



MTAB Meeting Notes

June 14, 2024

In-Person Meeting, David Brower Center, Berkeley, CA

Welcome & Introductions

Stacey Hobart opened the meeting by welcoming attendees and reviewing the meeting agenda. She reiterated CalMTA's conflict of interest policies and asked MTAB members to disclose any conflicts. There were none.

Stacey invited any comments regarding the previous meeting (4/25) notes. There were none.

Review of Residential Heat Pump Water Heating Advancement Plan

Stacey reviewed CalMTA's multi-stage market transformation initiative (MTI) development process and the ideas currently in Phase I and II of development, as well as the timeline for advancing these ideas.

Alexis Allan presented the draft Advancement Plan for Residential Heat Pump Water Heating with a focus on the current market challenge, desired future end-state, and preliminary logic model. MTAB member comments included:

- Creating an inventory of the many entities currently promoting HPWHs and what gaps make sense for CalMTA to fill will help clarify the focus of the MTI.
- The strategic plan proposed as a near-term outcome of this MTI in Phase II would have value for the state, even if the MTI does not ultimately result in a full MTI Plan.
- One potential area of focus might be strategies to reduce use of electric resistance back-up heat in the common hybrid 240V HPWH models. With the right controls, this back-up heating functionality is unnecessary. Workforce education and training could help support this goal.
- As the market for existing electric water heaters is significantly different than the market for existing gas water heaters, CalMTA should be careful about how we bifurcate those segments.
- Does CalMTA envision a shared goal for all participating stakeholders convened through this MTI, such as percentage of market penetration or number of heat pumps adopted?
 - Alexis noted that while there is currently a very broad target - that by 2035, the majority of residential water heaters sold in California are grid-enabled HPWHs - this will be refined through Phase II research and activities and substantiated by specific milestones as outcomes.
- Because there are many different tiers of efficiency for residential heat pump water heaters (HPWHs), differentiating which tier(s) this MTI will focus on (to the extent

possible) will be important. There may also be the need for specification alignment between existing programs.

- Understanding demand control potential and where in the market demand control is best addressed (utilities, manufacturers, etc.) will also be important. It's a good goal to make HPWHs demand-control-ready but CalMTA should also assess whether standardization of demand control should be a goal or whether it poses a risk to manufacturer engagement.
- The current product definition is currently broad enough to include the small commercial market. Is CalMTA considering this?
 - Alexis responded that this is not currently under consideration but could be.
- Should HPWHs for multifamily buildings be included in the draft Advancement Plan? If so, they didn't seem to be. Additionally, does the product definition include both unitary and split systems?
 - Alexis confirmed that the multifamily market segment is included, and that the definition is intentionally broad to encompass both system types.
- Load-shift capability is included in the product definition, but does the scope end there or would CalMTA explore actually implementing load-shifting?
 - Alexis acknowledged that this has not yet been explored but that CalMTA welcomes MTAB feedback about including implementation in the MTI.
- Through efforts in the Northwest, where market share for residential HPWHs has grown to double digits, manufacturers know what success looks like and the potential impact of a statewide market transformation program.
- In addition to coordinating with the California Air Resources Board (CARB), CalMTA should also explore work being done by the air quality management districts (AQMDs). In some cases, regional work may be more advanced than statewide policy, and aligning all the AQMDs with CARB could be valuable. Some AQMDs have also historically had significant influence on the industry.
- Did CalMTA's initial market scan find active programs doing work beyond offering rebates and incentives?
 - Alexis replied that in addition to multiple incentive programs, some existing programs focused on trade ally training and awareness-building/education, as well as quite a few related research projects. CalMTA's more robust scan in Phase II will ensure we are not duplicating efforts and are instead filling gaps and adding value.
- Product development is included in the initial MT theory, but is further development truly needed or is the product already there and not being adopted? It seems like sizing could be a potential area of focus, encouraging manufacturers to make differently sized or shaped products that better fit into closets or other common installation areas.
 - Alexis explained that CalMTA seeks to better understand what the California market wants in terms of product enhancements and how similar this is to what other markets nationwide.

- It was suggested that the market needs a non-proprietary demand control system.
 - Jeff Mitchell responded that we want to minimize requests made to manufacturers at this stage since they are being engaged at multiple levels currently, yet uptake remains low. If we decide to go to them requesting an additional feature, we need to demonstrate this will move the market.
- Collaboration is needed to help inform development of products that meet challenging installation needs (e.g., multifamily properties or small spaces). Working at the statewide level and collaborating nationally will be important to getting installers on board and transforming them into HPWH advocates.
- CalMTA should also explore strategies to deal with grid capacity issues, including home panel capacity and smart panels.
- It would be valuable to identify all available funding for this market and technology and the timeline for allocating/dispersing this funding to determine whether it is sufficient to support statewide adoption goals.
- As part of overseeing statewide strategy, would CalMTA monitor external program performance?
 - Alexis replied that monitoring the statewide market and ensuring required tactics are in place would be a focus of the MTI, but not at the individual program level.
- Understanding where the best cases for residential electrification exist would be helpful to determine where HPWH adoption/installation will be easiest and where will barriers arise.
- Potential topics to explore or re-explore: the percentage of water heaters purchased at a big box retailer vs. directly from contractors, reasons why a water heater is replaced (emergency vs. pre-emptive), any correlation between house vintage/location and size of closet or likely water heater installation site, and panel capacity by house type.
- In reviewing past research reports, CalMTA should analyze the underlying data as well as key findings or conclusions.
- Understanding the varied risk factors related to electrification at the household and community level would allow the MTI to identify and target the communities that are best primed for electrification.
- How does the budget reflect collaborative activities or outreach/education vs. staff time?
 - Alexis noted that the budget includes potential innovation sessions, stakeholder summit, and outreach on the market research side. Stakeholder engagement and support is built into staff time.
- Is the preliminary MTI budget included in the 2025 ABAL?
 - Jeff confirmed that the activities planned for 2025 are included in the ABAL but the budget includes some Phase I activities and work that will begin in Q3 2024.

- Regarding equity considerations, reaching ESJ communities will likely require engagement of stakeholders who are not active partners and may not be familiar with the technology. Planning around these stakeholders' strategic goals rather than only asking them to adopt CalMTA's goals might have greater impact.
- It was requested that CalMTA provide a detailed breakdown of the technology assessment portion of the MTI budget in the draft Advancement Plan, mirroring the table for the market research budget.

Stacey discussed the upcoming public comment period that will allow CalMTA to capture additional feedback before finalizing the draft Advancement Plans.

Review of Commercial Replacement & Attachment Window Solutions Advancement Plan

Rick Dunn presented the draft Advancement Plan for Commercial Replacement & Attachment Window Solutions (CRAWS) with a focus on the current market challenge, desired future end-state, and preliminary logic model. MTAB member comments in response to the MTI overview included:

- This technology seems to offer significant secondary benefits, including less disruption related to upgrades and increasing the amount of usable space inside the building.
- In developing initial market assumptions, was the prevalence and impact of curtain walls assessed?
 - Rick clarified that the MTI target market was focused on older buildings, where curtain walls are much less prevalent.
- What assumptions were made about operable vs. inoperable window situations in existing building stock before identifying recommended solutions?
 - Rick noted that there was a lack of good building stock data for California, so wanted to better understand this question through Phase II market research - recognizing that there are viable solutions for both.
- In considering the role that ESCOs could play in this MTI, it should be recognized that this tends to be a conservative market driver and bundling financing components can prove challenging.
 - Rick agreed that the potential leverage provided by ESCOs needs to be validated and that other financing options may prove to be a better fit.
- While early BPS efforts in the Northwest indicate that BPS is a great driver as a policy tool, the number of participating buildings remains relatively low due to compliance challenges and relatively low fines for non-compliance.
 - Rick agreed and added that the activities described in the plan seek to understand both where BPS has been successful (e.g., New York) and what factors have contributed to that success. Lack of harmonization between standards with a state or region can make compliance more challenging (ex: Washington State policies differ from those adopted by the city of Seattle).

- Two potential obstacles were identified including that the HVAC industry is not interested in selling smaller systems or coordinating with window installers. It may be more effective to engage window installers before HVAC installers with a focus on medium-to-small private sector buildings. Secondly, installers may see a risk in downsizing HVAC equipment. CalMTA should examine how HVAC specifications change across different building types and sizes to present strong evidence that no risk exists.
 - Jeff clarified that in a future state where buildings move towards electrification, downsizing means not upsizing electrical systems when switching from gas. Rick added that a prior study found thermal comfort was the most influential factor for upgrading windows so addressing HVAC first is a lost opportunity. CalMTA will need to work with design teams to raise visibility of pathways to improved envelope performance; and leverage ASHRAE findings that identified the positive results of improving envelope before HVAC upgrades.
- While electrification will often result in increased overall energy costs, many incentive programs require that building upgrades result in lower energy bills – creating a situation where advanced measures like solar PV system installation must be included. Building envelope upgrades present an easier and less expensive approach to reducing energy bills cost-effectively.
- The industry has been trying to accurately quantify non-energy benefits for decades, but how is this information being used? People will value these benefits not because they are quantified but because we help them understand what they mean and how they can be factored into the decision-making process.
- Given the importance of indoor air quality in schools, what filtration benefits can be delivered by window upgrades? Old windows are leaky and can let in unhealthy air (e.g., smoke during fire season). Factoring in non-energy benefits could be particularly helpful in ESJ communities when traditional cost-effectiveness metrics wouldn't allow a project to move forward. Data sets from projects approved through the CEC's CalSHAPE program may be useful references.
- CRAWs could contribute to permanent load-shifting.
 - Rick agreed that this had potential and was backed by interesting studies demonstrating how CRAWs can enable building pre-heating or pre-cooling to manage peak load.
- CalMTA should optimize sizing practices for HVAC systems or develop a baseline to determine whether over-sizing was a real challenge.
 - Rick noted that because air leakage often gets underestimated when sizing systems, it's assumed that envelope air leakage is the same as when it was first built and may not reflect current conditions.
- Will the baseline assessment also gather info on HVAC systems in these buildings since that seems important to the MTI?
 - Rick replied that the general building stock assessment could include this. However, publicly available information in many states exists that is easy to

assess and indicates the value of a combined approach to building improvements. CalMTA needs to better understand the level of detail in in California's existing benchmarking data. Jeff added that the market research currently being conducted for the Efficient Rooftop Unit (ERTU) MTI will also capture some of this data.

- Reservations were expressed about the true size of the market that could be reached by BPS as a leverage point, as many buildings have very different decision-making processes. CalMTA should either limit its focus to a market segment with an integrated design element (vs. small buildings that are unlikely to ever adopt BPS) and MUSH buildings or identify a different avenue to reach the market.
- Since this MTI was originally focused only on vacuum-insulated glass and commercial replacement was not included in the TSB estimate included in the Advancement Plan, when will an updated estimate be shared?
 - Karen said that this work was planned for Phase II and would likely be completed by mid-2025.
- What assumptions, if any, about statewide adoption of BPS are included in the Advancement Plan estimates?
 - Karen confirmed that no assumptions on this were factored into the TSB estimate in the Advancement Plan.
- CEC CalSHAPE program has given out \$421M in grant money to 640+ local educational institutions for projects that are just starting the demonstration phase. CalMTA should look at opportunities to leverage these projects and understand how/if this program is contributing to lost opportunities related to windows.
 - Rick agreed and added that CalMTA could also use CalSHAPE data to find the right schools for potential windows. We didn't include proposed pilot strategies in the plan, but this could be a potential opportunity.
- CalMTA should look at opportunities to ensure that statewide efforts to adopt BPS address the need to pursue envelope measures and recognize windows as a potential lower-cost option for envelope improvements.
 - Rick agreed and noted that CalMTA is submitting comments to the CEC's Request for Information about BPS to inform this.

Public Comment

- Alice LaPierre of the City of Berkeley shared two public comments:
 - Regarding the Residential Heat Pump Water Heating plan and a desire to increase adoption in ESJ communities, steel pipes in older homes will pose significant challenges due to corrosion, clogging, and insufficient flow. The state needs to have a strategy in place to address this - not just the supply line but in service delivery.
 - Regarding CRAWs, strong support for building envelopes being prioritized. However, low occupancy rates post-COVID mean that envelope upgrades can be a hard sell for building owners. Special leasing mechanisms in which

tenants agree to be responsible for utilities and property taxes can motivate building upgrades since the lower utility bills will be an incentive for tenants to lease that building. Thermal imaging is also a great selling tool for windows.

CalMTA Program-Level KPIs

Karen Horkitz recapped the April 25 MTAB discussion about proposed program-level KPIs and invited additional feedback from MTAB. MTAB comments included:

- The word “lifecycle” or “lifetime” should be inserted between “forecasted” and “B-C ratio” since this is not a short-term play.
- While not including numbers in the dropdown menu seems appropriate, it may be valuable to include a snapshot of the market adoption curve in the dashboard to show the relationship between money being spent and impacts. An MTI-level metric showing where the MTI is at a given place in time with regards to investment and impact would be helpful.
- It is historically challenging to predict the timing of market transformation and when seismic market shifts will occur. Because the bulk of MTI budgets are often spent before significant savings are accrued, this can make it difficult to show the correlation between investment and impact in a positive way. Leaning heavily into market progress indicators to tell this story is recommended.
 - Karen confirmed that CalMTA will try not to make predictions at the yearly level but will rather estimate a time range for when market shifts are expected.
- Regarding current-year budget expenditures, it’s hard to know if coming in under- or over-budget is considered preferable but this metric can still provide context for other KPIs (e.g., if an MTI is under budget but under-performing on other targets vs. over budget but exceeding goals).
- Why are third-party expenditures tracked cumulatively but not other (e.g., admin.) costs? Cumulative seems like a useful way to track expenses since MTIs are long-term plays but perhaps annual is more critical.
 - Lynette confirmed these fields came directly from CalMTA’s contract but will be reviewed to ensure the most interesting and meaningful aspects are captured.
- While TSB is important, many stakeholders will want to see energy savings as a top-line item vs. one of the drill-down menu options.
- Further context for KPI #13 (third-party budget as % of total program expenditures) should be provided so that there is guidance to know whether that value is positive or negative. While the CPUC intends for this metric to position CalMTA as an administrator and outsource MTI implementation, there is no specific target at this point and CalMTA is not expected to follow the IOU requirement for outsourcing 60% or more of an energy efficiency portfolio. It might be useful to include a footnote or reference that emphasizes the CPUC’s interest and desire to monitor CalMTA utilization of third parties, even without a set target.
- It would be helpful to add a metric that tracks how accurate CalMTA forecasts are or the rate at which things change in relation to CalMTA’s planning.

Karen noted that CalMTA will share a populated KPI scorecard at the first 2025 meeting.

Draft 2025 Annual Budget Advice Letter (ABAL)

Lynette Curthoys presented a summary of past CalMTA budget activity and the details of 2025 budget cost categories and activities. MTAB member feedback included:

- Is baseline development included in the evaluation budget?
 - Lynette clarified that the evaluation cost category is reserved for actual evaluation services. Karen added that the field work conducted to establish each market baseline is included in the strategy development and testing component of Phase II budgets.
- Does CalMTA intend to integrate the data needed to track market progress into CalMTA's system or would subcontractors manage and track this?
 - Margie Gardner replied that data would ultimately be stored in one central location overseen by Resource Innovations.
- How does CalMTA's budget account for MTIs that ultimately do not move forward to Phase II?
 - Jeff noted that the ABAL assumes fewer MTIs move forward than are currently in the pipeline. Lynette added that the CPUC can shift budget between cost categories, providing additional flexibility. The Decision indicates that start-up funding will be in place until an MTI is formally approved.
- Budget lines could be rounded up to improve readability and avoid false precision.
- Several areas were flagged for more detailed analysis and follow-up from CalMTA, including differences in the allocation of administrative support and Advancement Plan development between the 2024 ABAL (revised after the initial filing due to limited visibility into 2024 activities when that ABAL was developed) and the 2025 ABAL, as well as a request for more itemization to match the granularity of preliminary budgets in the Advancement Plans.
- The addition of an unspecified or uncommitted category could reduce fluctuation over the year, since fund-shifting can get confusing, and it might be beneficial to have some funds available quickly without the re-allocation process. However, if the funding in this category is too substantial, it could make it difficult to decide what categories to shift it to. Assuming that money in the uncommitted category could be used without going through the regulatory approval process, what impact would this have on perception given the potential symbolism of reserving money vs. committing it upfront to specific enterprises?

Lynette explained that this feedback would be considered as well as written feedback received by MTAB members via an online form that would be sent after the meeting.

MTI Plan Template Feedback

Jeff shared the key pieces of feedback provided by MTAB on the MTI Plan Template and CalMTA's response to that feedback, including:

- Because the MTI lifecycle extends well beyond the timeline of the preliminary budget, is that budget intended to reflect just the contract period or the total cost of the MTI?
 - Jeff clarified that while CalMTA does not plan to provide a year-by-year forecast in the MTI Plan, the plan will include both the actual budget for the contract period and the estimated total lifecycle cost with some parameters in place (e.g., the MTI is estimated to be in the market for a minimum of 15 years).
- MTI Plans should credibly identify the key market barriers that can be mitigated by CalMTA before allowing the MTI to exit the market.
 - Jeff agreed that a critical path is important to each MTI and could be included in the logic model discussion. Stacey added that the Evaluation Advisory Group will also be reviewing and vetting these materials to confirm the metrics that will indicate a market is transformed.
- Assuming that an "elevator pitch" for each MTI will be part of the MTI Plan introduction or executive summary, MTAB would like to review these in advance. The chances of successfully transforming a market are significantly better with exciting leverage points.
- Regular "where we're at" status updates for each MTI could help keep focus vs. relying too much on market research.

Phase I Disposition Report Comment Summary

Jennifer Barnes presented themes of public comments submitted in response to the Phase I Disposition Report as well as CalMTA's response. MTAB questions included:

- Costs categorized as "other" for each MTI's preliminary cost estimate varied widely from miniscule to very large. In the latter cases, understanding what factors contributed to that cost would be helpful.
 - Jeff agreed that for the several cases where the "other" category was high, contributing factors could be broken out and included as a footnote.

Strategy Pilot: Chefluencer for Induction Cooking

Jeff presented an overview of the "Chefluencer" Strategy Pilot for the Induction Cooktops & Ranges MTI, including research objectives, the interventions it will test, implementation strategy and timeline, and public comments received. MTAB feedback and questions included:

- What is the scale of the Strategy Pilot (e.g., target number of events or participating stores)?
 - Jeff described the plan to implement this Strategy Pilot with more than one retailer in more than one location for a few hours over a few days. If one retailer agrees to participate, events would occur in more individual store locations. Multiple retailers would result in events in fewer store locations per retailer.

- Making the discount coupon contingent on completing the survey creates a biased sample of people who are already motivated to purchase an induction product, but this is also the correct target market for this MTI.
- Is it correct that CalMTA does not expect the Strategy Pilot alone to influence retailer stocking practices, but is instead looking at long-term change?
 - Jeff confirmed this is accurate.
- Will CalMTA target locations based on any specific market characteristics?
 - Jeff confirmed a desire to host events in different regions of the state, although CalMTA is still working with retailers to determine locations. Stacey added that CalMTA is also exploring synergies with utility induction cooktop loaner programs to try to convert people who have already had some hands-on experience with the technology.
- Has CalMTA referenced any past campaigns that have utilized this kind of approach to determine its likelihood of success?
 - Jeff replied that there was little existing data regarding how effective demonstrations in retail locations are.
- A recent ACEEE report about consumer attitudes toward electrification highlighted that the ease of cleaning was a major motivator for customers to choose induction - might be worth leveraging.

Public Comment

No public comment was provided during this opportunity during the meeting.

Next Meeting & Next Steps

Stacey presented the MTAB review timeline for key deliverables (e.g., MTI Template, Phase I Disposition Report, APs & Strategy Pilots, and the 2025 ABAL) as well as the timeline for formation of CalMTA's Evaluation Advisory Group. MTAB comments and questions included:

- Given the tight review timeline, should MTAB members focus their review on specific areas of each deliverable to ensure that CalMTA gets the input it needs?
 - Stacey replied that CalMTA seeks to have MTAB members read all documents before the public comment period closes so they can submit their comments through that channel if desired. Jeff added that MTAB members should prioritize the areas of each deliverable that are most interesting to them or where they can provide the most valuable input.
- Will there be separate Evaluation Plans for each MTI?
 - Karen confirmed that there will be specific evaluation plans developed for each full MTI Plan, with details in the appendices. One evaluation advisory group will review and inform these plans across the portfolio rather than specific advisory groups for each MTI.

Attendees

MTAB Members

Hayley Goodson, The Utility Reform Network
Fred Gordon, Energy Trust of Oregon
Randall Higa, Southern California Edison
Nick Luritz, Northwest Energy Efficiency Alliance (proxy for Jeff Harris)
Peter Miller, Natural Resources Defense Council
Christie Torok, California Public Utilities Commission
Ky-An Tran, California Public Advocates

Participating Staff & Consultants

Alexis Allan, Brio (on the CalMTA team)
Lynette Curthoys, CalMTA/Resource Innovations
Rick Dunn, CalMTA/Resource Innovations
Margie Gardner, CalMTA/Resource Innovations
Rachel Good, CalMTA/Resource Innovations
Stacey Hobart, CalMTA/Resource Innovations
Karen Horkitz, consultant to the Cadmus Group (on the CalMTA team)
Jeff Mitchell, CalMTA/Resource Innovations

Guests

Mary Anderson, PG&E	Spencer Lipp, Timber Cove Energy Solutions
Don Arambula, Don Arambula Consulting	Elise Logan, The Cadmus Group
Chris Badger, VEIC	Cinthia Magana, The Ortiz Group
Code Bruder, The Energy Coalition	Christopher Malotte, SCE
Julie Cantor, Franklin Energy	Savannah McLaughlin, CPUC
Fernanda Craig, SoCalREN/Los Angeles County	Phanindra Pagadala, PG&E
Sebastien Csapo, PG&E	Emily Pelstring, CPUC
Richard Fennelly, CoilPod LLC	Grace Pratt, Caliber Strategies
Carlo Gavina, SoCalGas	Cassie Rauss, SCE
Brian Gaze, Evari GIS Consulting	Rebecca Rothman, VEIC
Alfredo Gutierrez, ICF	Andre Saldivar, SCE
Matthew Horwitz, SCE	Lyn Stoler, Impulse Labs
Mina Jimenez, Proteus	Carol Yin, Yinsight, Inc.
Alice LaPierre, City of Berkeley	Kate Zeng, SDG&E