



Advancement Plan Feedback Response

Residential Heat Pump Water Heating

This document provides a comprehensive list of comments received from both the public and the Market Transformation Advisory Board (MTAB) on the draft Residential Heat Pump Water Heating Market Transformation Initiative (MTI) Advancement Plan and CalMTA's response to those comments. The draft Advancement Plan was posted to the CPUC's PDA website for comment from June 19 - July 11, 2024. [Updated Advancement Plans will be posted on the CalMTA website.](#)

Source	Feedback Provided	CalMTA Response
Public (Joe Wachunas, New Buildings Institute)	CalMTA writes "By 2035 the initiative aims to create the market dynamics to ensure the majority of new residential water heaters installed are grid enabled HPWHs, that customers understand what to expect from this technology in their homes, and that the supply chain values and adopts HPWHs as a prioritized segment of their business." In light of federal mandates phasing out electric water heaters in 2029 and California air district mandates likely phasing out combustion water heaters statewide by 2030. I suggest making this goal more ambitious. It could be possible that nearly all residential water heater sales are heat pumps by 2030 due to policies and standards alone.	During the next phase of this initiative, our objective is to work collectively with partners to create a shared goal. The team will also continue to monitor the policies and standards that are currently underway and refine our end state as needed.
	I suggest adding something to effect "Air quality standards are likely to phase out combustion water heaters by 2030. Appliance standards will phase out most ER water heaters by 2029."	The team will update the Advancement Plan to ensure monitoring of air quality standards is clear and that we see these standards as a possible leverage point when they take effect.
	I would suggest adding "Risk - Duplication of efforts with other programs and initiatives Risk - Policies mandate HPWHs for single family residential HPWH installations negating the need for a market transformation initiative "	Thank you for this recommendation. We will incorporate your feedback related to risk in duplication of efforts with other programs, policies, and initiatives into the risk section of the Advancement Plan.

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	<p>Just a general comment. I suggest that since HPWHs are poised to be mandated in single family homes in the next 5-6 years, finally that CalMTA focus on HPWH installations in Multi-family buildings which are a recognized pain point with a lack of form factors and options.</p>	<p>We're open to exploring an appropriate role for CalMTA in multifamily and anticipate the strategic planning process will illuminate barriers that may exist that CalMTA is well suited to work on. This initiative remains focused on integrated (i.e. compressor and storage tank are combined into a single appliance) versus central systems.</p>
<p>Public (Alyssa Cheung, California</p>	<p>Have you thought about partnering with the California Heat Pump Partnership? I don't think I saw that mentioned in the draft, but I think they may be helpful in your research.</p>	<p>Thank you, we have reached out to them and will update the plan to ensure they are included in our stakeholder list and outreach activities.</p>
<p>Public Utilities Commission)</p>	<p>I think one technical barrier it'd be helpful to address is space constraints for HPWHs - particularly for manufactured and mobile homes and some multi-family dwellings. You allude to this on p. 14, but I think it'd be helpful to highlight space constraints for these particular home types. This also has equity implications (manufactured housing is often sought after as more affordable housing options in CA). For example, many of the programs I oversee are direct-install programs for manufactured homes; it has been difficult to find models that work for these housing types.</p>	<p>Sizing is identified as a key barrier for all markets on p. 18 and the first technical assessment objective is focused on HPWH sizing. We will update the Advancement Plan to discuss specific sizing barriers for manufactured and mobile homes in the ESJ section.</p>
	<p>Under MR1, I recommend also researching the policy landscape for adoption of HPWHs in manufactured housing. This type of housing is not subject to the CA Building Code and is instead regulated on the federal level, via HCD. We've faced a lot of barriers with HCD trying to retrofit HPWHs in manufactured homes, and it's unclear to us what levers are available to make changes on the federal level to make it easier to install HPWHs in manufactured homes.</p>	<p>Thanks for that insight about this specific sector and barrier. And good suggestion; we agree that federal policy research should be encompassed under the first market research objective and will update the plan to reflect that under Section 6.2, MR1.</p>
	<p>With regard to the TA4 task, regarding research of panel electrification readiness, I wanted to make sure you were aware of the study just released by UCLA that aims to do something very similar to what you propose (via a study commissioned by CARB):</p>	<p>Thank you for identifying this resource. CalMTA will leverage all the work being done on panel electrification readiness.</p>

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	Quantifying the electric service panel capacities of California's residential buildings - ScienceDirect.	
Public (Sebastian Sarria, California Public Utilities Commission)	I noticed on page 3 of your document a note to leverage ENERGY STAR's label to create awareness and acceptance of the technology. Just wanted to share that some HPWHs in the TECH program are not ENERGY STAR certified so if the intent is to focus on just ENERGY STAR's label to create awareness, some manufacturers may be left out. For example, Appendix A of the SGIP HPWH original decision (D.22-04-036) states that for residential unitary systems (pg. 152 of the PDF), they must be identified by either NEEA's most recent qualified product list as having a CTA-2045 Compliant Communication Port or must be certified as a Connected Water Heater product under the Version 4.0 ENERGY STAR Product Specification for Residential Water Heaters. Then something similar is listed for residential central where devices must be identified as JA-13 compliant water heaters by the CEC or meet ENERGY STAR 2.0 Commercial Water Heater Specifications.	Our intention is to not solely focus on ENERGY STAR, but we recognize it as one of the many tools in the toolbox that can be leveraged to build awareness and acceptance of this technology. Where feasible and appropriate leveraging ENERGY STAR's brand awareness could be appropriate and potentially decrease the overall cost of messaging and awareness building.
	For section 4.4, in leveraging other programs, I recommend including PG&E's WaterSaver and SCE's SmartShift Rewards Hot Water programs, which focus on load shifting of HPWHs.	Thank you for highlighting this resource, we'll be sure to include them on our stakeholder list and outreach activities.
	I see the residential water heaters that are being targeted are for both single and multi-family homes. Does this plan include mini splits with ductless systems?	The product description is sufficiently broad to encompass both integrated and split-system HPWHs which are air-to-water heat pumps. Mini splits/ductless systems are air-to-air heat pumps used for space heating/cooling and are out of scope of this Advancement Plan. Combi units (split systems that heat both air and water) are also out of scope of this Advancement Plan but CalMTA may evaluate these products as this equipment continues to mature.
MTAB (Fred Gordon, Evaluation Professional)	Exec sum and page 9- barriers list should include simple market inertia in a low-learning market. I suggest a little more context regarding installers. In my experience, water heater retailers and plumbing contractors are not focused on the engineering	Great point, we will update this and ensure we explore for this with our research and update our barriers with market research learnings and strategic planning exercise for our logic model.

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	<p>characteristics of their product from an energy perspective- that's not how most of them make money. Both the retail and contractor channels lack a strong learning culture and infrastructure. If your early research supports similar perspective it's worth mentioning.</p>	
	<p>Federal water heater standards will likely require heat pump systems soon, so it's important to emphasize this program's value. Key objectives should include:</p> <p>Addressing opportunities before the new standards, given the 15-year lifespan of conventional water heaters, by installing more efficient electric units and replacing failing gas water heaters.</p> <p>Ensuring ESJ markets benefit before the standards are implemented.</p> <p>Reducing the burden on California's grid by avoiding inefficient water heater installations.</p> <p>Increasing acceptance of heat pump water heaters to support the new standards.</p> <p>Maximizing the efficiency and grid connection of heat pump water heaters now and in the future.</p> <p>This information should be presented as a strategic business case to clarify the program's value and enhance coordination with existing efforts, as current penetration is only 1%.</p>	<p>Thank you for these comments, we have reviewed the Executive Summary and will incorporate your feedback into the updated version.</p>
	<p>Suggest replacing ESJ communities "should" with "will".</p>	<p>Thank you for this recommendation. We have updated the Advancement Plan to reflect this language.</p>
	<p>Page 13. This seems unclear and could maybe be more specific. "reduce market confusion on the direction and tactics of California's water heater work". Confusion amongst whom? Among entities delivering programs? Customers?. California's work on -efficient and demand controlled water heating for homes?</p>	<p>Our assumption was that there was confusion among market partners, supply chain partners, and customers. However, market research will further illuminate if this assumption is accurate and will be reflected in our logic model barriers.</p>
	<p>P 14, table 1. It's possible that under a successful MT strategy the average efficiency and demand communications capabilities of units sold will improve but the price won't come down. Do you want to put something in here to say prices moderate "for equivalent</p>	<p>Great point, we will add language to Section 4.10 of the Advancement Plan to highlight this pricing nuance.</p>

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	<p>equipment". Do you want a metric which focuses on the efficiency and demand capability of the average unit sold? I think a lot of the potential benefits of the statewide coordinated initiative may be in increasing efficiency (but it's too early to say).</p>	
	<p>Page 14, table 2. In order to develop a contracting base in ESJ communities that looks like the potential customers and is well suited to sell to them, Energy Trust is finding it necessary to encourage minority or local rural contractors who have the necessary skills or are close, to develop their capabilities in the energy space. That involves bringing them along over time, in some cases starting with funds to spend enough time with energy opportunities to develop their own business model, and then technical and business training. In some cases this comes through subcontracting to mainstream contractors then spinning free. I wonder if some of the progress metrics for this measure need to be about going through those relationship and contractor development steps over several years.</p>	<p>Thank you for the comment and for sharing the lessons learned at Energy Trust. The outcomes and progress indicators shared in Tables 1 and 2 of the Advancement Plan reflect our preliminary thoughts appropriate progress metrics, based on current thinking about the eventual market interventions for this MTI. We agree with you that there should be short-term progress metrics that reflect the long-term workforce development efforts required to achieve the long-term outcome shown in Row 1 of Table 2. (As discussed at the July MTAB meeting, we will need to include short- and medium- progress metrics associated with all long-term outcomes to be able to assess progress over the next few years.) For now, we will add a progress indicator to Table 2 (installers from ESJ communities engaged in and make commitments to HPWH workforce development activities). As we develop the logic model and MTI Plan in Phase II, however, we will consider additional short- and mid-term progress indicators that would be indicative of the efforts you describe and align with the eventual MTI logic model and Plan.</p>
	<p>Gap analysis, page 17. It seems that the NW is years ahead of California with respect to HPWH, even though there are not necessarily higher incentives. While the indicated in-state interviews are important, it may be valuable to systematically characterize what circumstances are different that have led to higher sales per capita in the NW. One factor may be the higher market share of electric water</p>	<p>Thank you for that recommendation; the team agrees that there is much to be learned from other jurisdictions and specifically the Northwest. CalMTA will absolutely consider looking into factors that contributed the success in the NW and explore all available resources or publicly available data. Subject matter experts</p>

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	<p>heat. However, I think there is more, and a systematic comparison may be useful in designing a focused market transformation model. The information may also be useful in persuading the many program administrators to negotiate a more consistent approach. Staff may already have much of this knowledge in hand, but the systematic comparison may be a useful communication tool.</p>	<p>interviewed will not be limited to CA. We will update the plan to reflect that we will review other jurisdictions under Section 6.2, MR1.</p>
	<p>Page 19. I didn't notice a task where you'll try to understand technical options to deal with capacity limitation at the local transformer and panel, such as in-house load management software, on or off the panel. The relevance of this particular option will depend on how limited the panel capacity is. But I think it's worth having a task, once you have the research on panel capacity in hand, to scan for relevant solutions.</p>	<p>CalMTA considered evaluating potential technical options to address electrical panel capacity issues. We ultimately determined that addressing electrical panel capacity issues is a broader issue and beyond the scope of the residential heat pump water heater advancement plan. The objective of this task is to identify and prioritize homes that currently have sufficient electrical panel capacity to support installation of a heat pump water heater to facilitate faster contractor and consumer uptake.</p>
	<p>Page 21. I didn't read that the plan includes assessing sales by efficiency level. This may be important to focusing the MT initiative; if sales through other programs and through the market are in the higher efficiency tiers, that's great and the focus is more on volume. If sales are not in the higher tiers, the strategy might shift. Ditto for demand control capability.</p>	<p>We agree that that this would be a very useful, if available sources of sales data allow. Good suggestion. We have updated the plan to reflect this desired data view under Section 6.2, MR3.</p>
	<p>Page 27- risks. First barrier- lack of value proposition for coordination. Add: Develop a compelling business case, showing what we can do together that we have not been able to do separately.</p>	<p>Thank you for this recommendation. We have incorporated your feedback into the risk section of the Advancement Plan.</p>