IOUs), Sacramento Municipal Utility District (SMUD), Los Angeles Department of Water and Power (LADWP), and Regional Energy Networks (RENS).
- **Emerging or advanced energy efficiency technology stakeholders** such as statewide codes and standards IOU leads, CalNEXT program, Cleantech San Diego, Statewide Gas Emerging Technologies Program, Emerging Technology Coordinating Council (ETCC), and California Technical Forum.

In Figure 4 below, is a list of the submitter industry roles as they self-selected. While we had submissions from research labs, academia, we had expected more and have plans to increase directed outreach in future RFIs. We also noted a lack of industrial and agricultural submissions and will seek higher levels of engagement with these sectors in the future.

Figure 4. Submitter Industry Roles



Outreach Activities Conducted

RFI outreach efforts included the following primary activities.

- **Public Awareness-Building:** CalMTA generated widespread awareness of the RFI through two webinars with a total of 112 registrants and 32 on demand views, MTAB meetings that were open to the public, regular push email notices, and an active social media presence via a LinkedIn showcase page.
- **Direct Outreach:** CalMTA team, subcontractors, and MTAB members sent personalized emails with RFI information to their networks with an invitation to submit an RFI response or schedule a meeting to learn more about the process. Our team conducted 32 briefings and group presentations with stakeholders who: (1) were identified as high-priority organizations; or (2) requested an introductory meeting. These meetings are listed in Appendix D.
- **Industry Events:** CalMTA team and program partners shared information about the RFI process at numerous events attended by target audience members, both through collateral distribution and more formal presentations. Notable events included:
 - CEDMC Spring Forum
 - ACEEE 2023 Industry Summer Study
 - 2023 ASHRAE National Conference
 - 14th Annual California Climate & Energy Forum
- **Share Toolkit:** To broaden CalMTA's reach on information-sharing, the team developed an online toolkit to share with key allies who are supportive of our work. The toolkit included sample talking points, social media posts, blog/newsletter articles, PowerPoint slides, and easily downloadable



graphics. These resulted in extended outreach including articles in industry publications (e.g., the CPUC’s monthly newsletter and the California Climate & Energy Collaborative’s wEEkly update).

3.2 Submission Support

CalMTA offered two primary pathways where potential submitters could get specific information and assistance on development of their ideas.

Office Hours: To provide RFI submitters with immediate support and resolve any open questions, CalMTA offered on-call office hours where potential submitters could set a 1:1 appointment with MTI experts on the team. In total, 14 prospective submitters scheduled an office hours appointment and six of these participants completed an RFI submittal after meeting with the CalMTA team.

Q&A Discussion Board: Through the RFI Idea Portal, users could ask questions and receive answers from CalMTA via an online discussion board by clicking an “ask a question” link. All questions received a publicly posted response within 24 hours, enabling other interested parties to view previously asked questions and answers. In total, 14 questions were posted to the discussion board.

3.3 Feedback on RFI

After the RFI closed, the team held a debrief to collect feedback summarized in Table 6. The areas for improvement have been addressed in planning for the future RFI to be released in the first half of 2024. Future cycles will more specifically target gaps in the portfolio that could not be filled with ideas from the first RFI (for example, limited ideas submitted from the industrial sector).

Table 6. Feedback on RFI experience

| Topic | What worked well | Areas for improvement |
|---------------------|--|--|
| Idea Portal | -Interface was easy to navigate and user friendly -MTI scoring team could find ideas and update status or add notes -Q&A board | -Login challenges for users because of username confusion -Word/character limit online didn't align with submitters' Word documents |
| RFI structure | -Questions were clear and straightforward | -Clarification of process and link to future contracts/compensation -Need definitions for MT alignment and other criteria |
| Outreach & response | -Submission support services were well-utilized; webinar registration was high | -Need to engage diversity of market actors -Future cycles to target balancing MTI portfolio |

4. Summary of MTI Ideas Received

When the RFI closed on Aug. 18, 2023, CalMTA had received a total of 117 submissions from 63 unique submitters with 55% of those entered on the final day. As part of the RFI process, the CalMTA team scanned viable technologies and practices and submitted 22 internally developed ideas, which were reviewed and scored in the same manner as external proposals. In all, the ideas addressed a range of target markets with most ideas focused on the commercial and residential sectors. While many of the ideas were centered around a product or technology, there was a fair showing for practices and services. The breakdown of these aspects are shown in Figures 5 and 6.

Figure 5. Target markets of submissions

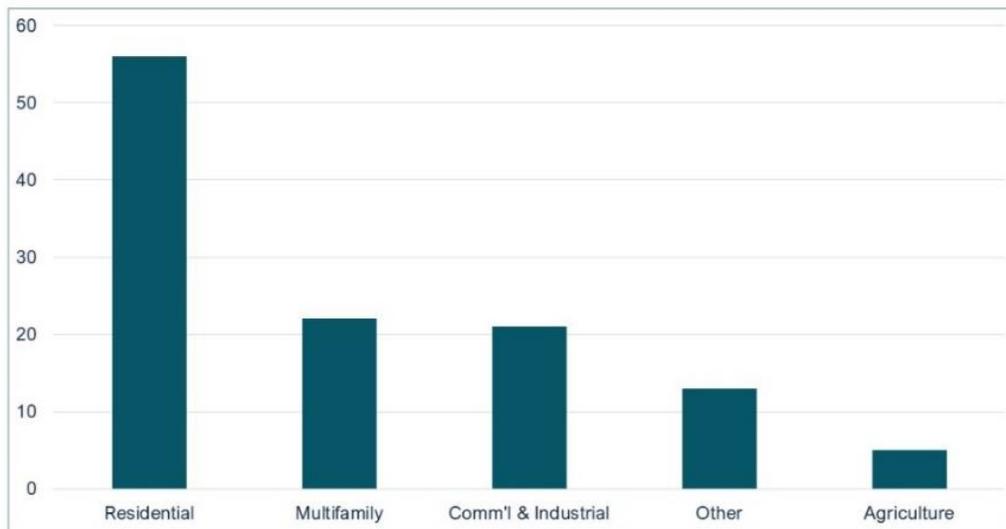
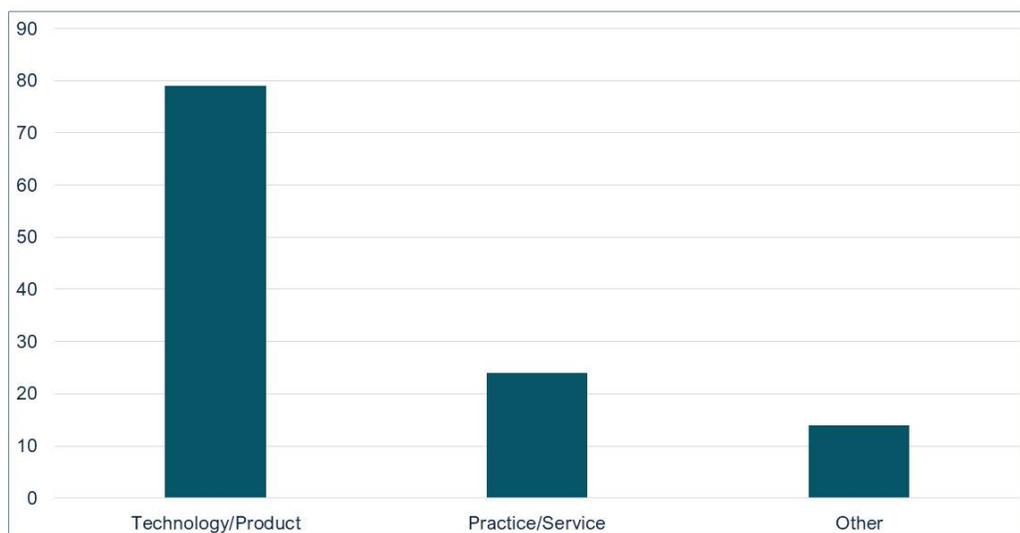
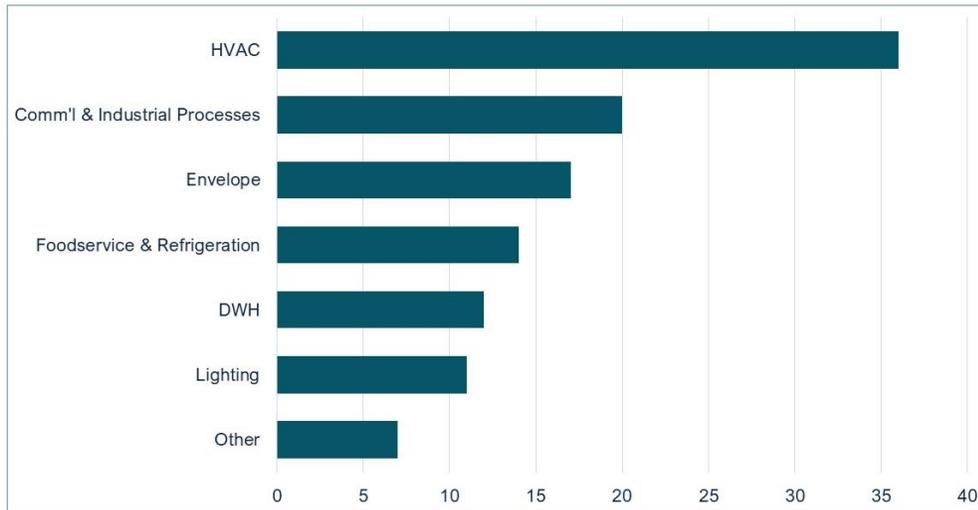


Figure 6. Product type categories



The “other” category of Figure 6 captures ideas that do not fit cleanly into either the technology/product or practice/service categories. Examples include an idea to support the enforcement of Title 24 and another to introduce legislation to support municipal streetlight ownership. There was also diversity in load type and end uses across the submissions as depicted in Figure 7.

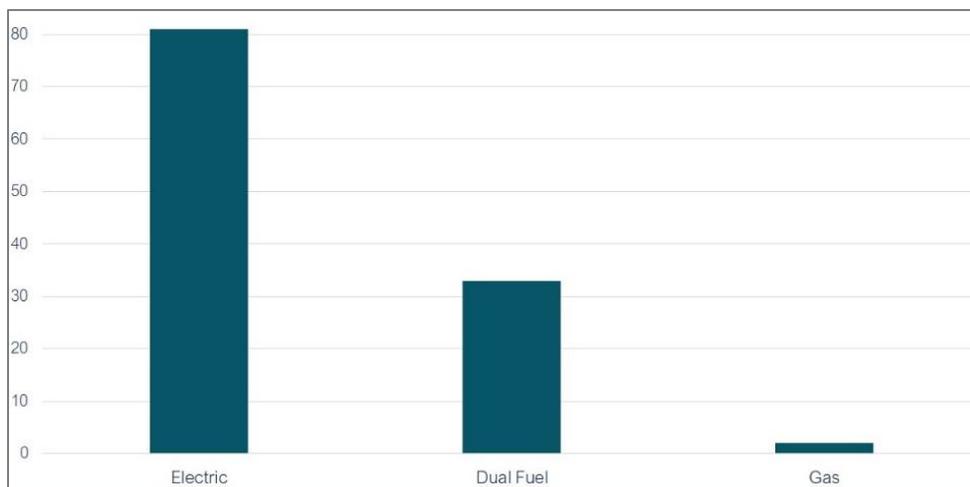
Figure 7. Submissions by load type



The “other” category in Figure 7 captures ideas with load types that do not tie to a building load type. Examples include an idea to change the Warren-Alquist Act to capture greenhouse gas reductions, an idea for a statewide consumer products marketplace, and an idea to promote a certification for high performance homes.

The submissions addressed both gas and electric fuel types. Many submissions involved promoting electric equipment to replace an existing appliance running on either electricity or natural gas. In these cases, the idea was classified as dual fuel as shown in Figure 8.

Figure 8. Submissions by Fuel Type



4.1 Notable Groups of Ideas

Perhaps the most significant observation is that 34% of the ideas prominently featured heat pumps. In some cases, these ideas promoted a heat pump as a stand-alone product for heating, cooling, and water heating (for single-family and multifamily residences as well as commercial buildings). In other cases, they were included as part of broader strategies to improve the overall efficiency of a building or facilitate its decarbonization. Finally, there were ideas geared toward workforce development and training to help accelerate heat pump adoption and create career opportunities for disadvantaged communities.

In addition to the strong presence of heat pumps, there were other end uses that generated significant interest. One of these was food storage and service. Another given attention in multiple ideas was the opportunity to create efficiency and mitigate the high global warming risk posed by refrigerants. Potential improvements in the efficiency of the cooking process itself were addressed for both residential and commercial kitchens. Notable among submissions was the presence of induction cooking. Also, as with heat pumps, some of the ideas were oriented toward workforce training.

The building envelope was the focus of 17 ideas with several related to evolving window products and others that propose utilizing shading and insulating technologies. For commercial and industrial processes, there were 15 ideas that involved process monitoring, controls, and efficient motors and pumps. Finally, there were two ideas that sought to create synergy with the growth of the electric vehicle (EV) fleet by promoting new EV charging options that have the potential to improve grid flexibility during peak hours.

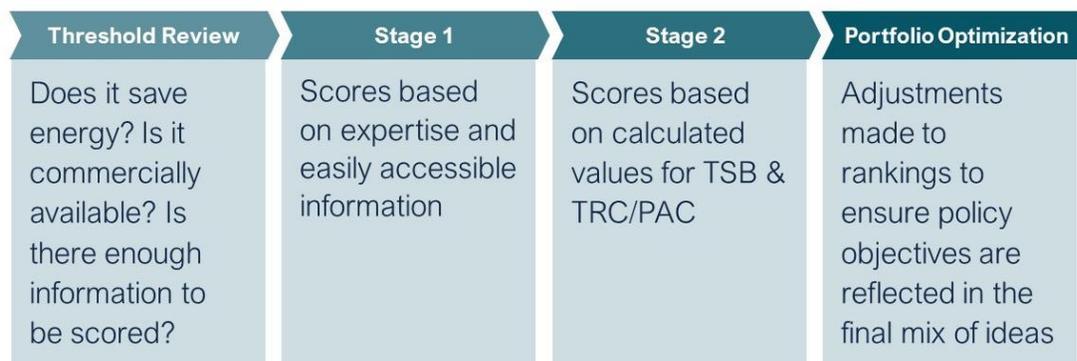
Taken together, many of the submissions complement, and in some cases duplicated each other, so some ideas were combined into a single idea and scored together where it made sense to do so. The process undertaken by the team to combine ideas is described in Submission Scoring Results on page 18.

5. Submission Scoring Results

The scoring process illustrated in Figure 7 was designed as a multi-stage process with each stage applying a greater level of rigor to the advancing ideas. The initial threshold review is an administrative review to ensure that the submissions are an appropriate fit for market transformation investment. Stage 1 ranks the submissions so that rigor and resources required for Stage 2 scoring are applied to the ideas with the greatest likelihood of success.

In Stage 1, the scoring team members assign scores based on the information in the submission supplemented by their expertise and limited research. The ideas that score the highest in Stage 1 advance to Stage 2 where a greater level of effort is used to determine the score. Stage 2 relies on secondary research, but with more time dedicated to investigation and analysis. Lastly, a portfolio optimization step identifies policy priorities to be addressed across the portfolio but may or may not be addressed within a particular idea.

Figure 9. Steps to advancing ideas submitted through the RFI



5.1 Threshold Review

The threshold criteria requires that an idea provide energy savings, is near commercially available, and the submission has enough information and the appropriate level of specificity to allow the idea to be understood and scored by the review team. An example of an idea that did not produce energy savings was one that proposed to convert hemp into biofuels to provide energy. Of the 117 ideas submitted, 25 did not pass the threshold review. Descriptions of those ideas are provided in Appendix C.

5.2 Stage 1 Scoring

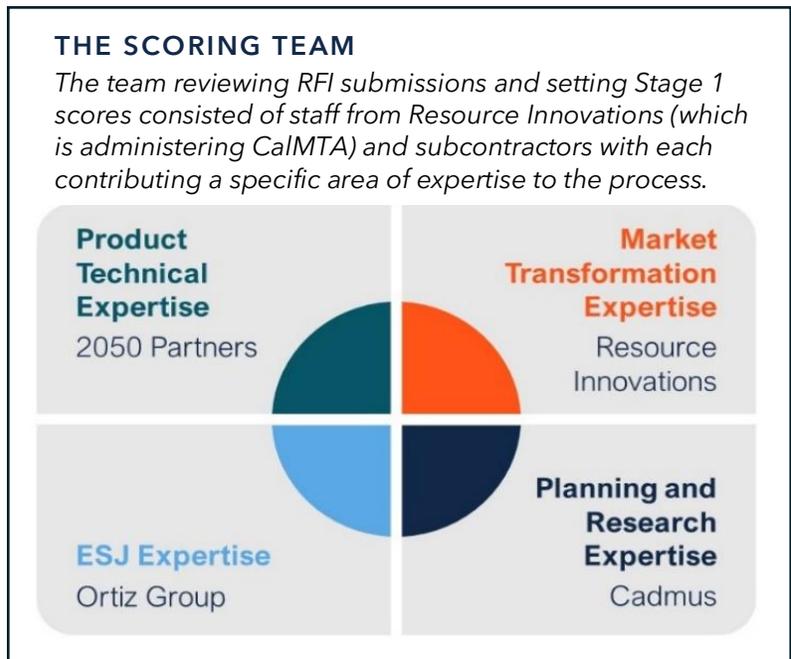
At the outset of scoring, each scoring team member reviewed the submission and any supporting documentation provided by the submitter. The scoring team held an initial meeting to discuss the idea and ensure that each scorer had a clear and consistent understanding of the technology or practice being proposed. If there was any light secondary research that could support the scoring, this was identified and assigned to a scoring team member.³ Lastly, the scoring team clarified the applicable market sector, the baseline assumption for both energy savings and cost, and the decision type applicable to the idea (for example, whether the idea would address/promote normal replacement or early replacement of a technology).

Next, each team member developed their individual scores for the submission. At least two scorers – CalMTA program staff and 2050 Partners – scored each idea across all criteria, while Cadmus developed scores for Non-energy Impacts and MTI Cost and Cost-effectiveness, and The Ortiz Group scored the Equity criteria. This structure provided the scoring team with both adequate resources and subject matter expertise to complete the scoring. In a few instances other subject matter experts were consulted.

³ In addition to the secondary research identified within the initial scoring meeting, each scorer conducted their own research to support their understanding of the idea, as needed.

After each scorer developed their individual scores, the team held an alignment meeting to review and discuss. When the scorers were not aligned, they shared the assumptions behind their ratings and debated them until they reached consensus on a single score for each idea.

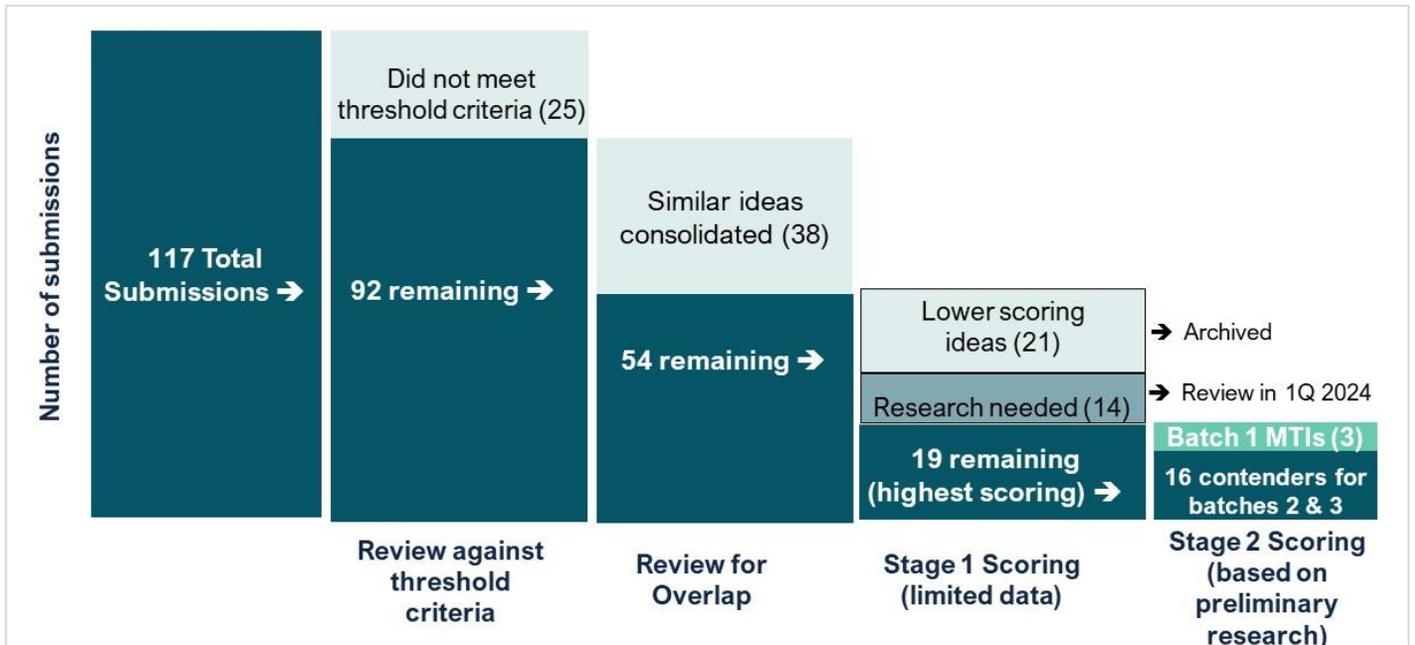
The scoring team modified the above process slightly after the RFI closed on Aug. 18 to accommodate the spike in submissions received on the last day of the RFI. The 2050 Partners and CalMTA scorers split into two teams so that each firm had two members. The ideas were allocated to one of the two teams, allowing the scoring team to double their throughput. Cadmus and The Ortiz Group both maintained a single scorer for all ideas. This modification was successful in providing the necessary resources to complete the Stage 1 scoring in a timely manner. And because all of the members had been involved in the scoring discussions of the initial (pre-Aug. 18) ideas submitted, both teams were able to consistently apply the scoring criteria to their assigned ideas.



During Stage 1 scoring, the team found some overlap between the ideas submitted or found that combining several similar ideas resulted in a stronger, more comprehensive MT concept. In these cases, the team combined the ideas and scored the complete concept. For instance, one submittal advocated for CalMTA to support micro heat pumps generally while another idea focused on providing micro heat pumps with air filtration to low-income residents. The team felt that the two ideas were stronger and more comprehensive when considered together. In another example, an idea that generally advocated for food service decarbonization was considered in relation to an idea to provide training and education for the adoption of commercial induction cooking. Ultimately, 38 ideas were combined.

A list of all ideas scored in Stage 1, ranked in order of their score, is provided in Appendix A. Of those, 21 lower-scoring ideas did not advance to Stage 2 and were archived including nine of the internally developed submissions. An additional 14 were held to conduct ongoing scanning of new research and changing market conditions, which may strengthen the idea and make it viable for Stage 2 scoring (see “Stage 1 Research/ Refinement” status in Appendix A). Any changes to idea status will be described in the **Phase I Disposition Report** to be delivered in June 2024. Figure 10 below shows the breakdown of how ideas were ultimately disposed through Stage 1 scoring.

Figure 10. Disposition of ideas received



5.3 Ideas Advancing to Stage 2 Scoring

Based on the Stage 1 scores, the team determined that the top 19 ideas (identified in the tan rows in the table below and encompassing 41 submissions) should advance to Stage 2. These ideas will be further reviewed in consultation with the MTAB and prioritized for consideration in future MTI batches. These ideas and related ideas that were combined are listed in Table 7.

Table 7. Grouping of Ideas Advanced to Stage 2 Scoring

| Idea Group | MTI Name | Idea # |
|------------|---|-----------|
| Envelope | Commercial Windows | |
| | Single Pane Retrofit | 0157 |
| | Vacuum Insulated Glass (VIG) | 0079 |
| | Residential Windows | |
| | High Performance Windows | 0010/0109 |
| HVAC | Portable / Window Heat Pumps | |
| | Portable / Window Heat Pumps | 0097 |
| | Micro Heat Pumps | 0086 |
| | Cold Climate Window and Portable Heat Pumps | 0125 |
| | Combination HVAC and Water Heating | |
| | Multi-function Heat Pump | 0085 |
| | Combination Heating, Cooling, Water Heat | 0126 |
| | Residential HVAC | |

| | | |
|-----------------------------|---|------|
| | Residential Variable Speed Heat Pump | 0171 |
| | Cold Climate Heat Pumps | 0037 |
| | HVAC Integrated Ventilation | |
| | Heat Pump Integrated Continuous Mechanical Ventilation | 0081 |
| | HVAC Policy | |
| | Policy Requiring all AC be sold as HP | 0068 |
| | Efficient Commercial Rooftop Units | |
| | Efficient Commercial Rooftop HVAC (ERTUs) | 0116 |
| | Enable HVAC QI/QM by Introducing a Universal HVAC Interface | 0163 |
| | Unitary Packaged Heat Pump Systems for Light Commercial | 0166 |
| | Advanced Rooftop Controls | 0124 |
| | Advancing Smarter HVAC Controls in Small to Medium Commercial | 0184 |
| | Medium to Large Commercial Control Systems | |
| | Modernizing building automation system hardware | 0149 |
| Lighting | Streetlighting | |
| | Efficient Streetlighting | 0105 |
| | Regional Lighting Assessment Tool | 0158 |
| | Networked Lighting Controls | |
| | Luminaire Level Lighting Controls | 0120 |
| | Procure Networked Lighting Controls for Multivendor Teams | 0128 |
| Plug Load/ Appliances | Smart Home | |
| | Smart Electric Panel | 0080 |
| | Residential EV Charging | |
| | Bi-directional EV Charging - Residential | 0021 |
| | EVSE Standards Roadmap | 0175 |
| | Commercial EV Charging | |
| | Bi-directional EV Charging - Fleet | 0077 |
| | Residential Appliances | |
| | Induction Ranges and Cooktops | 0107 |
| Leveraging ESRPP for Equity | 0115 | |
| Practices | Building Performance Standards | |
| | Building Performance Standards Accelerator MTI | 0193 |
| Process | Foodservice | |
| | Foodservice Decarbonization | 0165 |
| | Induction Cooking Training Partnership | 0174 |
| | Elevating Food Service Tech Transformation | 0183 |

| | | |
|---------------|--|------|
| Water Heating | Residential Water Heating | |
| | Residential Heat Pump Water Heaters | 0194 |
| | HPWH Exterior Enclosure | 0145 |
| | HPWH Installer Certification | 0136 |
| | HPWH Rapid Installer Expansion | 0177 |
| | Deployment of 120V HPWHs | 0180 |
| | Market Connections for Plug-in HPWH | 0148 |
| | Gas WH Buyback Program + Solar | 0132 |
| | Eco-Tech Apprenticeship Program | 0153 |
| | Commercial Water Heating | |
| | HPWH for Multifamily | 0078 |
| | Central HPWH for MF-Complete Kit Solutions | 0113 |
| | Load flexibility controls for HPWH Systems | 0179 |
| | Ultra-low GWP Packaged Systems w/TES | 0108 |

6. Recommendations for Expedited MTI Plan Development

The CalMTA team endeavors to complete at least one full MTI Plan to file with an application to the CPUC by the end of 2024. An MTI Plan is a comprehensive document covering items such as market characteristics, MT theory, implementation plan, metrics, anticipated savings, initiative budget, and MTI evaluation plan. To ensure that CalMTA can produce an MTI Plan in the timeframe, the team identified three ideas that scored highly in Stage 1 and meet the following criteria, which will support expedited MTI Plan development:

- Well-defined product, preliminary MT theory, and program logic
- Clear leverage points that are likely to be effective at producing market change
- A clear role for CalMTA
- Any needed research or pilot projects are clear and well understood

To identify these “front runner” MTIs, the team conducted a review of all ideas that were advanced to Stage 2 against the criteria bulleted above and selected three MTIs for inclusion in Batch 1. Table 8 below describes how these ideas align with the criteria above. As illustrated, one of the three MTIs proposed for inclusion in the first batch does not address all front runner criteria. However, all three ideas possess strong MT theories, will provide long-term value to California, have a high likelihood of moving to Phase III: Market Development, and offer a compelling rationale for starting Phase II: Program Development activities for the

first batch of MTIs. These three are summarized below and further described in Advancement Plans⁴ provided in Appendix E.

Table 8. Batch 1 “front runner” MTIs

| Idea # | MTI Name | Well Defined Product Definition & Target Market | MT Theory | Program Logic | Leverage Points | CalMTA Role | Clear Research Needs |
|--------|---|---|-----------|---------------|-----------------|-------------|----------------------|
| 0097 | Portable/ Window Heat Pumps | X | X | X | X | X | X |
| 0107 | Induction Ranges and Cooktops | X | X | X | X | X | X |
| 0116 | Efficient Commercial Rooftop HVAC (ERTUs) | | X | X | X | X | X* |

*Initial assessment did not identify clear research needs, but subsequent development of the Advancement Plan provided insight into critical path research needed.

7. Batch 1 MTIs

7.1 Portable/Window Heat Pumps

Sector: Existing single-family & multifamily residential

Product Definition: Portable and window heat pumps (aka micro heat pumps) are affordable, self-contained consumer products that provide efficient heating and cooling for small spaces ranging from a single room to a whole apartment. They are similar in shape and size to typical window and portable air conditioning (AC) products—but use inverter technology that allows for variable-speed operations providing more efficient cooling in the summer and heating in the winter.

They can be self-installed, plugged into a 110v outlet, and have a cooling capacity of up to 18,000 BTUs. CalMTA will promote units that can still provide heat when the outdoor air temperature is below 41°F, include air filtration, use low GWP refrigerants, and incorporate controls to allow the units to be grid-responsive in the future.

| Portfolio Priorities | |
|-------------------------------------|----------------|
| <input checked="" type="checkbox"/> | Equity |
| <input type="checkbox"/> | WE&T |
| <input checked="" type="checkbox"/> | Energy Savings |
| <input type="checkbox"/> | Grid Benefits |
| <input checked="" type="checkbox"/> | GHG Reductions |

⁴ An Advancement Plan outlines the strategies, research, and activities that need to be conducted to determine the viability of a potential MTI. The activities indicated in the Advancement Plans are those that are needed to inform the development of the MTI Plans.

Preliminary Market Transformation Theory: Existing multifamily and smaller households often suffer from higher energy burdens and greater exposure to poor air quality.⁵ This market needs an efficient and affordable electric alternative to resistance and gas space heat while also providing air conditioning and air filtration, which will improve air quality. Many consumers in this market purchase inefficient space heaters and window AC units to supplement their heating and cooling needs and buy separate air filtration products during fire or poor outdoor air quality events.

Efficient portable and window heat pumps with up to 18,000 BTUs capacity are now available and can be self-installed. Some units include air filtration and could have controls for possible grid-interactive capability. Barriers to widespread adoption include overall product availability, high cost, lack of awareness, efficient product differentiation, and insufficient number of models that include air filtration or are grid enabled.

Key market interventions will start with manufacturer engagement to understand their product mix and assess the opportunity to influence the next generation of products to include air filtration and grid connectivity. At the same time, CalMTA will need to engage other regions that are targeting this technology like NYSERDA, Consortium for Energy Efficiency (CEE), and NEEA to push for product alignment, build market scale, and influence DOE test procedures and ENERGY STAR specifications. This in turn will ultimately influence manufacturer production and promotions.

Once more products are available and there is a clear mechanism for product differentiation—consumers will be able to assess and trust the product’s possible energy impacts—CalMTA will partner with existing retail platforms such as ENERGY STAR’s Retail Products Platform⁶ (ESRPP) to push for stocking and promotion of portable/window heat pump products.



Efficient portable and window heat pumps with up to 18,000-BTU capacity are currently available in the market and can be self-installed.

⁵ [Socioeconomic Disparities of Low-Cost Air Quality Sensors in California, 2017-2020 | AJPH | Vol. 112 Issue 3 \(aphapublications.org\)](https://aphapublications.org)

⁶ ESRPP is a nationwide collaborative midstream initiative of ENERGY STAR that includes 16 program sponsors, retail partners, and the EPA.

CalMTA will also work to leverage existing California multifamily, weatherization, and climate resilience programs⁷ to encourage inclusion of this product in offerings.

The pathway from ENERGY STAR specification to retailer and local program engagement to increased market share and price declines will lead to more effective DOE standards. Over the long-term, once standards are in place, consumers will only be able to purchase portable/window heat pump technology when they look to purchase backup AC or resistance heating. Products qualifying for this initiative may also provide air filtration to enhance indoor air quality and be grid enabled, if not cost prohibitive.

7.2 Induction Ranges & Cooktops

Sector: New & replacement in single-family & multifamily residential

Product Definition: Induction ranges and cooktops use electromagnetic induction to heat cookware directly. Unlike traditional gas or electric stoves, which heat the burner, and the burner in turn heats the cookware, induction stoves work by directly heating the cooking vessel. They save energy through instant, direct, and efficient heat transfer, and provide precise temperature control. They do not emit noxious gases that contribute to reduced indoor air quality. Induction cooktops are available on combined stove/oven units, as a cooktop installed in a countertop, or as portable plug-in countertop units.

| Portfolio Priorities | |
|-------------------------------------|----------------|
| <input checked="" type="checkbox"/> | Equity |
| <input type="checkbox"/> | WE&T |
| <input checked="" type="checkbox"/> | Energy Savings |
| <input type="checkbox"/> | Grid Benefits |
| <input checked="" type="checkbox"/> | GHG Reductions |

Preliminary Market Transformation Theory: Gas ranges are the most prevalent cooking method in California single-family and multifamily units with over 70% market share. When households choose electric, consumers need affordable and efficient, electric options.

Induction cooking has been available for several years with most major manufacturers offering models, but the product has yet to be widely adopted. For some time, gas cooking has been marketed as offering a superior cooking method so consumer awareness on the benefits of induction cooking is low. In certain communities there are also cultural barriers associated



When households choose electric or decide to electrify, consumers need affordable and efficient, electric options.

⁷ Climate resilience is a general term for initiatives that support regions and communities that are highly vulnerable to fire and weather events. For example, during an exceptional heat or cold snap, these programs may distribute portable AC or heating units to vulnerable households to help them cope with the climate event.

with the move away from gas to electric. High initial costs need to be addressed with induction stoves still currently priced as a premium product with many additional features that add to the price but do not improve efficiency. In some cases, induction may require an outlet and/or panel upgrade as well.

To accelerate the adoption of induction cooking, key interventions include driving greater product availability and awareness through retail partnerships and programs that already target multifamily and single-family decarbonization. CalMTA will engage manufacturers to develop lower-priced models that include induction, but without premium add-on features, and collaborate with direct install programs to demonstrate to manufacturers that there is a market for more affordable products. Engagement with ENERGY STAR to support the emerging ENERGY STAR Residential Cooking Products V1.0 specification will be a key action. This MTI could also couple a retail push with a manufacturer co-marketing partnership and Inflation Reduction Act (IRA) incentives and tax credits.

Long-term diffusion will occur as more affordable, ENERGY STAR-labeled products are available and understanding and awareness of induction’s benefits grow. As California moves towards further decarbonization, affordable induction options will become the first choice for efficient electric cooking in the majority of single and multifamily homes. Lastly, the MTI would align with the California Air Resource Board’s (CARB) efforts to push for the sale of only zero-emission appliances along with possible federal standards that improve the efficiency of electric cooktops, effectively ensuring induction cooking as the standard cooking appliance in homes.

7.3 Efficient Commercial Rooftop HVAC Units (ERTUs)

Sector: Small & medium existing & new commercial buildings

Product Definition: Rooftop units (RTUs) are forced-air systems that package the evaporator, condenser coils, fans, and heating components into a single unit to serve a building’s heating, cooling, and ventilation needs. Three main design improvements addressing supply efficiency, heat recovery, and an improved shell can deliver 10-40% energy savings beyond today’s minimum efficiency RTUs. Greater savings and grid benefits can be achieved through the addition of advanced controls strategies. The energy savings components that enable this system to save energy may include:

| Portfolio Priorities | |
|-------------------------------------|----------------|
| <input checked="" type="checkbox"/> | Equity |
| <input checked="" type="checkbox"/> | WE&T |
| <input checked="" type="checkbox"/> | Energy Savings |
| <input checked="" type="checkbox"/> | Grid Benefits |
| <input checked="" type="checkbox"/> | GHG Reductions |

- A. Insulated RTU box (to R-12)
- B. Low leakage dampers
- C. Increased heat pump efficiency
- D. Use of energy or heat recovery (E/HRV)

When combined, items A and B deliver a 2-10% energy use reduction compared with the current federal standard. Further efficiency can be achieved if A and B are combined with either C or D, resulting in a 12-40% energy reduction.

Preliminary Market Transformation Theory: At least 25% of commercial buildings in California use RTUs for HVAC needs, most commonly in low-rise, small- to medium-sized buildings. While federal standards regulate the mechanical components in RTUs, they don't include heat recovery, or address shell losses. Efficiencies addressing these features can now be captured using a rating developed by CSA Group, a leader in standards development, in collaboration with NEEA, the Natural Resources Canada, and other industry and efficiency experts. Today these design features are typically only available in premium RTUs, which are a small portion of this commoditized, cost-competitive market.

There is currently a national collaborative engaging in this market through a tiered specification approach. The tiered requirements provide both prescriptive and performance paths. CEE is currently expanding this specification to include heat pump RTUs (HP RTUs).

This is a complex market with a variety of barriers. On the design side, manufacturers and the supply chain are either unaware or do not value the tiered specification that has been developed and so do not have a mechanism to differentiate efficient RTUs with superior whole box efficiency. There is also limited product availability for the light commercial replacement market. Additional barriers include first cost, lack of building owner/operator awareness of products and features that deliver efficiency, and contractor knowledge and experience specifying and installing systems with these advanced designs and controls.



At least 25% of commercial buildings in California use RTUs for HVAC needs, most commonly in low-rise, small- to medium-sized buildings.

Possible key interventions to tackle the physical design improvements will include manufacturer engagement on affordable product availability and utilization, and development of a California-appropriate tiered rating system that supports better equipment design and purchase decisions. We will need to build awareness of efficient and controllable RTU's value proposition by partnering with distributors and manufacturer representatives to drive adoption among contractors and building representatives. Support will include education on the value proposition, marketing, and training partnerships in addition to initial midstream incentives to motivate the supply chain to promote and sell efficient and controllable RTUs. Finally, this MTI will need to leverage state and federal codes, as well as voluntary and federal standards to increasingly require RTU efficiency measures and achieve the long-term goal of all RTUs meeting the higher efficiency specification.

8. MTAB & Stakeholder Feedback

A primary responsibility of the MTAB is to “provide feedback and recommendations to pursue, modify, or reject each potential MTA brought forward by the MTA.”⁸ In this case, MTAB members provided verbal feedback during regular meetings and presentations of the Stage 1 Disposition Report material as well as written feedback on the final draft of the report. These comments and the CalMTA team’s response on how the comments were addressed is presented in Appendix F.

The MTAB members and stakeholders also provided comments on the Advancement Plans for the initial three ideas identified for expedited MTI Plan development. The three ideas were presented to the MTAB in a meeting held on Oct. 13, 2023, and then posted for public comment from Dec. 6, 2023, until Dec. 20, 2023. The comment response memo and comment summary with CalMTA responses to the feedback received are summarized in the MTAB packet and available on the Calmta.org website at [MTAB Meeting January 25, 2024](#).

⁸ [CPUC D. 19-12-021, pp. 119](#)

Appendix A: Ranked List of Ideas Scored in Stage 1

This appendix contains a rank-ordered list of all the ideas submitted and scored in Stage 1. Ideas that did not meet the threshold requirements to advance to Stage 1 scoring are included in Appendix C.

The rank-order list includes a description of the submitted idea as well as the status of the idea in the scoring process and clarifying notes. They are grouped in bins by score and ideas that were submitted by CalMTA are indicated by an asterisk in the Idea Name. Ideas with the status "Stage 2 Scoring Review" are those ideas that CalMTA has advanced to Stage 2 scoring.

Ideas that CalMTA does not recommend advancing to Stage 2 scoring at this time are in the status "Archive/Stage 1." The "Status Notes" field includes a short explanation/rationale for which categories were the primary reason for the idea not scoring high enough in Stage 1 scoring to moving forward at this time. For more details on the scoring rubric and guidance, see Appendix B. CalMTA will monitor the market and other conditions and may advance archived MTI ideas in the future.

As described in the body of this report, when ideas were duplicative or complementary in nature, they were combined and scored together. In these cases, the status indicates "Combined" and the notes indicate which ideas were combined. Lastly, ideas with the status "Stage 1 Research/Refinement" are submissions that CalMTA was able to score in Stage 1 but did not contain enough information to fully understand the market or market transformation theory to move to Stage 2. CalMTA will conduct light research in the first quarter of 2024 to resolve any outstanding areas of uncertainty and will rescore these ideas along with the new submissions received in the next RFI.

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|--|--------|---|---|------------------------|---|
| Ideas with Stage 1 scores between 8.0 & 8.9 | | | | | |
| 1 | 0157 | Singe Pane Retrofit | Single Pane Retrofit replaces inefficient glass with an ultra-high-performance vacuum insulating glass (VIG) which virtually eliminates both conductive and convective heat transform as well as reduced radiant heat transfer when combined with low-e coatings. | Stage 2 Scoring Review | Advanced to Stage 2 |
| 1 | 0079 | Vacuum Insulated Glass (VIG)* | Vacuum insulated glass uses a vacuum layer between two panes of glass which virtually eliminates both conductive and convective heat transfer as well as reduces radiant heat transfer when combined with low-e coatings resulting in energy savings. | Combined | Linked with IDEA-0157 in Stage 2 Scoring Review |
| 2 | 0097 | Portable Heat Pumps for heating and cooling for tenants | Portable Heat Pumps offer the convenience and low cost of portable air conditioners while offering the dual function of space heating and cooling. They are more efficient than space heaters and cost less to install and operate than a ducted HVAC system. | Stage 2 Scoring Review | Advanced to Stage 2 |

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|--------------------|--------|---|---|------------------------|---|
| 2 | 0125 | Cold climate window and portable heat pumps with condensate evaporation | Cold climate window and portable heat pumps with condensate evaporation proposes portable and window heat pumps with variable-speed compressors which are inherently more efficient than single- or two-speed compressors and provide the capability to maintain heating capacity to 5°F. | Combined | Linked with IDEA-0097 in Stage 2 Scoring Review |
| 2 | 0086 | Micro Heat Pumps* | Micro heat pumps are small, portable heat pumps that offer heating and cooling. They are more efficient than space heaters and cost less to install and operate than a ducted HVAC system. | Combined | Linked with IDEA-0097 in Stage 2 Scoring Review |
| 3 | 0021 | Bi-Directional EV Charging Residential* | Bi-directional electric vehicle level 2 or 3 EVSE (chargers) allow power to flow from the EV battery to the home or grid in response to a grid demand or price signal resulting in reduced peak demand. | Stage 2 Scoring Review | Advanced to Stage 2 |

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|--------------------|--------|---|---|------------------------|---|
| 3 | 0175 | EVSE Standards Roadmap | EVSE Standards Roadmap would develop plan for EVSE adoption by performing a market characterization study to establish current practices and better understand barriers to establishing California state energy efficiency and flexible demand appliance standards and identify which technologies should be adopted to ease the transition from traditional fossil fuel vehicles to battery electric vehicles and the corresponding impact to the electric grid. | Combined | Linked with IDEA-0021 in Stage 2 Scoring Review |
| 4 | 0085 | Combined Heat Pump Cooling-Heating-Water Heating-Thermal Storage* | A Combined Heat Pump is a product that integrates water heating, space heating, and space cooling into one combined, three-function heat pump system. These systems can also store some amount of thermal energy for use at a later time. | Stage 2 Scoring Review | Advanced to Stage 2 |
| 4 | 0126 | Combi Heat Pump | Combi Heat Pump is an integrated Heat Pump system designed to provide space cooling, space heating, and water heating. | Combined | Linked with IDEA-0085 in Stage 2 Scoring Review |
| 5 | 0010 | High Performance Windows* | High performance windows are windows that outperform code efficient windows by ~20% or more through the use of two or more panes of glass and /or the use of gases such as krypton or argon. | Stage 2 Scoring Review | Advanced to Stage 2 |

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|--|---------------|--------------------------------------|--|------------------------|---|
| 5 | 0109 | High Performance Windows | High performance windows are defined as a product that achieves a .22 U-factor or less. The primary product currently meeting this efficiency level is a thin triple-pane window. | Combined | Linked with IDEA-0010 in Stage 2 Scoring Review |
| 6 | 0171 | Residential Variable Speed Heat Pump | Variable-speed heat pumps precisely control the compressor and fan motor in an HVAC system which results in energy savings by controlling the output directly by changing the speed or torque of the motor as needed. | Stage 2 Scoring Review | Advanced to Stage 2 |
| 6 | 0037 | Cold Climate Heat Pumps* | Cold climate heat pumps are heat pumps with variable-speed compressors which are inherently more efficient than single- or two-speed compressors and provide the capability to maintain heating capacity to 5°F. | Combined | Linked with IDEA-0171 in Stage 2 Scoring Review |
| Ideas with Stage 1 scores between 7.0 & 7.9 | | | | | |
| 7 | 0107 | Induction Cooktops* | Induction cooktops work by generating a magnetic field at the surface of the cooktop increasing the efficiency and speed of cooking while reducing heat lost to space conditioning. Over 85% of the energy consumed by an induction hob is transferred to the cooking vessel while an electric resistance hob is roughly 70% efficient and a gas hob is 30% efficient. | Stage 2 Scoring Review | Advanced to Stage 2 |

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|---------------------------|---------------|--|---|------------------------|---|
| 7 | 0115 | Leveraging ESRPP for Equity in Consumer Products in Retail | The ENERGY STAR Retail Products Platform (ESRPP) partners with the Environmental Protection Agency (EPA) ENERGY STAR program, utility organizations and large retailers utilizing mid-stream incentives to influence retail buyer's purchase decisions while collecting full category sales data with a focus on disadvantaged communities. | Combined | Linked with IDEA-0107 in Stage 2 Scoring Review |
| 8 | 0194 | Heat Pump Water Heater Parent Idea | Parent idea for multiple heat pump water heater submissions. HPWHs have a uniform energy factor (UEF), the measure of its energy efficiency, of 3.0 while gas water heaters have a UEF between 0.50-0.98. | Stage 2 Scoring Review | Advanced to Stage 2 |
| 8 | 0180 | Deployment of Retrofit-Ready 120V Heat Pump Water Heaters | Deployment of Retrofit-Ready 120V Heat Pump Water Heaters would incentivize contractors to keep 120V HPWHs on their truck and educate contractors on the strengths and weaknesses of the technology. | Combined | Linked with IDEA-0194 in Stage 2 Scoring Review |

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|--------------------|--------|--|--|----------|---|
| 8 | 0177 | HPWH Rapid Installer Expansion TFP | HPWH Rapid Installer Expansion TFP would train installers to make them more familiar with the product by offering a focused certification program that will use ESMAC+ (Energy Star Manufacturer Action Council) training, virtual gathering meetings, manufacturer virtual universities, and in-person learning about HPWH benefits and installation how-tos. | Combined | Linked with IDEA-0194 in Stage 2 Scoring Review |
| 8 | 0148 | Market connections for the new plug-in heat pump water heater (HPWH) | Market connections for the new plug-in heat pump water heater (HPWH) proposes accelerating the adoption of 120-volt plug in HPWH which circumvent costly electrical panel and infrastructure upgrades generally required when installing a standard 240-volt HPWH. | Combined | Linked with IDEA-0194 in Stage 2 Scoring Review |
| 8 | 0153 | Eco-Tech Apprenticeship: HPWH Experts for CA's Sustainable Future | Eco-Tech Apprenticeship: HPWH Experts for CA's Sustainable Future would standardize training for heat pump water heating technology across the trades and to integrate this technology and skill set into colleges, trade schools, union training halls, and contractor organizations across California for both residential and commercial applications. | Combined | Linked with IDEA-0194 in Stage 2 Scoring Review |

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|---------------------------|---------------|---|--|-----------------------------|---|
| 8 | 0145 | HPWH Exterior Enclosure | HPWH Exterior Enclosure reduces the sound from heat pump water heaters (HPWH) and ensures proper airflow around a HPWH that has been installed in an external location due to space limitations within the residence. | Combined | Linked with IDEA-0194 in Stage 2 Scoring Review |
| 8 | 0132 | Gas Water Heater Buyback Program + Solar Water Heater 2.0 | Gas Water Heater Buyback Program + Solar Water Heater 2.0 would buy back gas water heaters and replace the gas water heaters with heat pump water heaters or passive solar water heaters resulting in energy savings and emission reductions. | Combined | Linked with IDEA-0194 in Stage 2 Scoring Review |
| 8 | 0136 | HPWH Installation Certification | Heat Pump Water Heater (HPWH) Installation Certification would certify contractors to install HPWHs while providing incentives and financing to customers and develop workforce training. | Combined | Linked with IDEA-0194 in Stage 2 Scoring Review |
| 9 | 0154 | Hydronic Heating Supply | Hydronic Heating Supply is a self-contained unit that converts a building's hydronic heating supply by using a proportional control valve and double-wall heat exchanger to provide on-demand domestic hot water for the ultimate in water and energy savings in multifamily, hospitality, assisted-living centers, and healthcare patient towers. | Stage 1 Research/Refinement | Hold for Further Development |

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|--------------------|--------|--|--|-----------------------------|---|
| 10 | 0193 | Building Performance Standards Accelerator MTI | Building Performance Standards (BPS) Accelerator MTI would encourage cities to adopt BPS policies which target existing building stock and improve efficiencies either through a prescriptive design or an energy use intensity benchmark. | Stage 2 Scoring Review | Advanced to Stage 2 |
| 11 | 0068 | AC must be HP* | AC Must Be HP is a future-state in which consumers can no longer purchase a product that is only air conditioning. | Stage 2 Scoring Review | Advanced to Stage 2 |
| 12 | 0105 | Streetlight Municipalization Legislation | Streetlight Municipalization Legislation proposes municipalities acquire ownership of the streetlights in California from the IOUs and upgrade them to efficient LED technology as well as install dimming and occupancy capabilities. | Stage 2 Scoring Review | Advanced to Stage 2 |
| 12 | 0158 | Regional Lighting Assessment Tool | The Regional Lighting Assessment Tool is designed to improve outdated and inefficient CAD-based municipal roadway lighting design processes by using a combination of field measurements and lighting product information. | Combined | Linked with IDEA-0105 in Stage 2 Scoring Review |
| 13 | 0111 | Efficient Fans Leveraging FEI | Efficient Fans Leveraging FEI would require adopting the fan energy index (FEI) rating as the key energy metric for fans in state codes. | Stage 1 Research/Refinement | Hold for Further Development |

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|---------------------------|---------------|---|--|------------------------|---|
| 14 | 0165 | Foodservice Decarbonization | Foodservice decarbonization focuses on electrifying the most common pieces of cooking equipment that have historically been fueled by natural gas including combination ovens, friers, griddles, charbroilers, and 6-burner ranges as well as water heating. Electric cooking equipment offers direct energy savings due to more energy going into the cooking and less energy lost to space conditioning as well as greatly increases indoor air quality. | Stage 2 Scoring Review | Advanced to Stage 2 |
| 14 | 0174 | Induction Cooktop Training Partnership | Induction Cooktop Training Partnership would increase exposure to the many benefits of induction cooktops in order to increase their acceptance and uptake in commercial kitchens. The purpose is to overcome bias through education. | Combined | Linked with IDEA-0165 in Stage 2 Scoring Review |
| 14 | 0183 | Elevating Underserved Foodservice: Community-Centered Tech Transformation | Elevating Underserved Foodservice: Community-Centered Tech Transformation would focus on tailoring technology to energy requirements, operational demands, and cultural nuances of ethnically specific independently owned small restaurants in disadvantaged communities. | Combined | Linked with IDEA-0165 in Stage 2 Scoring Review |

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|---------------------------|---------------|---|---|-----------------------------|--|
| 15 | 0022 | Smart Home* | Smart home technology enables automation of certain appliances for increased capabilities, security, comfort, and convenience including products such as thermostats, lighting, refrigerators, and cooking appliances. In addition, these appliances can be connected to an overarching smart home energy management system which allows the customer to monitor their energy usage and make changes based on usage patterns. | Stage 1 Research/Refinement | Hold for Further Development |
| 16 | 0188 | Reflective Insulation for Windows | Reflective Insulation for Windows is designed to keep building interiors cool without interfering with the occupants' views by blocking infrared light reducing solar heat gain by 50% in turn reducing summer cooling load. | Stage 1 Research/Refinement | Hold for Further Development |
| 17 | 0106 | High-Efficiency Factory-Built Homes | High-efficiency factory-built homes are homes that exceed ENERGY STAR certification criteria and are fully electric with low impact on the grid. | Stage 1 Research/Refinement | Hold for Further Development |
| 17 | 0182 | High Efficiency Electric Manufactured Housing Specifications and Factory Design | High Efficiency Electric Manufactured Housing Specifications and Factory Design is high efficiency, solar enabled, all electric manufactured housing which can be used to build new decarbonized affordable housing in California and replace existing mobile and manufactured homes that cannot cost effectively or feasibly be retrofitted. | Combined | Linked with IDEA-0106 in Stage 1.5 Research/Refinement |

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|--------------------|--------|---|---|------------------------|---|
| 18 | 0078 | Efficient Heat Pump Water Heaters for Multifamily* | Efficient Heat Pump Water Heaters focus on increased performance and emission reductions from central water heating systems. HPWHs have a uniform energy factor (UEF), the measure of its energy efficiency, of 3.0 while gas water heaters have a UEF between 0.50-0.98. | Stage 2 Scoring Review | Advanced to Stage 2 |
| 18 | 0179 | Load flexibility controls of heat pump water heater systems | Load flexibility controls of heat pump water heater (HPWH) systems uses advanced controllers to control the flow router and manage water flow between water heaters and storage equipment. The technology also schedules and controls HPWH system operation according to grid control signals, such as time-varying electricity price, carbon intensity, and demand response signals to minimize energy costs, greenhouse gas emission, and peak electricity consumption. | Combined | Linked with IDEA-0078 in Stage 2 Scoring Review |
| 18 | 0113 | Central HPWH for MF - Skid Mount or complete Kit solutions | Central HPWH for MF - Skid Mount or complete Kit solutions heat and store water in a central location using a recirculation loop to distribute hot water using a packaged system approach also known as a plug and play solution that can be shipped and installed as a complete solution. | Combined | Linked with IDEA-0078 in Stage 2 Scoring Review |

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|--|--------|--|---|-----------------------------|---|
| 18 | 0108 | Ultra-Low GWP CHPWH Skid Packaged Systems with TES | Ultra-Low GWP CHPWH Skid Packaged Systems with TES is a skid packaged Central Heat Pump Water Heating (CHPWH) system that utilizes CO2 refrigerants, unpressurized storage, and phase change materials (PCMs) to enhance energy density and deliver superior performance compared to conventional CHPWH systems. | Combined | Linked with IDEA-0078 in Stage 2 Scoring Review |
| 19 | 0149 | Modernizing building automation system hardware to use standardized controls | Modernizing building automation system (BAS) hardware to use standardized controls proposes upgrading BAS systems in large commercial buildings (>50,000 SF) while adhering to ASHRAE Guideline 36-2021 (G36) which explicitly describes best practice controls sequences in a standardized way and has demonstrated very substantial energy savings and other benefits compared to typical existing controls in buildings. | Stage 2 Scoring Review | Advanced to Stage 2 |
| Ideas with Stage 1 scores between 6.0 & 6.9 | | | | | |
| 20 | 0110 | Smart Pumps | Smart pumps and circulators are a packaged pumping solution that combines a pump, motor, drive, and integrated controls into one product and is an example of highly efficient pumps and circulators. | Stage 1 Research/Refinement | Hold for Further Development |

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|--------------------|--------|--|---|----------|--|
| 20 | 0147 | IE5 Motor with Integrated Variable Speed Drive for Water Pumping | IE5 Motor with Integrated Variable Speed Drive for Water Pumping is a permanent magnet motor with an efficiency rating of Ultra-Premium Efficiency (IE5) combined with an integrated variable speed drive (VFD) for industrial water pumping applications, including pressure boosting, raw water feed, boiler feed, and cooling tower water circulation. A motor and VFD combination allow for customization of operating speeds to account for fluctuation in demand. | Combined | Linked with IDEA-0110 in Stage 1.5 Research/Refinement |
| 20 | 0034 | XMP PUMPS* | XMP Pumps refers to the development of a commercial and industrial program targeted at improving regional practices in mechanical systems for commercial and industrial sectors including municipalities and agriculture. XMP provides a method to provide incentives, market awareness, stability signals, end user facing materials, program development facing materials, and assist in building a regional knowledgebase. | Combined | Linked with IDEA-0110 in Stage 1.5 Research/Refinement |

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|--------------------|--------|--|--|------------------------|---|
| 21 | 0116 | ERTUs | Roof Top Units (RTU) are forced-air systems that package the evaporator, condenser coils, fans, and heating components into a single unit to serve a building's heating, cooling, and ventilation needs. Design improvements addressing supply efficiency, heat recovery, and an improved shell can deliver 10-40% above today's minimum efficiency RTUs while even greater savings and grid benefits can be achieved through the addition of advanced control strategies. | Stage 2 Scoring Review | Advanced to Stage 2 |
| 21 | 0184 | Advancing Smarter HVAC Controls in Small-to-Medium Commercial Buildings | Advancing Smarter HVAC Controls in Small-to-Medium Commercial Buildings is a group of more than 20 product offerings including networked thermostatic control, advanced RTU control, and light commercial building automation systems (BAS) which provide customers with the ability to control their HVAC as well as participate in demand response. | Combined | Linked with IDEA-0116 in Stage 2 Scoring Review |
| 21 | 0166 | Unitary Packaged Heat Pump Systems for Light Commercial Applications TFP | Unitary Packaged Heat Pump Systems for Light Commercial Applications TFP proposes a study to determine the reason behind low market adoption rates of Packaged Unitary Air Source Heat Pump (ASHP) systems in the state of California. | Combined | Linked with IDEA-0116 in Stage 2 Scoring Review |

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|--------------------|--------|---|---|-----------------------------|---|
| 21 | 0163 | Enable HVAC QI/QM by Introducing a Universal HVAC Interface | Enable HVAC QI/QM by Introducing a Universal HVAC Interface would establish a standardized universal physical and software interface that would be mandated for all new HVAC equipment manufactured after a specified date. The interface would report various faults, including but not limited to airflows, refrigerant charge, refrigerant contaminants, CO2 emissions, and other performance indicators such as output, efficiency, and energy consumption. | Combined | Linked with IDEA-0116 in Stage 2 Scoring Review |
| 21 | 0124 | ARC Advanced Rooftop Controls for HVAC | Advanced Rooftop Controls for HVAC is a proposed technology that would install variable frequency drives (VFDs) with proprietary logic controllers on existing HVAC systems. Variable frequency drives control the output directly by changing the speed of the fan motor as needed. | Combined | Linked with IDEA-0116 in Stage 2 Scoring Review |
| 22 | 0173 | Scaling Passive House | Scaling Passive House is performance standard for residential and nonresidential construction and alterations that leans on continuous insulation, high-efficiency fenestration, and dedicated ventilation, among other principles, resulting in ultra energy efficient buildings with capacity to retain heating or cooling and release it steadily and slowly. | Stage 1 Research/Refinement | Hold for Further Development |

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|--------------------|--------|---|---|------------------------|---|
| 23 | 0120 | Luminaire Level Lighting Controls (LLLC) | Luminaire Level Lighting Controls (LLLC) are lighting control systems that have fixture-level integrated sensors (either at the factory or on-site) and controllers that are wirelessly networked, enabling lighting products within the system to communicate with each other and transmit data. Key features include occupancy sensing, continuous dimming, daylighting, high end trim, and controls persistence. | Stage 2 Scoring Review | Advanced to Stage 2 |
| 23 | 0128 | Procure Networked Lighting Controls from Multi-Vendor Teams | Procure Networked Lighting Controls from Multi-Vendor Teams are digitally standardized interchangeable components for network lighting controls. The proposed practice will develop model procurement language with the goal of making digitally standardized multi-vendor NLC systems broadly available in California | Combined | Linked with IDEA-0120 in Stage 2 Scoring Review |
| 23 | 0020 | LLLC* | Luminaire level lighting controls are lighting control systems that have sensors and controllers installed that are directly integrated or embedded into the light during the manufacturing process. By adding advanced controls into lighting systems, customers can have greater control over their lighting usage and increase occupant comfort, space utilization, and improve energy use. | Combined | Linked with IDEA-0120 in Stage 2 Scoring Review |

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|---------------------------|---------------|---|--|-----------------------------|---|
| 24 | 0112 | Adjustable Speed Drives leveraging the Power Index | Adjustable Speed Drives leveraging the Power Index uses the ratio of rated power over baseline power to calculate savings as a result of adding an adjustable speed drive to a motor-driven system. | Stage 1 Research/Refinement | Hold for Further Development |
| 25 | 0081 | Heat Pump Integrated Continuous Mechanical Ventilation* | Heat Pump Integrated Continuous Mechanical Ventilation combines HVAC and ventilation resulting in energy savings by reducing or eliminating the need for an added fan and separate space conditioning unit while also improving IAQ. | Stage 2 Scoring Review | Advanced to Stage 2 |
| 26 | 0127 | Energy Conditioning Technology | Energy Conditioning Technology is a custom technology solution that optimizes voltage by adding capacitance via a series of capacitors that enables the unit to capture reactive power (KVAR) which is commonly lost and adds it back to the system. It also stabilizes the voltage of the entire system, reduces voltage drop when demand increases, and reduces tripped breakers as a result of low voltage or power spikes. | Archive/Stage 1 | The idea scored low on equity relative to other submitted ideas as no ESJ partnerships have been identified and low on MT alignment relative to other submitted ideas due to a lack of leverage points and unclear strategy for sustained benefits. |

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|---------------------------|---------------|---|--|-----------------------------|------------------------------|
| 27 | 0121 | Remote Pump Monitor | Remote Pump Monitor uses various sensors to measure a pump's operational data such as suction pressure, discharge pressure, flow rate and power consumption to provide real-time information to end users. It helps customers monitor their pumping systems and make timely decisions regarding optimizing pumping operations. | Stage 1 Research/Refinement | Hold for Further Development |
| 28 | 0133 | Thermal Energy Storage as a Distributed Energy Resource | Thermal Energy Storage as a Distributed Energy Resource proposes using thermal energy storage as a distributed energy resource at commercial sites that traditionally have the highest energy intensities like hospitals, grocery stores, and refrigerated warehouses. | Stage 1 Research/Refinement | Hold for Further Development |
| 29 | 0118 | Very High Efficiency Dedicated Outdoor Air Systems (DOAS) | Very High Efficiency Dedicated Outdoor Air Systems (DOAS) use high efficiency heat recovery combined with a high-performance heat pump as an HVAC system approach which result in significant commercial sector energy savings potential. | Stage 1 Research/Refinement | Hold for Further Development |
| 30 | 0077 | Bi-Directional Level 2 EV Charging - Fleet* | Bi-directional electric vehicle DC EVSE (fast chargers) allow power to flow from the EV battery to the business or grid in response to a grid demand or price signal. | Stage 2 Scoring Review | Advanced to Stage 2 |

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|--------------------|--------|------------------------|---|------------------------|---|
| 31 | 0080 | Smart Electric Panels* | A smart panel is an electric panel with integrated or add-on software controls, generally in the form of relays, that provide a user with additional information and capabilities beyond a traditional panel. Smart panels are capable of shutting down all non-critical loads, communicating circuit-level consumption, facilitating strategic participation in DR programs, limiting whole-home demand by preventing coincident demand from appliances, managing appliances, and enables electrification by allowing addition of loads in excess of rated panel capacity. | Stage 2 Scoring Review | Advanced to Stage 2 |
| 32 | 0100 | Hydronic Additive | Hydronic Additive is designed to improve the system efficiency of closed loop water-based HVAC systems including boiler systems, heat pumps, district loops and chilled water systems resulting in water that heats and cools faster and energy savings. | Archive/Stage 1 | The idea scored low in TSB relative to other submitted ideas due to lack of grid benefits and low in equity relative to other submitted ideas due to the primary target being commercial. |

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|--------------------|--------|---|--|-----------------------------|---|
| 33 | 0146 | Work-based Learning to Achieve Equitable Climate Cool Schools | Work-based Learning to Achieve Equitable Climate Cool Schools prepares and supports cohorts of Local Education Agencies (LEAs) to design, build, operate, and repair their facilities to meet state energy, decarbonization, and air quality requirements by providing cohort support, internship pilot programs, roadmaps and implementation activities. | Stage 1 Research/Refinement | Hold for Further Development |
| 35 | 0169 | Foodservice Refrigeration: High Efficiency Condenser and Evaporator Units TFP | Foodservice Refrigeration: High Efficiency Condenser and Evaporator Units TFP would target high efficiency condensing units (HECUs) and high-efficiency evaporator units (HEEUs) to replace standard efficiency condensing units and standard efficiency evaporators. HECUs and HEEUs have variable speed motors which control the output directly by changing the speed or torque of the motor as needed. | Archive/Stage 1 | The idea scored low in TSB relative to other submitted ideas due to low grid impacts and low in equity relative to other submitted ideas as there are no ESJ partnerships identified. |

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|---------------------------|---------------|--|---|-----------------|--|
| 36 | 0122 | Commercial Secondary Windows | Commercial secondary windows adds on a single pane window to the existing frame in commercial buildings with single pane windows which creates an insulating air gap resulting in energy savings without replacing the full window. | Archive/Stage 1 | The idea scored low in TSB relative to other submitted ideas due to low grid flexibility and low in Equity relative to other submitted ideas due to the lack of partnership opportunities and overall impact to ESJ communities. |
| 36 | 0187 | High-Performance Secondary Window Panels | High-Performance Secondary Window Panels consist of a single pane of glass or plastic in an aluminum or wood frame installed on the inside or outside of the primary window. This would increase the overall U-factor at a lower cost than replacing the entire window. | Combined | Linked with IDEA-0122 in Archive/Stage 1 |
| 36 | 0161 | Commercial Secondary Windows | Commercial secondary windows adds on a single pane window to the existing frame in commercial buildings with single pane windows which creates an insulating air gap resulting in energy savings without replacing the full window. | Combined | Linked with IDEA-0122 in Archive/Stage 1 |

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|---------------------------|---------------|--|---|-----------------|--|
| 37 | 0131 | Time of Sale Energy Disclosure | Energy disclosure is a practice to leverage market forces to increase investment in energy efficient home upgrades by including energy efficiency upgrades in the appraisal process thus making them visible to the market. | Archive/Stage 1 | The idea scored low in TSB relative to other submitted ideas due to low grid impacts and low in equity relative to other submitted ideas as there are no ESJ targets identified. |
| 37 | 0189 | Transforming the Market for High Performing Homes in California | Transforming the Market for High Performing Homes in California is a 3rd party certification program which will leverage public funds to market demand for energy efficiency upgrades that will endure after incentive dollars are exhausted. | Combined | Linked with IDEA-0131 in Archive/Stage 1 |
| 38 | 0185 | Combining Monitoring-Based Commissioning with DR to Maximize Grid Benefits | Combining Monitoring-Based Commissioning (MBCx) with DR to Maximize Grid Benefits is a pathway/practice to deploy MBCx in combination with DR in commercial buildings to maximize energy and demand benefits in a single package. | Archive/Stage 1 | The idea scored low in equity relative to other submitted ideas due to lack of partnership strategy and low in MT alignment relative to other submitted ideas due lack of sustained benefits strategy and few leverage points. |

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|--|--------|--|---|-----------------|--|
| 39 | 0176 | Title 24 Enforcement Assistance: AHJ Automation and Acceptance Testing | Title 24 Enforcement Assistance: AHJ Automation and Acceptance Testing is an integrated set of tools to help the construction market with the energy code review process by automating and simplifying it. This would provide transparent data to the Authorities Having Jurisdiction (AHJs) which will in turn help enforce Title 24 Acceptance Testing which is currently only performed less than 20% of the time required by law. | Archive/Stage 1 | The idea scored low in equity relative to other submitted ideas due to lack of partnership strategy and low in MT alignment relative to other submitted ideas due to unclear sustained benefits. |
| Ideas with Stage 1 scores between 5.0 & 5.9 | | | | | |
| 40 | 0093 | Shade cloth over the outside of windows | Shade cloth over the outside of windows proposes that new buildings should be built with outside roller blinds (as is done in Europe even on newer public housing) which keeps direct sunlight from coming in the house (in summer) or can be used at night against cold. Existing buildings can be retrofitted cheaply using shade cloth over frames, seasonally, or on motorized rollers. | Archive/Stage 1 | The idea scored low in equity relative to other submitted ideas as there are no ESJ partnerships defined and low in MT alignment relative to other submitted ideas due to low factors of diffusion and unclear sustained benefits. |

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|---------------------------|---------------|---|---|-----------------|--|
| 40 | 0186 | Exterior Shading for solar control | Exterior Shading for solar control is the use of various shading devices or structures installed on the outer side of residential windows to control and manage sunlight, heat, glare, and privacy reducing heat gain which reduces the summer cooling load. | Combined | Linked with IDEA-0093 in Archive/Stage 1 |
| 41 | 0160 | Low Carbon Calcined Clay Concrete in California | Low Carbon Calcined Clay Concrete in California is a supplementary cementitious material that can reduce CO2 emissions through material & energy efficiency to meet state net zero goals for the sector. Clay is naturally zero carbon raw material and can be calcined at lower temperatures using less energy. | Archive/Stage 1 | The idea scored low in TSB relative to other submitted ideas due to lack of grid benefits and low in equity relative to other submitted ideas due to lack of ESJ strategy for partnerships. |
| 42 | 0155 | Residential Efficient Gas Absorption Heat Pump | Residential Efficient Gas Absorption Heat Pump is a technology that offers significant improvements to existing furnaces and electric heat pumps by using natural gas to pump heat from the outdoors to an indoor conditioned environment via a group of heat exchangers, vessels, and a pump that comprise the thermal compressor. | Archive/Stage 1 | The idea scored low in TSB relative to other submitted ideas as there are low energy savings compared to HP baseline and low equity relative to other submitted ideas scores due to only some of the benefits impacting ESJ communities. |

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|--------------------|--------|--|--|-----------------------------|---|
| 43 | 0143 | Rare trees for shade and income grown with greywater | Rare trees for shade and income grown with greywater proposes growing rare or fruit trees to shade homes using greywater from a residence's laundry machine. | Archive/Stage 1 | The idea scored low in TSB relative to other submitted ideas as the energy savings and grid benefits are low and low in MT alignment relative to other submitted ideas due to lack of sustained benefits. |
| 44 | 0137 | Sustainable Refrigeration Transition | Sustainable Refrigeration Transition combines practice and technology to demonstrate the value of investing in and managing refrigeration systems more sustainably for smaller independent grocers. The practice involves comprehensive refrigerant leak detection and remediation, and the technology component aims to facilitate the transition to low global warming potential (GWP) and natural refrigerant technologies. | Stage 1 Research/Refinement | Hold for Further Development |
| 45 | 0025 | Industrial Process Heat Pump* | Industrial Process Heat Pumps are a class of active heat-recovery equipment that allows temperature of a waste-heat stream to be increased to a higher, more useful temperature resulting in energy use being cut by up to one third. | Archive/Stage 1 | The idea scored low in MT alignment relative to other submitted ideas due to low diffusion and unclear sustained benefits. |

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|---------------------------|---------------|--|---|-----------------|--|
| 45 | 0164 | Decarbonization for Industrial and Agricultural Sectors, and Hospitals | Decarbonization for Industrial and Agricultural Sectors, and Hospitals would place an emphasis on exploring alternative heating technologies and implementing heat recovery solutions to increase overall energy efficiency in the industrial and agricultural sectors. | Combined | Linked with IDEA-0025 in Archive/Stage 1 |
| 45 | 0159 | Industrial Heat Pump Market Transformation | Industrial Heat Pump Market Transformation would accelerate the adoption of industrial heat pumps which are a class of active heat-recovery equipment that allows temperature of a waste-heat stream to be increased to a higher, more useful temperature resulting in energy use being cut by up to one third. | Combined | Linked with IDEA-0025 in Archive/Stage 1 |
| 45 | 0129 | Industrial Heat Pumps in California | Industrial Heat Pumps in California are a class of active heat-recovery equipment that allows temperature of a waste-heat stream to be increased to a higher, more useful temperature resulting in energy use being cut by up to one third. | Combined | Linked with IDEA-0025 in Archive/Stage 1 |
| 46 | 0139 | Commercial Wok Range Market Transformation | Commercial Wok Range Market Transformation studies the energy efficient and cost benefits of induction wok ranges compared to a gas wok range baseline. | Archive/Stage 1 | The idea scored low in TSB relative to other submitted ideas as the overall market is small and low in readiness as the product is pre-commercial. |

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|---------------------------|---------------|--|---|-----------------|--|
| 47 | 0130 | Continuous Process Management for WWTP | Continuous Process Management System for Wastewater Treatment Plans is an integrated demand side management solution that helps reduce energy consumption and provides flexibility in demand response through controls and pump system optimization during periods of electric utility overgeneration and peak load shedding. | Archive/Stage 1 | The idea scored low in TSB relative to other submitted ideas due to low GHG impacts and low equity relative to other submitted ideas as there is no identified partnership role. |
| 48 | 0178 | Second Skin Walls | Second Skin Walls are vines that act as a second thermal shield on the southern and western facing walls in addition to the standard home walls. The vines protect the exterior walls from absorbing the thermal heat from the sun, thus reducing the need for air condition. | Archive/Stage 1 | The idea scored low in TSB relative to other submitted ideas due to low energy savings and low grid benefits. It also scored low in MT alignment relative to other submitted ideas due to lack of leverage points. |

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|--------------------|--------|---|---|-----------------------------|---|
| 49 | 0035 | Refrigerant Recycling* | Refrigerant Recycling provides an economical refrigerant supply chain that encourages the collection of refrigerants by trained technicians which is then reused. | Archive/Stage 1 | The idea scored low in non-energy impacts relative to other submitted ideas as most of the benefits are captured under GHG benefits and low in MT alignment relative to other submitted ideas due to low diffusion and few leverage points. |
| 50 | 0101 | Condenser Coil Cleaning of Commercial Refrigeration Units | Patented dust hood which can be used to clean the condenser coils of stand-alone ("self-contained") commercial refrigeration units which reside in large numbers in foodservice, healthcare and laboratory locations. Cleaning the condenser coils that are generally dirty and clogged result in 15-25% energy savings. | Stage 1 Research/Refinement | Hold for Further Development |
| 51 | 0123 | Automate Energy Optimization for Production Companies | Automate Energy Optimization for Production Companies is an energy management system for distribution network operators (DSO) and transmission system operators (TSO) level integration that provides energy optimization by allowing customers to capitalize on keeping the balance between energy production and consumption. | Archive/Stage 1 | The idea scored low on equity relative to other submitted ideas as there were no clear ESJ benefits and low on MT alignment relative to other submitted ideas due to low factors of diffusion and no strategy for sustained benefits. |

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|--|--------|------------------------------------|--|-----------------|--|
| Ideas with Stage 1 scores between 4.0 & 4.9 | | | | | |
| 52 | 0023 | Switched Reluctance Motors (SWRM)* | Switched reluctance (SWRM) is a unique software-controlled motor which can stand in for a conventional 3-phase motor with Variable Frequency Drive. The design is easy to manufacture and SWRMs are generally more efficient than induction motors on a VFD, especially at lower speeds. | Archive/Stage 1 | The idea scored low in MT alignment relative to other submitted ideas due lack of leverage points and sustained benefits. |
| 53 | 0069 | Solar Assisted Heat Pumps* | Solar-assisted heat pumps are a type of HVAC system that combines the technology of solar thermal collectors with a heat pump. The solar energy powers the heat pump reducing the amount of energy needed from other sources. | Archive/Stage 1 | The idea scored low in equity relative to other submitted ideas as the primary customer target is commercial and low in non-energy impacts due to the baseline equipment being heat pumps. |
| 54 | 0012 | Dynamic Window Glazing* | Dynamic window glazing uses electrochromic technology to darken the interior of glass by applying a small DC voltage via a thin coating on the window. The window can be tinted during the summer months reducing solar heat gain resulting in a reduction in cooling load while allowing heat gain in the winter to offset heating needs. | Archive/Stage 1 | The idea scored low on TSB relative to other submitted ideas due to the baseline and low on equity relative to other submitted ideas. |

| Stage 1 Score Rank | Idea # | Idea Name | Description | Status | Status Notes |
|--|--------|----------------|---|-----------------|---|
| Ideas with Stage 1 scores between 3.0 & 3.9 | | | | | |
| 55 | 0011 | Solar Windows* | Solar windows technology allows windows to capture light and convert it into electricity similar to a solar panel but without blocking visible light. | Archive/Stage 1 | The idea scored low on TSB relative to other submitted ideas due to the nature of solar windows producing energy during peak times of solar energy production. It also scored low on equity relative to other submitted ideas as no equity play or role for ESJ partnership was identified. |

**Ideas were internally generated by CalMTA.*

Appendix B: Scoring Rubric & Guidance

This appendix presents the scoring guidance provided to the scoring team to ensure that the scores are assigned consistently across all ideas.

Stage 1 Scoring

| Overarching Scoring Guidance | | |
|--|--|---|
| <p>Scores should be based on the submitters response but can be modified if the reviewer sees potential for enhancement, such as ESJ partnership opportunities, or changes to assumptions, such as targeting a narrower segment of the market. The reviewer must document the reasons for their score and any changes made in the notes.</p> | | |
| Total System Benefit | | |
| Energy Savings | The energy savings potential of the technology or practice over the life of the MTI. | <p>In Stage 1, the energy savings score is the reviewer's informed opinion of the achievable energy savings potential within the market sector and end use, as follows:</p> <ul style="list-style-type: none"> • Low levels of energy savings • Medium levels of energy savings • High levels of energy savings |
| Grid Benefits | The potential level of grid flexibility or the contributions to reliability the initiative will provide. | <p>In Stage 1 scoring, load flexibility is a proxy for grid benefits and reliability. The reviewer should use their informed opinion to assess the level of load flexibility within the market sector and end use, as follows:</p> <ul style="list-style-type: none"> • Low levels of grid flexibility • Medium levels of grid flexibility • High levels of grid flexibility |
| GHG Impacts | The GHG reductions potential of the technology or practice over the life of the MTI. | <p>In Stage 1, the likely levels of GHG emissions reductions (including the net emissions reductions from fuel switching) and/or peak demand reductions. The reviewer should use their informed opinion to score based on likely levels of GHG emissions reductions (including the net emissions reductions from fuel switching) and/or peak demand reductions within the market sector and end use, as follows:</p> <ul style="list-style-type: none"> • Low levels of peak demand reductions and/or change in GHG emissions from refrigerants • Medium levels of peak demand reduction and/or change in GHG emissions from refrigerants • High levels of peak demand reductions and/or change in GHG emissions from refrigerants |

| Readiness | | |
|--|--|--|
| Readiness | Readiness is an indicator of the supply chain maturity/product availability. Scores are assigned based on the level of availability of the technology or practice in the United States. | 1 - not commercially available or limited, pre-commercial availability (anywhere) 2 - commercially available outside of United States; requires special order in United States 3 - commercially available in the United States |
| Participant Cost/Cost-effectiveness | | |
| Participant Cost/Cost-effectiveness | In Stage 1, Participant Cost/Cost-effectiveness is the reviewer's assessment of the reasonableness of participant costs | Yes, the cost estimates are reasonable No, the cost estimates are not reasonable |
| ESJ Impacts (Equity) | | |
| Beneficial Impacts to ESJ Communities | <p>Beneficial impacts result from projects which include activities to reduce energy burden, create jobs in disadvantaged communities and high road pathway opportunities, reduce GHG emissions, and demonstrate transformative climate change actions which contribute to the ESJ community's health, safety, and improved environment.</p> <p>The MTI should specifically address the delivery of benefits to ESJ communities as part of the MTI idea. MTI ideas that focus on the general market but generate benefits to ESJ communities incidentally (as in the case of mass market products that both general market and low-income customers purchase) can receive points in this category if the reviewer determines that there is a plausible strategy.</p> <p>Technologies or practices that improve air quality in DAC or DAC adjacent communities should receive credit in this category.</p> <p>Initiatives that provide workforce development in ESJ communities should receive credit in this category.</p> | <p>Will the initiative provide beneficial impacts to ESJ communities as submitted or envisioned by the MTA team?</p> <p>1 - none of the benefits generated by the initiative idea will accrue to ESJ communities 2 - some of the benefits generated by the initiative accrue to ESJ communities 3 - about half of the benefits generated by the initiative will accrue to ESJ communities 4 - most of the benefits generated by the initiative accrue to ESJ communities 5 - all of the impacts generated by the initiative will accrue to ESJ communities (exclusively)</p> |

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|--|--|--|
| Partnership Opportunities with ESJ Communities | The partnership opportunities with ESJ communities reflects whether the initiative will leverage existing community resources, partner with other ESJ entities, or use available resource(s) in its execution. The points earned in this category depend on whether the described initiative specifically identifies an ESJ agency or other CBO for delivery, or whether they identify the role for an agency but indicates that it will be filled later. Ideas can receive points in this category if the reviewer determines that there are additional partnership opportunities. | Does the initiative leverage existing community resources, partner with other ESJ entities, or use available resource(s) as submitted or envisioned by the MTA team? 1 - no role has been identified/anticipated for an ESJ agency or other CBO in a stakeholder or advisory role for the initiative 2 - there is a strategy for involving public participation from the ESJ communities, however, potential partnerships or the targeted geographic locations have not been identified 3 - there is an identified role for a CBO partner and/or ESJ agency, however, a specific partner has not been identified 4 - one CBO organization who will work on the implementation of the initiative has been identified 5 - two or more CBO organizations OR a single statewide/regional CBO have been identified to work on the initiative |
| Non-energy Impacts | | |
| Non-energy Impacts (NEIs) | The non-energy impacts capture the impacts generated by the initiative other than the direct energy (kWh and therms) and demand savings. For the purposes of this scoring, GHG emissions reductions do not count as a non-energy impact since they are captured under the TSB score. The non-energy impact score is determined by whether the non-energy impacts are incidental (achievable and measurable) or a fundamental element of the initiative's value proposition. Workforce education and training (WE&T) should be captured as an NEI when an existing WE&T effort can be leveraged to support the initiative. | What non-energy impacts does the initiative address that would increase the success of the initiative (as identified by the submitter or CalMTA)? 1 - no identified NEIs 2 - NEIs are identified in the initiative, but are not measurable and are not of strategic value to the success of the initiative 3 - NEIs are identified in the initiative and are measurable, but do not have strategic value to the success of the initiative 4 - NEIs are identified in the initiative, are measurable and likely have some strategic value to the success of the initiative 5 - NEIs are identified in the initiative, are measurable, and substantial, and have significant strategic value to the success of the initiative |
| MT Alignment/Opportunity | | |
| Innovation Characteristics | The innovation characteristics capture the technology or service's alignment with the factors of diffusion, which have influence on the innovation's likelihood of success or failure. | Does the product or service align with the 5 factors of diffusion: relative advantage, compatibility, (low) complexity, trialability, and observability? 1 - product or service aligns with 0 factors of diffusion 2 - product or service aligns with 1 factor of diffusion 3 - product or service aligns with 2 factors of diffusion |

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| | | <p>4 - product or service aligns with 3 factors of diffusion</p> <p>5 - product or service aligns with 4+ factors of diffusion</p> |
| Leverage Points | <p>The leverage point criteria captures whether there is a known aggregation node in the technology or services market structure that can be utilized to gain market leverage causing amplified MTI influence.</p> | <p>Is there an intervention point, aggregation node, trend, or policy impacting the target market that will generate broad change?</p> <p>1 - there are no known or identified market leverage points or proven intervention strategies</p> <p>2- one identified market leverage point/intervention strategy, without evidence of likely success</p> <p>3- one identified market leverage point/intervention strategy with some evidence of likely success (i.e., previously interventions or relevant conversations have already taken place)</p> <p>4 - one market leverage point with proven intervention strategies and MT success</p> <p>5 - two or more market leverage points with proven intervention strategies and MT success</p> |
| Sustained Benefits | <p>Sustained benefits are the structural changes that will occur to lock in the desired market behavior. The reviewer should have a theory for where or how those changes might occur and have a plausible strategy to create that change.</p> <p>Examples of sustained benefits include adopted code or standard, permanent changes to manufacturing operations, market practice, or permanent infrastructure that does not require CalMTA support.</p> | <p>Are there potential structural market changes that may occur that are difficult to reverse to support lastingness or a plausible argument that market changes could occur? Such as: adopted code or standard, permanent changes to manufacturing operations, market practice, or permanent infrastructure that does not require CalMTA support.</p> <p>1 - no changes in market structure/infrastructure/regulations envisioned that could result in sustained market adoption</p> <p>2 - changes in market structure/infrastructure/regulations that could result in sustained market adoption are envisioned, but no strategy is identified</p> <p>3 - the MTI envisions a change in market conditions/infrastructure/regulations that could result in sustained market adoption, and infrastructure mechanisms exist to support change, but the strategy is not clear</p> <p>4 - the MTI includes a plausible strategy that can lead to changes in market conditions/infrastructure/regulations that could result in sustained market adoption, and infrastructure mechanisms exist to support change</p> <p>5 - the MTI includes a proven strategy that can lead to changes in market conditions/infrastructure/regulations that would result in sustained market adoption</p> |

Appendix C: Ideas Archived at Threshold Review

This appendix presents the ideas that did not pass the threshold review. The status notes provide information about why they did not pass the review.

| Idea # | Idea Name | Description | Status Notes |
|--------|--|---|--|
| 0024 | VFDs on all pumps and fans > 10 HP | VFDs on all pumps and fans > 10 HP suggest adding variable frequency drives on all pumps and fan systems. Variable frequency drives control output directly by changing the speed or torque of the motor as needed. | Insufficient Information |
| 0070 | Economizer Inspection and Upgrade | Economizer Inspection and Upgrade would pay HVAC companies to inspect economizers, a part of the building's cooling system that uses outdoor air to cool the building instead of the air conditioning compressor and repair them as needed resulting in energy savings. | Idea is a tactic and may be combined with other, similar ideas in the future |
| 0114 | ESRPP | The ENERGY STAR Retail Products Platform (ESRPP) partners with the Environmental Protection Agency (EPA) ENERGY STAR program, utility organizations and large retailers utilizing mid-stream incentives to influence retail buyer's purchase decisions while collecting full category sales data. | Idea is a tactic and may be combined with other, similar ideas in the future |
| 0098 | Thermal and Infiltration Management System | Thermal and Infiltration Management System are radiant barrier window insulators that make any existing window more energy efficient and cool roof coatings that reduce heat loss and gain. | Insufficient Information |
| 0138 | Heat Pumps | Heat Pumps proposes adopting electrification starting with heat pumps which pull heat from the outdoor air in the cooler months and transfers it indoors. In warmer months, it pulls heat out of indoor air to cool the home. | Insufficient Information |
| 0036 | Low GWP Refrigerant - Grocery | Low GWP Refrigerant proposes replacing high global warming potential (GWP) refrigerants at existing grocery locations throughout California with lower GWP refrigerants such as CO2. High GWP is between 1,000-3,000 while CO2 has a GWP of 1. | No Energy savings |
| 0095 | One-stop Hazard Reporting Phone Number | One-stop Hazard Reporting Phone Number proposes a one-stop shop phone number for reporting power outages or downed power lines that would make it easier for the customers to report hazards and reduce response times by the utilities. | No Energy savings |

| ID # | Idea Name | Idea Description | Status Notes |
|-------------|---|---|---------------------|
| 0103 | Climate-health warning labels on gas pumps | Climate-health warning labels on gas pumps requires climate health warning stickers on all gas pumps in the state of California which outline the environmental and health impacts of gasoline combustion. | No Energy savings |
| 0119 | Residential and Mid-Size Wind Turbines for sites that have wind | Residential and Mid-Size Wind Turbines for sites that have wind would encourage the adoption of wind turbines that are 30-80 feet tall and provide 3kW to 30kW of energy to residential and commercial sectors. | No Energy savings |
| 0140 | Residential Electrification Concierge Service | Residential Electrification Concierge Service is a software-enabled managed marketplace that connects homeowners seeking home electrification services with local contractors. | No Energy savings |
| 0150 | Pay-for-Performance Market Platform | Pay-for-Performance Market Platform ensures alignment between participant incentives and desired programmatic impacts by enabling a pay-for-performance (P4P) market platform with open qualified aggregator participation. | No Energy savings |
| 0151 | Aggregator of Aggregators (AoA) | Aggregator of Aggregators (AoA) proposes one centralized aggregator that groups multiple individual Virtual Power Plant (VPP) projects into large deal packages for finance purposes due to the Department of Energy's Load Programs Office only looking at deal sizes of \$100 million or larger. | No Energy savings |
| 0152 | DER Procurement Hub | DER Procurement Hub proposes the continuation of a project that provides rigorous and unbiased evaluations of distributed energy resource (DER) products that reduce and/or manage demand for energy consumption in commercial buildings and agriculture by providing application guidance, side-by-side product comparisons, and feedback from actual users for a variety of DER technologies. | No Energy savings |
| 0156 | A solution reducing heat stress and improving air quality for low-income people | A solution reducing heat stress and improving air quality for low-income people combines a local fan, a local evaporative cooler, and a Corsi box into one system that can provide efficient cooling and improve air quality in summer as well as reduce heat stress and improve air quality in heat waves and wildfires, for low-income communities. | No Energy savings |
| 0162 | Updating Warren-Alquist Act by Adding Greenhouse Gas Reduction to Statute | Updating Warren-Alquist Act by Adding Greenhouse Gas Reduction to Statute would allow the CEC to more easily and swiftly establish regulatory frameworks for codifying embedded carbon, as well as implementing GHG-based building energy performance standards. | No Energy savings |

| ID # | Idea Name | Idea Description | Status Notes |
|------|--|---|--|
| 0167 | Introduce Lower GWP Refrigerants in California Market, including Heat Pump | Introduce Lower GWP Refrigerants in California Market, including Heat Pump proposes forging collaborations with manufacturers and their industry associations, such as AHRI and ASHRAE, to facilitate the introduction of refrigerants with global warming potentials (GWP) significantly lower than the mandated limit of 700 into the market. | No Energy savings |
| 0168 | Enhance the Resilience of ESJ areas by Enabling Community Solar and other DERs | Enhance the Resilience of ESJ areas by Enabling Community Solar and other DERs would focus on community solar and energy storage in disadvantaged communities that would essentially create microgrids that could respond to grid events and provide resiliency for the surrounding neighborhoods. | No Energy savings |
| 0170 | Making Homes Electric-Ready by Upgrading Electric Panels in ESJ Communities | Making Homes Electric-Ready by Upgrading Electric Panels in ESJ Communities would upgrade electric panels in underserved communities to prepare the homes for electrification. | No Energy savings |
| 0172 | Advanced Electric Motors Market Awareness and Demand TFP | Advanced Electric Motors Market Awareness and Demand TFP would increase awareness of and demand for advanced electric motors in California by adopting an advanced motor measure program that generates savings and accelerates market adoption. | No Energy savings |
| 0181 | Hemp Transformation | Hemp Transformation converts hemp into biofuels to provide energy that was previously provided by combusting trees, cotton, plastics, and gasoline. Hemp does not require fertilizers and uses less water than other potential biofuels. | No Energy savings |
| 0191 | Portable Energy Storage Systems Utilizing Second-Life EV Batteries. | Portable Energy Storage Systems Utilizing Second-Life EV Batteries is a portable 2 kWh Energy Storage System (ESS) utilizing second-life EV batteries for residential and commercial applications which can reduce utility bills and GHG emissions by load-shifting electricity to reduce peak demand and also provides backup power during grid outages, at a 30-50% cost advantage compared to new batteries. | No Energy savings |
| 0192 | Statewide marketplace with integrated rebates & consumer loans to drive market | Statewide marketplace with integrated rebates & consumer loans to drive market is a consumer marketplace that would drive the uptake of MTI-targeted residential technologies/practices through the online retail purchase channel by eliminating barriers. | Idea is a tactic and may be combined with other, similar ideas in the future |

| ID # | Idea Name | Idea Description | Status Notes |
|------|---|---|----------------------------|
| 0142 | Agricultural Irrigation as a flexible demand load | Agricultural Irrigation as a flexible demand load proposes a proprietary agricultural irrigation technology that cuts irrigation water consumption by 80% as well as an equal amount of power consumption from well pumping, booster pumps and canal transportation pumps. | Not commercially available |
| 0144 | Integrated Windows & Building Envelope Make Net Zero Energy AFFORDABLE NOW | Integrated Windows & Building Envelope Make Net Zero Energy AFFORDABLE NOW proposes a pipeline for R7 and R9 windows which are a multi-pane fixed acrylic window that fit 24" wood frames in residential and light commercial buildings. | Not commercially available |
| 0190 | Using infrared sensor reducing overcooling, save energy, by Closed-loop Control | Using infrared sensor reducing overcooling, save energy, by Closed-loop Control is a closed-loop HVAC sensor-controller that predicts occupant thermal sensation from the thermographic measurement of skin temperature distribution, then uses this information to reduce overcooling by regulating HVAC output. | Not commercially available |

Appendix D: Outreach Briefings for RFI

| Date | Subject |
|-------------|--|
| 8/14/2023 | Redwood Energy Briefing |
| 8/11/2023 | LBNL Briefing |
| 8/11/2023 | The Energy Coalition Briefing |
| 8/10/2023 | Building Resilient Communities Briefing (ESJ) |
| 8/8/2023 | Presentation at LERN Meeting (ESJ) |
| 8/8/2023 | Presentation to ACCESS members (ESJ) |
| 8/4/2023 | California Advanced Lighting Controls Training Program (CALCTP) Briefing |
| 8/1/2023 | The Two Hundred for Homeownership Briefing (ESJ) |
| 8/1/2023 | 200 Leadership (ESJ) |
| 8/1/2023 | Physicians, Scientists, and Engineers for Healthy Energy Briefing |
| 8/1/2023 | Rising Sun Briefing (ESJ) |
| 7/28/2023 | The Climate Center Briefing |
| 7/28/2023 | Suscol Intertribal Council Briefing (ESJ) |
| 7/27/2023 | RFI Self-Help Enterprises Briefing (ESJ) |
| 7/27/2023 | Climate Resilient Communities Briefing (ESJ) |
| 7/24/2023 | VEIC Briefing |
| 7/24/2023 | New Buildings Institute Briefing |
| 7/21/2023 | SW Gas ET Team Briefing |
| 7/21/2023 | Energy Efficiency Council (EEC) Briefing |
| 7/21/2023 | Redwood Community Action Agency Briefing |
| 7/20/2023 | EPRI Briefing |
| 7/20/2023 | CalNEXT Briefing & Coordination Call |
| 7/19/2023 | Presentation to California Energy Alliance Member Meeting |
| 7/17/2023 | ACCES Briefing (ESJ) |
| 7/13/2023 | NREL Briefing |
| 6/27/2023 | San Diego Building Electrification Coalition Equity Working Group Meeting Briefing (ESJ) |
| 6/21/2023 | Quarterly CAEEC Meeting Briefing |
| 6/8/2023 | Building Decarbonization Coalition Briefing |
| 6/5/2023 | Energy Efficiency Portfolio Directors Briefing |
| 6/2/2023 | SW Codes & Standards Team Briefing |
| 5/7/2023 | California Energy Commission Briefing |

Appendix E: Advancement Plans for Ideas with Expedited MTI Plan Development

Advancement Plans for the three Batch 1 ideas to move to Phase II: Program Development can be found at CalMTA's website at the following links:

[Efficient Rooftop Units \(ERTUs\)](#)

[Induction ranges & cooktops](#)

[Window/Portable heat pumps](#)

Appendix F: MTAB Comments on Draft Disposition Report

This appendix captures the MTAB feedback on the final draft version of the Stage 1 Disposition Report and CalMTA’s response.

| MTAB Comment | CalMTA Response |
|--|---|
| <p>The Draft Stage 1 Disposition Report showcases the tremendous progress achieved to date. Following establishment of the organization earlier this year, CalMTA has conducted a successful solicitation which elicited a large and diverse number of ideas, thoroughly reviewed and ranked these ideas, and developed a plan to move forward in the coming year toward a focused goal of at least one full MT plan by the end of 2024. MTAB input was already solicited on the draft Scoring Framework and outreach plan and I have no comments on these sections. Similarly, the Scoring Results are generally reasonable and while one could take issue with particular scores, it is unlikely that the final results would be significantly different. As a result, I have no comments on this section either.</p> <p>The Batch 1 MTIs focus on three important technologies with broad potential application across the state, and in particular in EJ communities. Given the early stage of development, the descriptions of the Batch 1 MTIs only provide a broad overview of the technology and market context. Much work is needed to take these ideas from a broad concept to a fully-formed, well-defined MTI plan. The Draft Report also proposes advancing an additional 16 contenders for Stage 2 and 3 scoring. The time and effort to more fully evaluate these ideas is significant, making completion of the Phase 1 Disposition report in six months a challenging goal. A key issue going forward will be around focus versus breadth, both across and within MTIs. A tight focus with a more limited set of initiatives will allow for concentration of resources (both financial and staff) and facilitate near-term, measurable impacts. In contrast, a broad portfolio of a larger set of initiatives will allow support for broad market impacts across a range of sectors and reduce risk. The MTA team will need to work with the stakeholders, market participants, and the MTAB to develop a proposed portfolio that addresses these sometimes competing objectives.</p> | <p>CalMTA agrees that it will take significant work to develop the candidate ideas into fully formed and well-developed MTIs. Another consideration is the need to continue discussions with MTAB and stakeholders about how to balance the number of MTIs, impact, and budget.</p> |

| MTAB Comment | CalMTA Response |
|---|---|
| <p>CalMTA should make further refinements to their scoring categories and criteria, especially when evaluating cost-effectiveness. Even if an MTI presents a good case for market transformation, it is unacceptable that non-cost-effective MTIs have passed the Stage 2 Scoring process with extremely low TRCs. For example, CalMTA has allowed MTI#10 (High Performance Windows) to pass to Stage 2 of its scoring process despite its TRC of 0.07. Such a low TRC should be used to screen out potential MTIs, yet CalMTA is unreasonably continuing to consider MTI#10. CalMTA needs to appropriately prioritize how it evaluates programs, including cost-effectiveness as a requirement, and remove MTIs with extremely low TRCs from as options for advancement.</p> <p>As CalMTA depicted in the 12/1 MTAB Meeting PowerPoint slides, the forecasted portfolio budget, when also considering CalMTA's operational costs, will likely result in CalMTA exceeding the \$50 million annual budget ordered in D.19-12-021 (cumulatively \$250 million over five years). CalMTA should use its MTI cost-effectiveness evaluations to prioritize spending and ensure it does not exceed its authorized budget. The weighted category for cost-effectiveness is unable to filter out egregiously non-cost-effective ideas. Instead, CalMTA should adopt a cost-effectiveness threshold until it has demonstrated its ability to maintain a balanced and cost-effective portfolio. Consequently, the weight given to the cost-effectiveness criteria can then be redistributed to other requirements.</p> <p>Specifically, for the first five years after Batch 1's approval by the Commission, CalMTA should hold the Market Transformation portfolio to a TRC threshold of 1.0. Furthermore, any non-Equity focused MTI should also have a minimum TRC of 1.0 as well. This is similar to the Energy Efficiency Portfolio's TRC requirements (see D.21-05-031 at 22) except that this will be on both an MTI level for non-Equity focused MTIs and on a portfolio level. This stringency is necessary because CalMTA's ability to measure and administrate cost-effective programs remains unproven. Thus, extra caution should be exercised to ensure that CalMTA can meet its claims.</p> <p>CalMTA can still advance ideas with strong market transformation potential and impact, but this would foremost promote developing these ideas into cost-effective initiatives. If CalMTA is not able to develop a cost-effective plan to pursue a market transformation opportunity, then CalMTA should not pursue it.</p> | <p>Although High Performance Windows were ranked highly by MTAB in the meeting on Nov. 30, 2023, CalMTA is not recommending advancing them to Batch 2 for the reasons detailed in the Batch 2 memo. Although we're not moving forward with High Performance Windows at this point, we'd like to clarify that the CalMTA scoring process does not estimate TRC until Stage 2 scoring, so we could not know about its low TRC until after Stage 2. The proxy used for cost effectiveness in Stage 1, participant costs, appeared reasonable by the scoring team.</p> <p>Furthermore, in D.19-12-021 the Commission specifically declined to set specific cost-effectiveness thresholds for MTIs or the portfolio, but rather set an expectation for "the MTA to manage its portfolio of MTIs, for the initial five-year implementation period, with an eye toward cost-effectiveness." (Section 3.4.2, page 69) Similar to the long-time rules for the energy efficiency portfolios, we anticipate cost-effectiveness to be measured at the portfolio level and not as a threshold for each MTI, so there may be cases where the benefits of a specific non-cost-effective MTI would make sense to keep in the portfolio.</p> <p>Transitioning a potential MT idea from Phase I: Concept Development to Phase II: Program Development does not mean those ideas have entered the CalMTA portfolio, nor does it mean CalMTA will begin investing the resources on the order of the budget estimates provided at MTAB meetings on Nov. 30 and Dec.1, 2023. Transitioning an MT idea to Phase II allows CalMTA to further refine the MT theory and proposed strategy, and to reduce the levels of uncertainty.</p> <p>As we develop ideas in Phase II and consider recommending transitioning them to Phase III, CalMTA will revisit program budget estimates, portfolio balance and budget, revised C/E calculations, and other CalMTA portfolio metrics with MTAB.</p> |

| MTAB Comment | CalMTA Response |
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| <p>It is inappropriate for CalMTA to move forward with ERTUs as a Batch 1 MTI given that CalMTA may face future budgetary overruns (see comment above) and since only one MTI is needed for CalMTA to advance to the next funding stage. According to the CalMTA's evaluation, ERTUs do not meet the "Well defined Product Definition & Target Market" and "Clear Research Needs" criteria. It is concerning that this MTI does not include a defined target market nor include what research needs to be done. Please see the comments on the ERTU Draft Advancement Plan for a more in-depth discussion of these issues.</p> <p>Additionally, while the discussion regarding Induction Ranges & Cooktops during the 11/30 & 12/1 MTAB meeting indicated some promising opportunities, the current TRC for this MTI is 0.76. CalMTA should refocus this MTI to develop a more cost-effective method for market transformation or develops an equity-targeted proposal, which does not need to meet a 1.0 TRC (see discussion above). Further discussion on these issues is included below in our comments on the ERTU Draft Advancement Plan.</p> | <p>At the time of identifying ideas that presented strong MT opportunities and could be advanced quickly, ERTUs didn't score highly on "product/market definition" or "clear research needs". (Please refer to the memo titled "MT Ideas Moved to Stage 2 Scoring and Proposed First Batch MTIs" located here: https://calmta.org/wp-content/uploads/sites/263/RFI-Summary-Memo-.pdf) While ERTUs did not score highly on "product/market definition" or "clear research needs," the ERTU Advancement Plan identifies target markets and clarifies the research needed to further refine market strategies - typical program development (Phase II) activities. Based on research to date, CalMTA continues to believe ERTUs represent a strong opportunity for MT in California.</p> <p>The preliminary MTI strategy for induction cooking aims for significant cost reductions, with an explicit equity focus. During Phase II, CalMTA will refine preliminary strategies and reassess cost effectiveness metrics before determining if this MTI should be considered for Phase III: Market Deployment. Because cost reduction -- as described in the Advancement Plan -- is central to the opportunity, we expect the preliminary TRC estimate to improve. We agree it will be important to identify opportunities to achieve cost-effective MT programs and are committed to doing so. Please also note that D.19.12.021 established cost-effectiveness guidelines for the nascent CalMTA portfolio that are different from those applied to the EE Rolling Portfolio.</p> |
| <p>CalMTA should adopt the cost-effectiveness thresholds described above in the Scoring Framework comments for Stage 2.</p> <p>The Stage 1 scoring category for cost-effectiveness does not measure cost-effectiveness and should not be labeled as such. The description mentions no consideration of cost-effectiveness. The listed assessment focuses on whether participant cost is reasonable, not the cost-effectiveness of the program. As such, CalMTA is improperly suggesting that cost-effectiveness is being evaluated in Stage 1 and should instead recategorize this assessment.</p> | <p>CalMTA has changed the description of this criteria so it's clear that the Stage 1 score is based on the reasonableness of the participant's cost.</p> |

| MTAB Comment | CalMTA Response |
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| <p>For more critical evaluation of these potential MTIs, please list the scoring results for each grading criterion as well as how each idea would evaluate on the criteria identified in Table 8 (Disposition Report at 20).</p> | <p>The MTIs proposed as front runners were selected from a review of MTIs that scored well in Stage 1 and the team determined would have a high likelihood of transitioning to Phase II and potentially Phase III. A more detailed accounting of this process and the other MTIs that were evaluated against the front runner criteria can be found in the memo titled "Request for Ideas Summary Memo" located here: https://calmta.org/wp-content/uploads/sites/263/RFI-Summary-Memo-.pdf. CalMTA has been discussing and refining the Batch 1 MTI ideas with MTAB since the MTAB meeting on Oct. 13, 2023, we have drafted the Advancement Plans, and they remain high-scoring ideas that merit further study in Phase II.</p> <p>We understand the desire to review the detailed Stage 1 scores, however, out of consideration to the submitters, we have decided to not share those publicly but instead provide both the ideas in rank order by their overall scores as well as indicate the range of each idea's score. These are provided in Appendix A.</p> |
| <p>CalMTA should report any and all resources spent on developing these threshold ideas in their budget.</p> | <p>We do not plan to spend any resources to develop the ideas that did not pass the threshold criteria.</p> |
| <p>How many ideas were submitted from each stakeholder segment? Were there any that were particularly fruitful? Are there any segments that ideally should have submitted an idea, who didn't, and would warrant more outreach in the future?</p> | <p>Figure 4 in report lists the number of submitters by industry roles as they self-selected. While we had submissions from research labs, academia, we had expected more and have plans to conduct directed outreach in future RFIs. We also noted a lack of industrial and agricultural submissions and will seek higher levels of engagement with these sectors in the future.</p> |
| <p>Are these ideas presented in Appendix C in rank order?</p> | <p>The ideas in Appendix C are those ideas that did not pass the threshold criteria and, therefore, were not scored. So there is not a score or other metric upon which to rank them.</p> |

| MTAB Comment | CalMTA Response |
|--|---|
| <p>I made comments on prior sections at my last meeting, and thought that discussion, with everyone on MTAB's input, was sufficient. I am here noting items where the brief description of the decision basis left me with questions. I don't necessarily disagree with the decision or the ranking, but thought that more could be said or explained. #32- Hydronic additive. Also important to know that it's very difficult to assess savings across system types and ages, building types and sizes, etc. without an extremely large field test. Validation is either limited to a narrow scope of buildings or is quite expensive. #39 Title 24 enforcement. If the idea is to create a repeatable simplified process for code compliance tracking and documentation, I'm not sure why it has "unclear sustained benefits." #42 Rare trees. Validation is problematic due to the dependence on tree location, variations in buildings, building systems, and trees, and the long time until full benefits. Issues like interaction between tree location, tree health, building disruption (e.g., roots in cellar) and efficiency are complex. Vulnerability to tree removal or failure to care during property ownership or occupancy transitions are also difficult to assess. Are rare trees local or invasive? If invasive, are they problematic? I'll stop there. #45. I'm not sure why diffusion is problematic for industrial heat pumps. It's possible that there's a limited number of high-yield applications. I wonder if this is a case where a limited field demonstration effort and efforts to prime the supply chain might be effective without many of the elements of a sustained campaign.</p> | <p>Thank you for the additional input. Some of your observations were raised by the scoring team during the scoring discussions. In any case, where appropriate we will capture your additional feedback in the scoring notes for these ideas so they can be considered if the ideas are advanced in the future.</p> |
| <p>Only two scorers scored an entire submission on every criteria. Due to the late spike in submissions, there were no scorers who scored the entire portfolio of submissions on every criteria. In the future, a minimum of 3 scorers on every criteria will likely result in greater sharing at the Alignment meeting where scores may be adjusted. The Report should address whether the assigned resources were adequate to support these scoring needs.</p> <p>It is unclear in the Advancement plans how CalMTA is calculating TSB and TRC. It is important to understand the full details of how the CalMTA has been estimating TRC and TSB, because TSB is weighted so heavily in the scoring and MTI advancement process and to ensure consistency with how the broader EE portfolio calculates TSB and TRC. The revised Disposition report should explain how TRC and TSB were calculated, and a clear statement of whether or not this differs from the TSB inputs and calculations that are required from the IOU EE programs.</p> | <p>It is correct that only two scorers scored every criteria for each idea and no scorer scored all 117 ideas. We will work to modify the scoring process in the future so that at least three scorers score each criteria and at least one scores every idea submitted. We will, however, need to maintain some flexibility in this process to respond to unanticipated activity levels.</p> <p>TSB and TRC are developed as part of the Stage 2 scoring, but this Stage 1 Disposition Report only includes the process through Stage 1 scoring. We will ensure that the Stage 2 Disposition Report includes clear explanations of these calculations. We agree that it is important that the MTAB understand how CalMTA calculated the TSB and TRC. Each advancement plan contains an appendix describing this.</p> |

| MTAB Comment | CalMTA Response |
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| <p>a) Please include details on the process and results for Step 4 “Top ideas checked against CA activities” (see CalMTA’s funnel graphic). Please include a listing in the disposition report of the submitted ideas that were duplicative of CA activities, and thus screened out. Please also include these in Figure 8 “Disposition of ideas received.”</p> <p>b) In the future Step 4 should occur through meetings and discussions rather than through a two-week asynchronous public comment process. This would help improve the MTI advancement plan by identifying areas of unnecessary duplication, so that the proposed budgets more realistically reflect the amount of work that is needed.</p> <p>c) For Section 2.3 – please describe how the CalMTA develops a single overall score.</p> <p>d) Please explain the disposition of ideas by fuel type?</p> <p>e) Some of the MTIs put forth in the advancement plans are technologies that the CalMTA acknowledges are not commercially available. Please clarify the criteria for determining “commercially available”</p> <p>f) Why do the ideas number more than 117?</p> | <p>a) and b) Step 4 in the "funnel graphic" (which is not included in the Stage 1 Disposition Report) is a review of programmatic and other activities related to the idea being conducted in California. This information helped the CalMTA team to understand possible leverage points and what CalMTA's potential MT theory and strategy may be, which helped the CalMTA team to begin to understand the MTI budget requirements. None of the ideas were screened out as a result of these reviews. These reviews were conducted by the CalMTA team and involved both independent research as well as meetings and discussions with the IOUs and other program administrators.</p> <p>c) To address this comment, we have included additional information about how the individual criteria scores were rolled up into a single, overall score in Section 2.2 Category and Criteria Weighting.</p> <p>d) We have added a graphic reporting the disposition of ideas by fuel type in Figure 8 on page 15.</p> <p>e) All of the ideas that CalMTA is proposing to transition to Phase II: Program Development are commercially available. We acknowledge that some of the technologies would benefit from advanced features that aren't broadly accepted, but the technologies themselves are commercially available. The criteria for determining this status is whether the product can be ordered and received by a customer in the United States.</p> <p>f) The idea numbers exceed 117, the number of ideas submitted, because the numbering includes ideas that were submitted by the CalMTA team as part of system testing but later deleted.</p> |
| <p>Thorough, well written.</p> | <p>Thank you for the feedback.</p> |

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| <p>a) For the next round of MTA Advancement Plans, the MTAB should have a role in reviewing “the MTA recommendations and supporting data gathered in the Concept Development Phase and provide feedback to the MTA on which MTIs should proceed into Phase II: Program Development.” (D.19-12-021)</p> <p>b) The Disposition report should include more than just an overall ranking of the submitted ideas and should include the CalMTA’s scores on the six scoring categories. For each idea, the report should include the score on the scale described in Table 3 “scoring rubric.” This type of visibility assures the MTAB of the CalMTA’s transparency and provides necessary feedback to the submitters that will help them improve future submissions.</p> <p>c) The Disposition report and individual MTI Advancement plans contain details about the Batch 1 MTIs that are duplicative. The Disposition report should primarily be used to describe the Batch 1 MTIs compared against the other submissions, in order to justify the selection of the Batch 1 MTIs. Details such as Product Definition and Preliminary Market Theory should be left to the individual Advancement Plans.</p> <p>d) The MTAB Feedback section should contain MTAB feedback on the entire list of MTI submissions and MTAB feedback on the individual Batch 1 MTIs should be duplicated in the respective advancement plan. This way all MTI-relevant information is available in the Advancement Plans, and stakeholders do not have to remember to check multiple sources in order to get a full picture of the MTI.</p> | <p>a) CalMTA agrees that MTAB has a role to provide feedback on which ideas advance to Phase II. Development of Advancement Plans is the final Phase I deliverable for CalMTA. While the MT Framework appended to D.19-12-021 prescribes on page 107 that MTAB “Review 1” would occur after CalMTA has ranked the MTI ideas and developed “preliminary development plans for data/research needed” (i.e., Advancement Plans), based on MTAB input, we elected to seek MTAB feedback sooner to advise CalMTA on which MTI ideas should be prioritized for Advancement Plan development. In the MTAB meeting on Nov. 30 -Dec. 1, CalMTA presented the Stage 2 scoring to the MTAB and solicited their feedback on the subset of high-scoring ideas to prioritize for Advancement Plan development. In addition, ideas anticipated to move to Phase II were discussed at the October MTAB meeting. CalMTA is preparing a memo to the MTAB summarizing the outcome of its input and our recommendations. CalMTA intends to seek MTAB guidance on prioritizing future Advancement Plans as well.</p> <p>b) We understand the desire to review the Stage 1 scores for each criteria, however, out of consideration to the submitters, we made the decision to not share those publicly but instead provide both the ideas in rank order by their overall scores as well as indicate the range of each idea’s score. These are provided in Appendix A.</p> <p>c) CalMTA believes it is helpful to describe the appended Batch 1 MTI ideas in the Disposition Report for readers that may not take the time to dive into the details of the Advancement Plans.</p> <p>d) The MTAB feedback and the CalMTA response is provided in the disposition report. Stakeholder and MTAB feedback on the individual advancement plans is captured in Advancement Plan feedback memos developed for this purpose.</p> |

| MTAB Comment | CalMTA Response |
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| <p>a) The IOUs appreciate the thoughts details of this section. It gives the stakeholders a good idea of how the CalMTA differentiated between different score values. A couple of areas for further clarification and future consideration:</p> <ol style="list-style-type: none"> 1. The Report should clarify whether energy savings potential is evaluated as technical potential or market potential. 2. The scoring should include an estimate of the potential for permanent load reduction, load shifting, load shaping, and other relevant factors. 3. The Report should provide more information on how the evaluators were instructed to assess the MTI costs and its cost-effectiveness showing. A review of costs should include the direct cost to the consumer to adopt the MT technology or service. This cost assessment should consider the installation and maintenance costs relative to existing technologies. 4. The report should provide more detail on assessing GHG impacts relative to the estimated GWP of refrigerants when evaluating fuel substitution or switching-related proposals. | <ol style="list-style-type: none"> 1. The energy savings score in Stage 1 is based on the scoring team's informed opinion of achievable potential (low, medium, or high). The scoring rubric has been updated accordingly. 2. The Stage 1 score for grid benefits is based on the scoring team's informed opinion of load flexibility potential (low, medium, high), including load shifting and load shaping. Stage 2 scoring (to be included in the Phase I disposition report) is based on a quantitative estimate of TSB, including the breakdown of TSB into its underlying drivers: energy savings, GHG impacts, and grid benefits. CalMTA will refine TSB and cost-effectiveness estimates and include estimates of additional benefits such as permanent load reduction during Phase II of the MTI lifecycle. CalMTA will include those estimates along with documentation of the sources and methods in the MTI Plans required for advancement from Phase II (Program Development) to Phase III (Market Deployment). 3. Stage 1 scoring for cost-effectiveness was based solely on participant costs, rather than on cost effectiveness. Cost effectiveness is estimated in Stage 2 (which will be addressed in the Phase I Disposition Report). We have clarified this in the text of the Stage 1 Disposition Report. CalMTA will refine cost-effectiveness estimates during Phase II of the MTI lifecycle and include installation and maintenance costs relative to existing technologies. CalMTA will include those estimates along with documentation of the sources and methods in the MTI Plans required for advancement to Phase III (Market Deployment). 4. The GHG impacts for Stage 1 scoring are based on the scoring team's estimation of peak demand reduction or GHG emission reductions due to refrigerant impacts. TSB is estimated during Stage 2 scoring, including the breakdown of TSB into its underlying drivers of energy savings, GHG impacts, and grid benefits. Additional details on the GHG impacts associated with reduced gas consumption vs. increased GWP from refrigerants will be included in the MTI Plans required for advancement to Phase III (Market Deployment). |

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| <p>a) For the ideas marked “Hold for Further Development”, please provide details on why these ideas may continue to hold promise. Seeing the Idea’s scores along the six categories would be useful for this.</p> | <p>The ideas that were held for further development are those that had a strong Stage 1 score but the scoring team wanted to better understand the market or market transformation theory before attempting to conduct the Stage 2 scoring. CalMTA will conduct light research in 2024 and, where warranted, will move these into Stage 2 scoring.</p> |
| <p>a) Are there any lessons-learned from this first RFI that can improve the quality of future RFIs? For example, there are a surprisingly large number of ideas that did not pass Threshold Review due to “No Energy Savings”. CalMTA should consider a short survey of submitters asking for feedback including: a) do they intend to participate in future RFIs, and b) what was your motivation for submitting an idea (i.e., “What’s in it for you?”), and c) are they satisfied with the level of communication and feedback they received about their submission?</p> <p>b) For Appendix D: To assist with the assessment of the CalMTA’s effectiveness in Year 5, CalMTA should retain a list of contacts and contact information for each organization for which CalMTA presented RFI outreach, to facilitate future evaluations of the CalMTA. CalMTA should also consider conducting a small satisfaction survey both now and after each future outreach briefing and share with the MTAB results on issues like: a) did the audience feel like they understood the RFI’s objectives and requirements, b) were there any areas of confusion or areas where they needed more information c) did they feel like they knew where to get clarifications or additional information d) did they actually get the clarification? These immediate feedback surveys would help improve processes and would assure stakeholders that a future non-profit incarnation of the CalMTA would be well-suited for self-administration. Lastly, it would be helpful for the evaluation to track how many people attended each briefing and how many of these organizations submitted ideas.</p> | <p>a) We had a number of lessons learned from this first RFI effort that included improvements to the directions and messaging on submission content. However, it was clear that energy savings was a requirement of acceptance. We conducted a survey, but received limited responses so most of the input was anecdotal from conversations with submitters. Most felt that they had been sufficiently communicated with and opportunities for engagement were good. The main issues centered on the Idea Portal and improvements that could be made on password setting and access.</p> <p>Mainly, we knew that submitters were not likely to have complete information that would suffice for full MTI development. As such, we combined tactics and information from related submissions to create a more complete picture of the idea. The question of “what’s in it for you?” is a difficult one since we had no promise of funding for submissions, but emphasized the opportunity to support energy efficiency and decarbonization efforts in California.</p> <p>b) We do track all of our outreach via a Salesforce database and report on our outreach monthly to the CPUC. This information will be provided to the independent evaluators in the future. We are also planning a stakeholder survey in mid-2024 to assess how well our outreach efforts are doing with audiences interested in CalMTA. We will look to incorporate these suggestions for feedback in terms of did the information we provided provide clarity and how we can improve.</p> |