



## **MTAB Meeting Notes**

November 30-December 1, 2023

In-Person Meeting

### **Day 1: Nov. 30, 2023**

#### **Introductions & Approval of the Previous Meeting Notes**

Stacey Hobart opened the meeting with introductions and a request for comments to the previous meeting (10/13) notes. There were no comments.

#### **Declaration of COI**

Stacey Hobart reiterated the conflict of interest (COI) policy for MTAB members and CalMTA and asked members to declare any potential COI.

- Jeff Harris disclosed that NEEA has active MTIs across a four-state area working in the same market categories targeted by CalMTA, although these are all in the Pacific Northwest.
- Fred Gordon is on the NEEA advisory board but does not anticipate this directly overlaps with work in California. He will be retiring from the NEEA board in spring 2024.

Stacey described COI policies and firewall between Resource Innovations employees who work in a decision-making capacity for CalMTA and Resources Innovations employees who work on projects for "covered entities," such as implementing energy efficiency programs for California investor-owned utilities. Approval by the CPUC Contract Manager is required to consult with subject matter experts from Resource Innovations who also work on projects for covered entities.

#### **Draft Stage 1 Disposition Report**

Jennifer Barnes presented the revised Disposition Report scope, with two separate reports and schedule for development. Specific questions and comments from MTAB members included:

- How is CalMTA coordinating with groups like CalNEXT for ideas that were archived because they were too early in the technology lifecycle?
  - Jeff Mitchell confirmed that CalMTA is working closely with CalNEXT to determine how best to coordinate and support development of those ideas.
- How would CalMTA approach the research needs flagged in the report related to what municipalities and other public agencies were doing re: induction cooktops/ranges?

- Jeff M. noted that this is part of our external program review process and that we are still clarifying opportunities vs. overlap.
- How is CalMTA facilitating coordination that might help incorporate archived tactics, not technologies, to other programs?
  - Jennifer noted that this has surfaced internally and externally and that CalMTA is considering what that mechanism might look like.
- How is CalMTA consistently exploring equity opportunities in the MTI scoring process?
  - Jennifer responded that the scoring team considered equity even if the idea submission didn't identify any aspects, and tried to be realistic about true equity impacts within the market transformation framework for that idea.
- How is CalMTA defining equity?
  - Karen Horkitz described CalMTA's equity workgroup and adopted equity lens, as defined on our website, but noted we are still determining how we will measure our equity impact.

### **Discuss & Prioritize Batch 2 MTI Ideas**

Jeff Mitchell introduced a discussion of high-scoring MTI ideas still under consideration for development into Batch 2, including the process used to calculate Total System Benefit (TSB) for each MTI. MTAB member questions and feedback included:

- Why the LLLC + HVAC idea scored so low, given CEC interest in integration of systems and the fact that this will become increasingly important statewide over the next 10 years?
  - Jeff Mitchell clarified that the low score indicates a limited role for CalMTA since Title 24 captures so much of these savings already.
- Whether CalMTA's evaluation process takes into account how MTIs might impact savings in other programs or sectors to result in greater TSB overall.
  - Jeff Mitchell confirmed that CalMTA does consider this.
- Why certain MTIs were selected as Batch 1 when some potential Batch 2 ideas appear to be higher scoring?
  - Jeff Mitchell and Margie Gardner described the frontrunner selection criteria and need to have at least one MTI Plan ready to submit next year, so Batch 1 reflects ideas that could be developed quickly.
- Why did some MTIs focused on premium products receive a high equity score?
  - Jeff Mitchell noted that these MTIs create a great opportunity for CalMTA to intervene in the market, drive the product cost down, and make it more accessible to equity communities.

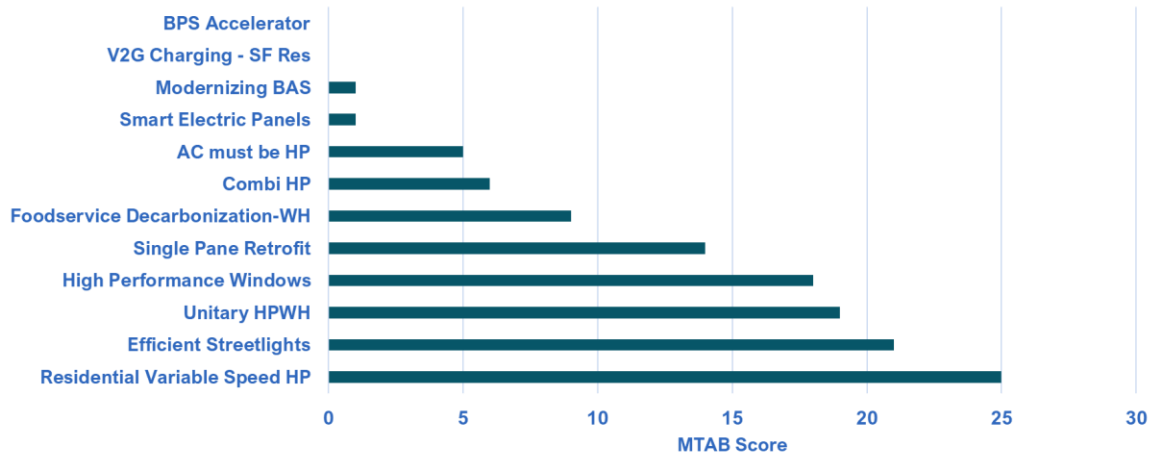
Jeff Mitchell then introduced an interactive activity in which MTAB members could ask questions about each potential Batch 2 MTI and hold up a sign reflecting their level of interest: green (excited), yellow (neutral or unsure), or red (no way). The table below summarizes MTAB response and important comments and questions related to each idea.

Idea Name	MTAB Response	MTAB Comments/Questions
<b>Residential Variable Speed Heat Pump</b>	Primarily excited	<ul style="list-style-type: none"> <li>• How California's 2030 heat pump goals factor into adoption/impact assessment</li> <li>• Need for detailed WE&amp;T plan since HVAC requires substantial workforce development</li> </ul>
<b>Combination Heat Pump</b>	Mixed positive response (primarily green/yellow)	<ul style="list-style-type: none"> <li>• Concerns about 10-year ramp-up and low equity score</li> <li>• Baseline competition makes this challenging - it's a complicated way to solve the problem, even if the solution is superior</li> <li>• Combining HVAC + WH in one system reduces panel impact and creates the opportunity for grid recovery</li> <li>• CEC Equitable Building Decarb program will focus on LMI homes so this could create more efficiencies and reduce cost barriers</li> <li>• This would likely start as a new construction offering vs. asking households to make two upgrades simultaneously</li> <li>• WE&amp;T will be needed: installers aren't used to hydronic heating and coordinating with a plumber and HVAC installer together can be challenging</li> </ul>
<b>Vehicle-to-Grid Charging - Residential</b>	Mixed negative response (primarily yellow/red)	<ul style="list-style-type: none"> <li>• Failure of SB 233 sets this back but might be revisited, as it has a substantial grid benefit</li> <li>• Many manufacturers are still shipping grid-ready cars</li> <li>• CalMTA forecast factors in assumptions about remote work and commuting</li> <li>• Market assessment indicates that there's no significant gap for CalMTA to fill</li> </ul>
<b>Food Service Decarbonization</b>	Primarily negative for appliance electrification; primarily excited for water heating	<ul style="list-style-type: none"> <li>• Splitting up initiative would allow CalMTA to focus on the more straightforward water heating component vs. very challenging electrification of equipment</li> <li>• The combined initiative would be extremely challenging: very difficult market to penetrate, lots of resale equipment in use, chains/franchises are the only real point of leverage</li> <li>• Concerns about very costly panel upgrades and bill impacts if targeting full electrification</li> </ul>

Idea Name	MTAB Response	MTAB Comments/Questions
<b>Heat Pump Water Heater - Single-Family</b>	Primarily excited	<ul style="list-style-type: none"> <li>Concerns about crowded marketplace/many existing programs, although CalMTA could play a statewide coordination role</li> <li>Need to clarify CalMTA's role in general: wouldn't achieve new savings but could accelerate adoption</li> <li>Significant workforce development needed as well a shifting the market from replace-on-burnout trend</li> </ul>
<b>Building Performance Standards Acceleration</b>	Primarily neutral	<ul style="list-style-type: none"> <li>BPS can be helpful in shepherding customers into existing programs but not a strong MT play</li> <li>Lifecycle building costs indicate an integrated approach would be most cost-effective</li> <li>BPS can enable communication of the longer-term benefits of investment and increase the building's value as an asset</li> </ul>
<b>High Performance Windows</b>	Primarily excited (one negative response)	<ul style="list-style-type: none"> <li>CalMTA would likely work upstream and build tools to increase demand</li> <li>Concerns about low TRC</li> <li>Conservative budget due to significant market leverage: national collaborative, manufacturers' interest in differentiating themselves, large production builders, affordable housing programs, etc.</li> <li>Most people replace windows one at a time: a unit-based approach makes investment more accessible but other aspects of the MTI more complicated</li> </ul>
<b>AC must be Heat Pump Policy</b>	Very mixed response between excited and neutral with two negative responses	<ul style="list-style-type: none"> <li>AC industry is already in flux over new refrigerant codes; another rule may not be palatable</li> <li>Concerns about limited equity impact and high TRC</li> <li>Might need to be done at the federal level and not state due to pre-emption issues</li> <li>Similar policy under consideration through Title 24; if this passes it will have a significant impact on LMI households</li> <li>Questions about the baseline for grid benefits if a heat pump can have AC cycling</li> <li>Modeling assumes gas backup would be left in place but does not consider controls</li> <li>Existing legislative work could be leveraged; helps CalMTA achieve codes &amp; standards goals</li> </ul>
<b>Single Pane Retrofit - Commercial</b>	Mixed positive response (primarily green)	<ul style="list-style-type: none"> <li>MTI includes the curtain wall and glass, but not frame</li> <li>Cost-effectiveness forecast does not factor in impact of solar heat gain control, which will reduce future costs</li> <li>This is a long-term play: only a few manufacturers in the market, so we are early in the diffusion of innovation curve</li> </ul>

Idea Name	MTAB Response	MTAB Comments/Questions
<b>Highly Efficient Streetlights</b>	Primarily excited	<ul style="list-style-type: none"> <li>• Municipalization could be a tactic to target this market</li> <li>• County of LA found that 60% of energy costs came from streetlights; local governments are interested in buying streetlights back from utilities</li> <li>• Strong equity impact due to cost-savings and safety</li> <li>• A good early and highly visible opportunity</li> </ul>
<b>Smart Electric Panels</b>	Primarily neutral	<ul style="list-style-type: none"> <li>• Model focuses on grid benefits above energy savings since it's an enabling technology</li> <li>• Hard to achieve but represents a major barrier for multiple MTIs</li> <li>• Equity impact is low because the panels are expensive, and the MTI would target homes with an interest in pursuing expensive electrification upgrades</li> <li>• Cost estimates include just the panel, not cost of labor</li> <li>• MTI could be more all-encompassing to just focus on managing additional loads or load flexibility</li> <li>• Upgrading utility service is very expensive, so the impact of just the panel upgrade could be overstated; CalMTA did explore potential cost-savings and benefits for the utility</li> </ul>
<b>Building Automation System</b>	Primarily neutral (one negative response)	<ul style="list-style-type: none"> <li>• Unclear role for CalMTA to play given decades of efforts trying to advance this technology</li> <li>• Concerns about low TRC, no equity angle, and split incentive issues</li> <li>• Market is ripe for disruption: commercial real estate market could profit off this</li> <li>• Impenetrable market barriers given that action should have been taken decades ago</li> <li>• Title 24 guideline may address this</li> </ul>

This was followed by a second interactive activity in which each MTAB member received five Post-it notes numbered 1-5, which they were asked to place on one of the 12 ideas posted around the room. During the exercise, 1 represented an MTAB member's highest priority MTI and 5 represented an MTAB member's lowest priority. In analyzing the exercise responses were then converted to scores that flipped the scale (i.e., Post-it notes with number 1 received 5 points, 2 received 4 points, and so on). The figure below summarizes the score for each MTI based on this exercise.



Lynette Curthoys clarified that the exercise should not be considered a vote or formal decision on which Batch 2 MTIs to develop further, but rather a priority-ranking exercise based on the information presented and MTAB member feedback in the meeting. Lynette also shared that day 2 of the MTAB meeting would include a discussion about how priority MTIs identified through this process would impact the overall balance and desired characteristics of the CalMTA portfolio.

### Public Comment

- Richard Fennelly: RFI submission aligns well with Building Performance Standards Acceleration and Food Service Decarbonization MTIs and offers substantial emissions reduction potential.

### Day 2: Dec. 1, 2023

#### Discuss Overall Portfolio Characteristics

Jeff Mitchell presented CalMTA's key questions in developing an MTI portfolio followed by a summary of the current Batch 1 and 2 balance in terms of market sector, technology focus, required investment, ramp-up timeline, WE&T needs, and equity impacts. MTAB member questions and feedback included:

- Whether the portfolio is too heavily focused on the residential sector, given the desire for a balanced portfolio and all ratepayer classes to feel invested.
- This balance also reflects the shorter ramp, near-term opportunity, and historic success of MTIs in the residential market. Being well-positioned for success and offering the greatest value to the state are top priorities at this stage; RFI submissions also skewed heavily residential.
- Future RFI cycles and MTI batches can target sectors not captured in Batch 1 or 2, particularly industrial and agricultural, and CalMTA can take the time to find the right MTIs for these segments with MTAB input.
- Two MTIs (windows and eRTUs) are both fuel neutral.

- Could two HPWH measures be combined/addressed in tandem, or are they really separate initiatives?
- Consider other state goals and their timeframes when looking at MTIs. For example, California has a goal of installing six million heat pumps by 2030 and will need a shorter-term MTI to meet that timeframe.
- Saving carbon sooner is better, as MTIs with shorter horizon are preferable.
- Additional evaluation of ESJ angle for each MTI may be warranted; however, splitting out WE&T and equity means that some MTIs would have a positive impact on ESJ communities through workforce development that isn't captured in these tables.
- What is CalMTA's target level of ongoing funding, given that the potential budget totals \$369M but implementation budget is \$250M for five years?
  - Jeff Mitchell said CalMTA will need to follow up on this.

Lynette Curthoys clarified that MTAB prioritization of and feedback on potential MTIs will factor into CalMTA's further research, analysis, modeling, and TSB estimates. This work will also be informed by desired portfolio balance/characteristics, Phase III funding allocation, and milestone timeline. A summary memo shared in advance of the Jan. 25 MTAB meeting will provide Batch 2 MTI recommendations along with additional information about each initiative.

### **ESJ Listening Sessions Report Out**

Rachel Good presented an overview and key findings from the five listening sessions conducted with ESJ community representatives in early November. Discussion between MTAB members and the CalMTA team centered on the following topics:

- Did pay equity/pay scale (a \$25/hr. wage) or connections to pre-apprenticeships or union jobs come up?
  - Rachel explained that conversation focused on on-ramp to clean energy work and hands-on learning opportunities/apprenticeships as well as the contracting process, but no deep dive into this issue.
- Initial briefing and in-session facilitation ensured that participants understood that MTIs typically work upstream and not directly with end-use customers. Coordination with existing programs focused on ESJ communities also surfaced as a topic.
- Regarding technology adoption, were there concerns about targeting ESJ communities with new technologies that may face failure/problems that these audiences may not be able to tolerate.
  - Rachel stated that while participants were interested in health and safety benefits, there were concerns about bill/grid impacts and a desire not to be stuck with something that doesn't work.

## Update on Draft MTI Evaluation Framework

Karen Horkitz presented the public comments received on CalMTA's draft Evaluation Framework and proposed response, as well as an updated timeline for finalizing the framework. Discussion between MTAB members and the CalMTA team centered on the following topics:

- Whether the utility-claimed savings subtracted to determine which portion is attributed to CalMTA would be net savings?
  - Staff clarified that this would be the case and that we would subtract the savings reported by utilities. CalMTA noted that market changes resulting from policy, national programs, and other extrinsic factors would be included in the baseline market adoption and thus *not* be attributed to CalMTA.
- Whether under the recommended approach, savings attributed to CalMTA would include savings that utilities considered to be free ridership or double-counted savings.
  - Karen explained that the proposed approach is designed to include free ridership in the market baseline, which is subtracted from total market adoption, and therefore would not be attributed to an MTI.
- CalMTA's recommended removal of language regarding "no overlap" between MTIs and the statewide codes and standards makes sense because it will not affect the approach to savings attribution and could encourage useful co-creation.
- While the CPUC separates out program administration and EM&V funding for EE portfolio programs, the Decision that led to CalMTA includes an evaluation budget under the CalMTA umbrella. Some MTAB members questioned whether having CalMTA contract with the evaluator was consistent with California policy or the best long-term solution (vs. having the independent evaluator report directly to the CPUC Energy Division, as with resource acquisition programs). Others thought we should honor the language in the decision, which could be changed. The issue may be raised during the application filed at the end of 2024.
  - Process evaluations (how market activity aligns with program logic and interventions) for MT programs were discussed as fundamentally different than resource acquisition programs. MT requires adaptive evaluation that provides feedback to the program so strategies can be adjusted in real time. Impact evaluations (what savings are attributable to observed changes in market adoption) could be separated out. In the Northwest, third-party evaluators are accepted by regulators as long as they operate under independence rules like those proposed by CalMTA.
  - CalMTA noted that most evaluations included in the Decision pertain to the real-time evaluation function envisioned by the adopted MT Framework and that the proposed solution of including the designated ED representative on the selection committee and all communication related to implementation of



the evaluation work might better serve the intent of the adopted market transformation framework.

- o Clarification that two organizational evaluations do not fall under the CPUC's MT Framework: an evaluation of systems and operational practices after Year 3, as well as the Year 5 evaluation, which relates the performance of CalMTA and the future transition to a nonprofit. The CPUC Energy Division may contract for these evaluations directly.

MTAB members requested additional time to review the Decision before providing input on the proposed approach to ensure independence of third-party evaluation activities. CalMTA will schedule a meeting for further discussion on this topic prior to the Jan. 25 MTAB meeting.

### **Public Comment:**

- Carol Yin: The C&S program has fairly granular evaluation requirements and a separate set of rules, but MTIs can't easily be divorced from current evaluation practices in California - for instance, C&S and CalMTA can't have two separate Delphi panels with separate groups of experts for the same technology.

### **Advancement Plan: Portable Heat Pump**

Elaine Miller presented a summary of the draft Advancement Plan for portable/window heat pumps. MTAB feedback included:

- Being more specific with the target market (i.e., existing multifamily properties that don't have a central heating system) might make this MTI more effective; income-qualified and public housing also often has window units.
- While there is a federal standard for portable AC units, only the cooling side is regulated. This has ramifications for ENERGY STAR differentiation of products as well.
- There's a real opportunity for MT to make this a fairly low-cost heat pump product for a specific audience--this product is so much less expensive than a ductless heat pump that even if its performance isn't as impressive, it's still a good solution. Multiple leverage points exist to bring this to scale and rapidly drive down product cost.
- ENERGY STAR Retail Product Platform (ESRPP) may be a good intervention. CalMTA proposes testing the use of the platform to target ESJ communities; needs to talk to implementers to better understand what products they currently stock.
- Product differentiation is a barrier when shopping: it's very hard to tell which products are heat pumps vs. resistance, most manufacturers and brands are unfamiliar, and product research is hard to do. Stocking practices also need to be addressed.
- The product still needs a lot of improvement, particularly in terms of aesthetics and viability in different types of rooms. The unit mounts via a thin strip with no insulation, which is not secure.

- Ducting is impossible unless the building has double-hung windows. Double ducting is more efficient and should be highlighted in the differentiation but that also means increased complexity of installation.
- Energy Trust of Oregon did field testing and this is highly recommended. It's important to have people try to install them in various home times and see what happens; need to determine when the product is stabilized enough to be mass-marketed.
- What is CalMTA's overall philosophy of intervention and how we structure MTIs: addressing all pieces of the puzzle (proper product design, installation, and workforce development, etc.) or focusing on one specific "golden carrot" end goal?
  - Elaine replied that CalMTA seeks to take all these pieces on but not at the same time--sequenced thoughtfully to achieve true MT.
- Many code and policy standpoints still need to be worked through on the refrigeration front. This product could represent an early entry point in the U.S. for this type of refrigerant.

### **Advancement Plan: Induction Cooktops**

Elaine Miller presented a summary of the draft Advancement Plan for induction cooktops. MTAB feedback included:

- The cost of cookware should be factored into overall product cost since some customers will need to replace existing pots and pans.
- Interventions could mirror those deployed successfully for ductless heat pumps in the Northwest. Success came from focusing on increased home comfort and energy savings in specific areas of the house. Could this MTI focus on plug-in induction cooktops as an introduction to efficient electric cooking?
- Potential target audiences with an equity impact could include the unhoused population (e.g., including induction cooktops in small housing pilots conducted by LA County and SoCalREN) and senior living facilities.
- Good availability of 24" cooktops, but ranges are still uncommon premium products.
- Winning hearts and minds will be key--leveraging aspirational home improvement spaces (e.g., designer magazines, TV cooking shows). If we spark interest and the technology is economically viable/beneficial, market growth will happen naturally.
- Cooking is an unregulated load in Title 24 currently; the possibility of making it regulated exists but not sure what that would look like.

### **Advancement Plan: Efficient Rooftop HVAC Units**

Alexis Allan presented a summary of the draft Advancement Plan for efficient rooftop HVAC units (ERTUs). MTAB feedback included:

- What is the intervention point, given that most properties have RTUs already?

- Alexis stated that the MTI would seek to encourage higher efficiency tiers and push manufacturers to develop more efficient products.
- Would the higher cost of ERTUs create a split incentive issue?
  - Market characterization will provide more insight into this question and CalMTA can tailor interventions accordingly.
- The value proposition behind this product remains challenging: customers are reluctant to budge above the minimum efficiency standard and expect a two- to three-year payback period; this is especially challenging given the split incentive.
- This is a commodity product that nobody thinks about unless it's failing. Big box retailers have RTUs and efficient versions could help them meet GHG reduction goals and ESG criteria. In order to solidify the value proposition, we need a test procedure.
- Manufacturers already face regulatory requirements and product changes that are placing a high demand on equipment testing and certification facilities, so they are likely to resist any new requirements that require testing.
- NEEA's Chris Dymond has been facilitating discussions around the country to prioritize improvements to HVAC systems. These conversations indicate that if a significant embedded cost is involved, market traction will be very low. Multiple opportunities for improvements that are not inherently costly to the manufacturer, although they could still have a high markup.
- CalMTA wants to understand the best product for California to provide a clear ask to manufacturers, and also build demand as we explore the product category. Manufacturers hate regional differentiation of products, so it's better to find a common set of ideal features than optimize specifically for California.
- There may be an opportunity to share budget with CalNEXT on this work, although most of the work CalNEXT is doing focuses on economizers and WE&T.

After the last Advancement Plan was presented, Stacey Hobart shared a feedback form with MTAB members to gather comments on the Disposition Report and Advancement Plans.

### **Public Comment**

- Richard Fennelly: Condenser coils had good potential to be part of the ERTU initiative.
- Anne Arquit of Enervee: While Advancement Plan logic models call out the higher cost of some products and need to work with manufacturers to drive down prices, it's also important to look at financing like the eco-financing integrated into Enervee's marketplace.

### **Future MTAB Meetings & Topics**

Lynette Curthoys presented CalMTA's proposed cadence of MTAB meetings and topics for the first part of 2024 and asked members whether they preferred to have the Jan. 25 meeting in person or virtual. Lujana Medina advocated for January's meeting to be held in person, which was echoed by Jeff Harris.

## **MTAB Recruitment Schedule**

Stacey Hobart shared a timeline and process for recruiting MTAB members whose term will be up next year.

The meeting was adjourned.

## **Attendees**

### **MTAB Members**

Haley Goodson, TURN

Fred Gordon, Energy Trust of Oregon (virtual)

Jeff Harris, Northwest Energy Efficiency Alliance

Randall Higa, Southern California Edison

Lujana Medina, County of Los Angeles County Environmental Division Manager

Peter Miller, Natural Resources Defense Council

Cyane Dandridge, SEI

Christie Torok, California Public Utilities Commission (virtual)

Ky-An Tran, California Public Advocates

### **Staff and Consultants**

Taqua Ammar, CalMTA (administered by Resource Innovations)

Jennifer Barnes, 2050 Partners on the CalMTA team

Lynette Curthoys, CalMTA (administered by Resource Innovations)

Rachel Good, CalMTA (administered by Resource Innovations)

Stacey Hobart, CalMTA (administered by Resource Innovations)

Karen Horkitz, Consultant to the Cadmus Group on the CalMTA team

Elaine Miller, CalMTA (administered by Resource Innovations)

Jeff Mitchell, CalMTA (administered by Resource Innovations)

Nils Strindberg, CalMTA (administered by Resource Innovations))

### **In-Person Guests**

Brian Gaze, Evari GIS

Christopher Malotte, SCE

Gustavo Sevilla, SoCalGas

Gregory Tropsa, Blue Frontier

Carol Yin, ETCC

### **Virtual Guests**

Mary Anderson, PG&E

Don Arambula, DAC

Bahareh van Boekhold, ILLUME Advising

Eliot Crowe, Lawrence Berkeley National Laboratory

Kelly Cunningham, PG&E

Richard Fennelly, CoilPod LLC  
Nick Fiore  
Hale Forster, CEE  
Carlo Gavina, SoCalGas  
Ted Giralдин, Lawrence Berkeley National Laboratory  
Peter Grant, Lawrence Berkeley National Laboratory  
Selena Heise, Brio  
Ari Isaak, Evari GIS  
Spencer Lipp, Timber Cove Energy Solutions  
Christopher Malotte, SCE  
Darlene Mar, ABA of SV / Caaba of CA  
Alan Meier, Energy and Efficiency Institute, UC Davis  
Nicholas Mesler, Evari GIS  
Luke Natzke, The Cadmus Group  
Anne Arquit Niederberger, Enervee  
Kate Olinger, Uponor  
Emily Pelstring, CPUC  
Neil Pickard, The Cadmus Group  
Ralph Prahл, Prahл & Associates  
Sarah Price, Lawrence Berkeley National Laboratory  
Rebecca Rothman, VEIC  
Priya Sathe, The Cadmus Group  
Gustavo Sevilla, SoCalGas  
Purabi Thakre, Lawrence Berkeley National Laboratory  
Charlie Toledo, Suscol Intertribal Council