



Residential Heat Pump Water Heating Market Transformation Initiative

Appendix G: Risk Management Plan

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Prepared by:

Katie Teshima, Program Manager
Alexis Allan, Strategy Manager

Resource Innovations
719 Main Street, Suite A
Half Moon Bay, CA, 94019
(888) 217-0217
info@calmta.org

1 Introduction

This document details the potential risks that could negatively impact the Residential Heat Pump Water Heating (HPWH) Market Transformation Initiative (MTI) and CalMTA's plan to monitor and mitigate these risks. Additional information is included to establish risk likelihood, severity, indicators that the risk is occurring, and assumptions around the possible mitigation approaches. Risk numbers in column 1 of Table 1 with an “**”, are listed in Section 9 of the Residential HPWH MTI Plan as part of the summary of key risks that could impact this MTI.

The evaluation plan developed by CalMTA, found in Appendix F of this MTI Plan, outlines the market progress indicators (MPIs) and details CalMTA's approach to assessing both MTI performance and market advancement. While these MPIs will primarily serve as lagging indicators, CalMTA will also monitor performance and track market progress continuously throughout the implementation phase. Regular meetings with our implementation contractor, manufacturers, and other market actors will facilitate real-time updates and offer valuable insights, enabling us to make necessary adjustments to implementation as circumstances evolve.

In column 3 of Table 1, CalMTA is defining risk “Probability of occurring” as follows:

- **High:** Through our research and discussion with market actors, CalMTA deems this risk having a high probability of occurring. The program needs to monitor closely and identify a solid backup plan with resources that can be deployed to mitigate the risk if it comes to fruition.
- **Medium:** This risk has a medium probability of occurring given what we know about the market. The MTI needs to track and have a plan to mitigate.
- **Low:** The probability of this risk occurring is low based on what's known about the market to date. It could have some impact on the need for resources and timing, so the MTI needs to track it.

For “Severity” in column 4 of Table 1, CalMTA is defining these as follows:

- **High:** If this risk occurs and our mitigation approach is unfeasible, then the success of the MTI may be jeopardized.
- **Medium:** This may have an impact on the timing or overall success of the MTI, but a solid mitigation approach exists, and the MTI will be able to pivot with more time or resources.
- **Low:** This level of risk will likely require a program intervention adjustment, but it will not jeopardize timing or resources.



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*CalMTA is a program of the California Public Utilities Commission (CPUC)
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Table 1. Risk assessment

	Risk	Probability of occurring	Severity	How will we know the risk is occurring?	Responsible & tracking ¹	Mitigation approach
1*	Manufacturers do not see a Return on Investment (ROI) or pathway to profit: HPWH manufacturers may not perceive a viable or scalable return of investment in California. This perception may limit further investment, pricing reductions, and long-term market participation by manufacturers.	High	High	Manufacturers decline partnering on product roadmap or Scale-Up Plans Manufacturers delay agreed upon product development or modification timelines Limited or no commitment from new manufacturers to enter or expand in the California market	Product Manager	Aggregate demand in submarkets to prove viable business case and accelerate market adoption. Partner with manufacturers during product roadmap and Scale-Up Plan development. Coordinate California partners to align product development needs through a Product Roadmap that would create a clear and consistent set of asks for manufacturers. Maintain robust relationships with manufacturers through proactive and ongoing engagement. Collaborate with other programs/partners outside of California to align and develop consistency.
2*	California market is unprepared for the 2029 federal standard adoption: Market and installer workforce are not ready for the 2029 federal standard where HPWHs will essentially be the only approved electric <i>water</i> heating option. Inexperience with HPWHs may lead to poor installations, underperforming equipment, negative customer experiences, and missed opportunities to scale adoption.	High	High	Installer feedback indicating limited HPWH experience and training gaps Negative customer sentiment from online reviews or feedback to program partners related to HPWH installations, performance or requirements Adoption in priority segments remains slow	Program Manager	Aggregate demand in easier-to-install submarkets to build installer experience and confidence. Create, track, and communicate lessons learned and installation best practices, by submarket, to influence existing program and supply chain training efforts. Ensure messaging on federal standard is clear and consistent to installers and market actors. Work with existing programs/partners and supply chain training efforts to monitor market and workforce.

¹ The roles listed under the column “responsible & tracking” will be on point to track and identify if the risk is something that needs attention. The team will then work to deploy the appropriate mitigation strategy.



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	Risk	Probability of occurring	Severity	How will we know the risk is occurring?	Responsible & tracking¹	Mitigation approach
				<p>Evidence that the market is creating workarounds to avoid installing HPWHs</p> <p>Federal administration or other stakeholders aim to weaken the 2029 federal standard</p>		Explore Title 24 Installation Requirements as possible leverage points to support retrofit market.
3*	<p>Duplication of efforts with other HPWH programs and initiatives: Overlap with Investor Owned Utility (IOU), Community Choice Aggregator (CCA), Regional Energy Network (REN), or state HPWH activities may create redundancy, confuse market actors, and reduce the efficiency and impact of CalMTA's efforts. The overlap could increase the risk that ratepayers could fund duplicative activities without added market benefit.</p>	Medium	High	<p>Overlapping outreach or deliverables with other programs</p> <p>Market and program partners report there being a duplication of efforts</p> <p>Uncover duplication during regular monitoring and maintenance of program support roadmap</p>	Stakeholder Engagement Manager	<p>Investment of dedicated staff (CalMTA and implementation contractor) to maintain and manage relationships with program partners and market actors to monitor activities and ensure CalMTA efforts are additive and not duplicative and maintain program support roadmap.</p> <p>Maintain regular coordination with program administrators and key stakeholders (e.g., IOUs, CCAs, RENs, statewide initiatives, and national organizations) and use structured forums (e.g., working groups, roadmap reviews, and partner check-ins) to identify overlap. Where duplication or role ambiguity is identified, CalMTA will work with partners to clarify roles and adjust activities accordingly.</p> <p>Proactive engagement with market partners (e.g., coordination meetings, quarterly check-ins, technical working groups) to track market shifts, identify needs, and adjust strategies when conditions evolve.</p> <p>Co-develop product roadmaps and Scale-Up Plans with agreements (e.g., Memorandum of Understand (MOU), Strategic Partnership Agreements (SPA) defining roles,</p>



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						responsibilities, communication approach, and timelines.
4*	Environmental and Social Justice (ESJ) participation gaps in priority segments: ESJ communities may not benefit from aggregated efforts due to landlord barriers, retrofit complexity, or low Community-Based Organization (CBO) capacity.	Medium	High	Low adoption and enrollment from ESJ communities Installer participation low in ESJ communities CBO and program feedback signal obstacles	Market Research & Evaluation Lead	Develop ESJ-specific Scale-Up Plans with additional time and budget allocated to address barriers. Create robust program support roadmap that aggregates incentive resources and program efforts targeted for ESJ communities. Develop strategies such as stacked incentives, financing options, or program structures that reduce hurdles for landlords and rental properties.
5*	Program partners are unable to meet incentive commitments during submarket scale ups: Program partners may be unable to sustain or deliver committed incentive levels, resulting in incentive start-stop dynamics that erodes market trust and partner relationships.	Medium	High	Incentive spending relative to budget is higher than planned Program partners signal difficulty meeting committed incentive levels or request scope, timing, or eligibility changes mid-year	Program Manager	Reserve contingency funds to address short-term incentive gaps. Track, monitor, and forecast incentive burn rates in coordination with partners. Conduct regular partner coordination and alignment activities to involve partners in the development and ongoing management of Scale-Up-Plans. Leverage Scale-Up Plans to ensure incentive levels, unit installation goals, timelines, and roles and responsibilities are clear by partner organization. Leverage Scale-Up Plans to create agreements (e.g., MOU, SPA, etc.) that clearly outline program commitment to number of products they are supporting and intended incentive level.
6*	Operating costs for HPWH result in increased utility bills: When a customer converts from	Medium	Medium	Negative customer reviews mentioning bill increases post installation	Program Manager	Monitor electricity rates by utility, county, and locale as part of submarket aggregation efforts to help inform where the team should focus aggregation efforts.



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	natural gas water heat to a HPWH, they see an increase in their utility bills.			Installers report reluctance to promote HPWH because of higher operating costs		When rates are no longer a barrier to adoption, explore that territory/region for possible submarket aggregation efforts.
7*	Unable to achieve aggregated scale in submarkets: Efforts to aggregate demand across submarkets fail to reach sufficient volume, reducing bargaining power and undermining cost reductions with supply chain.	Medium	Medium	Low HPWH uptake in submarkets despite outreach Installers report customer hesitation Incentive stacking requests increase Market/program partners report limited demand Scale-Up Plans fail to meet goal CalMTA has challenges recruiting market or program partners to participate	Program Manager	Conduct a robust market segmentation and housing stock assessment to identify and prioritize submarkets with the highest aggregation potential and scale. Prioritize program partners and submarkets with demonstrated demand density, supportive policies, and aligned incentives. Partner early with market champions (e.g., CBOs, local leaders, manufacturers, contractor networks) who already show commitment to the technology to anchor aggregation efforts.
8*	Total installation costs do not decline with scale: Despite aggregation and market interventions, total installed costs remain high due to persistent labor, electrical upgrade requirements, permitting, or supply chain barriers. These challenges do not cause the product's installation costs to decrease, thus slowing adoption.	Medium	High	High per-unit installation costs persist Cost reductions fail to materialize across submarkets	Product Manager	Design submarket-specific scale-up strategies that anticipate cost drivers, optimize deployment sequencing, and leverage volume efficiencies to reduce overall installation costs. Build strong partnerships with manufacturers, distributors, and installers. Collaborate to secure better pricing and improve product availability with the goal of lower material and equipment costs. Leverage distributors and manufacturers to identify champion installers who will commit support to Scale-Up-Plans. Prioritize early deployment in housing types and regions requiring minimal retrofits or electrical upgrades to



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						accelerate adoption, achieve early cost and installation efficiencies, and give installers opportunities to build experience and reduce installation time over successive projects.
9	California programs don't see value in aggregation: Some HPWH programs may not perceive sufficient value in coordinating with CalMTA due to differing priorities, resource constraints, or program-specific goals.	Medium	Medium	Programs will not partner with CalMTA efforts (e.g., product roadmap, Scale-Up Plan, data sharing agreements) Programs don't honor commitments	Stakeholder Engagement Manager	Clearly articulate the benefits of aggregation by showing how CalMTA can support programs in achieving their specific goals, reducing administrative burden, and increasing overall market impact. Co-develop Product Roadmaps and Scale-Up Plans with MOUs/agreements defining roles, responsibilities, and timelines.
10	Unable to fill HPWH market data gap: There is an existing gap in comprehensive data on the California HPWH market, and programs may be unable to fully fill this gap. This limits the ability to understand the market's current state, assess the impact of interventions, and make fully informed and timely strategic decisions, potentially reducing the effectiveness of program planning and execution.	Medium	Medium	Persistent gaps or delays in collecting key market data (e.g., sales, adoption rates, stock, pricing, etc.) Programs report uncertainty or inability to make data-driven decisions Conflicting or incomplete information across different program sources Data are not submitted by program and manufacturer partners	Market Research & Evaluation Lead	Leverage existing relationships with retailers, distributors, and programs to build trust and encourage early adopters of HPWHs. Simplify data submission with standardized templates and low-burden processes aligned to partner operations. Establish reciprocal data-sharing agreements that ensure partners receive useful analytics in exchange for participation. Use retail data as an opportunity to help programs see value in a cohesive data ask.
11	Contractors experience fractured HPWH program landscape: Frequent or unpredictable changes to HPWH programs can erode contractor confidence and undermine willingness to promote or install the technology.	Medium	Medium	Contractors report confusion or frustration over differing program requirements, incentives, or processes Contractors report uncertainty or reduced willingness to promote HPWHs	Stakeholder Engagement Manager	Collaborate with program and market partners to harmonize HPWH messaging, training, sales tools, and product definition across supply and demand side stakeholders to create a consistent and recognizable narrative that clearly communicates HPWH benefits and opportunities by working with relevant marketing and training staff at market and program partners.



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				<p>Contractor participation remains low</p> <p>Contractors are reluctant to participate or support HPWHs in California research efforts</p>		<p>Work with distributor and supply chain partners to identify installation champions via Scale-Up efforts to build momentum in submarkets where contractors can experience a consistent offering.</p>
12	<p>California programs reduce or discontinue HPWH incentives over time: Incentives are unavailable for HPWH resulting in higher customer costs and eroding the markets confidence in California’s HPWH support.</p>	Low	High	<p>Program Administrators’ filed Business Plans/Portfolio Plans do not include programs offering incentives on HPWHs</p> <p>No legislative authorization for funds allocated to programs driving HPWH adoption</p> <p>Market scan indicates a lack of local programs offering incentives on HPWHs”?</p>	Stakeholder Engagement Manager	<p>Identify barriers to incentive support and collaborate with partners to overcome identified barriers and create shared pathway to future incentive offerings.</p> <p>Communicate efforts to market partners and coordinate response.</p>



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