RESIDENTIAL HPWH MARKET ACCELERATION SUMMIT

CalMTA

Summit Overview

In August 2025, the CalMTA Residential Heat Pump Water Heater Market Acceleration Summit brought together industry leaders, program administrators, manufacturers, contractors, and other stakeholders to identify opportunities, challenges, and strategies for accelerating heat pump water heater (HPWH) adoption in California. The Summit was an extension of CalMTA's research activities to help the organization identify innovative pathways for a market transformation initiative focused on this technology.

This package of materials shares an overview of the Summit and its outputs.

Summit objectives

The Summit was designed to achieve the following objectives:

- **Participants emerge with a deeper understanding** of the opportunities and their role in accelerating adoption
- **Build transparency and a shared understanding** of statewide solutions and strategies that accelerate adoption
- **Identify stakeholder priorities, challenges, and resources** to shape and strengthen CalMTA's future strategy.

Interactive sessions

To accomplish our objectives, participants participated in interactive sessions throughout the Summit, including:

- **Exploring market barriers and impacts to HPWH transformation:** Using a research-informed market map, participants shared insights from their own experience navigating product requirements, market opportunities, existing program structures, supply and demand dynamics, and installation challenges.
- **Brainstorming on transformative market activities:** Participants were asked to think creatively about ideas that could accelerate market momentum toward California's heat pump goal if, in the words of the facilitators "we blow the top off what's possible and think completely 'pie in the sky.'"
- **Identifying potential innovation pathways:** Referencing the brainstorming and market research session content, participants teamed up to ideate and explore pathways to achieve accelerated market transformation for HPWHs. The exercise resulted in six concepts illustrating how collaborative action could advance our shared goal, with some ideas well-suited for CalMTA and others requiring different approaches given the robust activity already underway in California.

Session outputs

These interactive sessions culminated in the following outputs, which are included in this package of materials and linked below:

1. **Market Barriers and Impacts Map and Activity Notes:** A pre-populated map revealed CalMTA's research findings and identified unique market challenges and their impacts on the California HPWH landscape. During the Summit, participants contributed their own additional observations, opportunities, and challenges for CalMTA's consideration.
2. **Ideas Brainstorm:** To unlock innovative thinking at the beginning of the Summit, CalMTA asked participants to brainstorm "pie in the sky" ideas for accelerating HPWH adoption, which CalMTA documented and grouped by common themes.
3. **Innovation Pathways:** Taking the top six concepts identified by participants to accelerate HPWH adoption, teams outlined how we might catalyze these ideas by working cooperatively toward our shared goal and completed a ranking exercise to understand the impact and feasibility. The top six pathways are:
    - Aggregate Advanced Demand to Reduce Product Cost
    - Streamlining Permitting
    - State-wide Upstream Incentive Program and Customer Application
    - Matchmaking Tech to California Housing Stock*
    - Create Market Momentum by Segments*
    - Give Away 1 Million HPWHs

Next steps

The CalMTA team is integrating insights generated during the summit with ongoing research and prior findings to begin developing a Residential HPWH Market Transformation Initiative for consideration in 2026. CalMTA is sharing the tools and outcomes generated from the summit to act as a resource for participants to incorporate as appropriate into their own HPWH market activities.

For more information on the Summit, visit:
https://calmta.org/residential-hpwh-market-acceleration-summit/

For questions, please contact:
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*Indicates that CalMTA is exploring this idea further as part of its Market Transformation Initiative

HEAT PUMP WATER HEATERS

Market Barriers and Impacts to Transforming the California Market

Leveraging existing and new market research, CalMTA identified barriers and market impacts impeding the adoption of HPWHs. Participants explored these findings and generated observations, opportunities and challenges that are documented in the activity notes section.

RESEARCH FINDINGS

HPWH purchase drivers: lower energy bill, health benefits, durability, performance, solar/load shifting, carbon reduction, incentives

33% of installers report grid connection and DR program concerns as a challenge during install

23% of customers don't pursue incentives to avoid enrolling in DR programs

Manuf. largely think of HPWHs as a premium product that is not appropriate for all market segments

BARRIER #1 Product Requirements

Complex HPWH product requirements (e.g., connectivity, demand response) that don't add customer value for the added cost

New features (e.g., connectivity, DR) are an added developmental cost for manuf. who want to enter the CA market and comply with program and product specs

HPWHs are seen as a premium product which prevents the product from scaling

Product requires ongoing, large incentives to make it attractive to customers who often don't perceive value in added features and requirements

Lack of variety in tiers of products (i.e., no economy option to compete with standard gas water heaters)

Unlike standard gas water heaters, HPWHs can experience communication issues resulting in a negative customer experience

MARKET IMPACTS

RESEARCH FINDINGS

80% of existing water heaters are gas fueled, and gas is generally cheaper than electricity

It's often more difficult and expensive to switch from gas to a HPWH (e.g., product cost plus install reqs such as electrical upgrades)

80% of water heater purchases are emergency replacements

Only ~55% of Californians own their home

BARRIER #2 Market Opportunity

Some California housing characteristics are less than ideal for cost-effectively switching to HPWH

The cost to convert from gas to electric can be prohibitive and drive up total cost of a HPWH install

Incremental payback can be much longer for HPWHs compared to a one-to-one gas replacement

Customers who rent or don't occupy the home they own are less likely to spend extra time or money upgrading

Many incentive programs aren't inclusive of DIY installations

MARKET IMPACTS

HEAT PUMP WATER HEATERS

Market Barriers and Impacts to Transforming the California Market

Leveraging existing and new market research, CalMTA identified barriers and market impacts impeding the adoption of HPWHs. Explore these findings, add your own ideas with sticky notes, and use this info to help inspire creative solutions throughout the summit.

RESEARCH FINDINGS

- 38 programs offer incentives for retrofit HPWH installs (as of Jan. 2024)
- >60% of purchasers are not aware of HPWH incentives
- Perceived lack of program and incentive stability by manufs. and installers
- Differing definitions of quality installation
- Perceived inconsistency and/or confusion on combining incentives
- 34% of installers report incentive application requirements are "extensive" and "burdensome"
- Installers want: "contractor-friendly" incentives (61%), "quick approval process" (60%), "limited or simple eligibility reqs" (52%)

BARRIER #3 Program Landscape

There are multiple programs per territory with disparate participation requirements and incentives

- Overlapping program reqs and unpredictable incentives can cause misunderstanding and mistrust among contractors and customers
- Program participation requires a higher investment by manuf., distributors and installers, which can increase customer cost and counteract incentives
- Customers may receive confusing and mixed program messages
- Confusing and inconsistent incentives result in a lack of pricing transparency for contractors and customers.
- Inconsistent incentive availability can erode trust in California's long-term commitment to the technology
- Incentive processes are often not aligned with contractor workflows

MARKET IMPACTS

RESEARCH FINDINGS

- Customers opt out due to: lack of familiarity (40%), unit cost (35%)
- 80% of installs are emergency replacement, with customers prioritizing cost and availability
- About $8,500 average HPWH install cost
- Average install takes longer for HPWH compared to a standard one-to-one replacement
- Product cost is often only one component of total cost; installs often require add'l cost (e.g., fuel switching, panel upgrades and permitting)
- Low-interest product category with customers more likely to prioritize other home upgrades
- Only 25% of contractors reported confidence with installing
- Increased exposure to the technology (e.g., training and hands-on experience) was reported as the key factor in increasing an installers' HPWH recommendation rates

BARRIER #4 Supply and Demand

Low customer value and demand results in supply chain inertia and lack of install experience

- Lack of customer demand results in a low-to-no business case for contractors to invest in sales and training
- Low demand may result in limited product stocking and increased lead times
- Lack of installer experience can result in incorrect system sizing, placement or other install challenges
- Lack of experience can dissuade an installer from recommending HPWHs, especially in emergency replacement

MARKET IMPACTS

HEAT PUMP WATER HEATERS

Market Barriers and Impacts to Transforming the California Market

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RESEARCH FINDINGS

34% of installers report challenges with permitting

82% of installers say electrical requirements "sometimes or often" drive customers to choose non-HPWHs

Contractors find repairs more difficult than traditional units due to complex diagnostics (61%), limited manuf. support (53%), higher repair costs (53%)

Installers frequently lack data to confirm if panel upgrades are needed, and assessing the scope, cost and timeline of these upgrades poses a major barrier

Simple gas installs are perceived as a lower business risk

BARRIER #5 **Installation**

Complex installation requirements (e.g., permitting, electrical) add cost and prevent HPWH recommendations and installs

Contractors are disincentivized from promoting HPWHs due to added time, effort and perceived risk

Higher quotes and/or longer permitting (which vary by jurisdiction) can dissuade customers from selecting HPWHs

More complex install requirements likely deter those who prefer DIY

MARKET IMPACTS

RESEARCH FINDINGS

MARKET IMPACTS

ACTIVITY NOTES

Market Barriers and Impacts to Transforming the California Market

Below are notes and additions generated by participants in response to reviewing the Market Barriers and Impacts Map that was shared during the Summit.

This document includes all feedback provided by participants over the course of the Summit and is not meant to convey consensus.

Barrier #1: Product Requirements

SUMMIT PARTICIPANT CONCERNS

- Better customer education is needed (e.g., benefit analysis, difference between HPWHs and gas devices)
- Some manufacturers think their HPWHs can operate a certain way when they cannot in the field. Self-certification for JA-13 and NEEA is problematic
- Need to address connectivity and demand response uptake (e.g., let people opt-out, educate customers on what it actually is)
- Helping customers with incentive applications is difficult and a burden on contractors
- Modeling suggests California consumers will receive little load shift benefit (savings)
- Too many new and evolving product requirements
- Integrated vs. add-on CTA125
- If we don't pursue grid flex now, what is the cost to replace or add later
- Grid connected and demand response is added cost that utilities have not implemented to a great enough extent to make these investments feel worthwhile to manufacturers
- Customers have shared they do not want to be told when to use electricity
- Disparity between flex capability on paper vs. performance/usability/conformance in field
- Consumers don't understand demand response and how it works
- Lack of internal industry consensus about ongoing costs in California specifically (our rates are higher than national avg). Based on this and where rates are headed, we need agreement on the value of grid flexibility. By developing easier-to-deploy products, will we have to pay more later to retrofit?
- ENERGY STAR should be the norm instead of NEEA tiers
- Work with low-income customers should recognize that many don't have Wi-Fi and may benefit more from HPWHs with fewer features

SUMMIT PARTICIPANT IDENTIFIED OPPORTUNITIES

- Opt-out program for demand response to capture all the benefit of flex load
- Allow lower cost HPWHs with fewer bells and whistles and fewer regulatory requirements
- "New features" are important but maybe we've reached the end of the list, or should call an end to it now.
- Figure out how to value/monetize features like demand response and connectivity for customers
- Require Thermostatic Mixing Valves (TMV) to allow for higher water temperature and capacity
- Incentivize/encourage a baseline "no frills" product
- Real test protocols that demonstrate demand response functionality so that product can actually be leveraged to the benefit of the customers, not just checking the box for manufacturers

Barrier #2: Market Opportunity

SUMMIT PARTICIPANT CONCERNS

- We need better messaging on rates
- DIY installations run the risk of being done incorrectly, giving the market/product a bad name
- Poorly done professional installations can also lead to a bad experience and inhibit adoption
- 35-51% of homeowners install water heaters DIY, there's not currently a solution for this market segment

SUMMIT PARTICIPANT IDENTIFIED OPPORTUNITIES

- Address fuel rate structure to make a more compelling case to electrify (e.g., electrification-friendly rate or reduced rate)
- Align our story on the cost to operate (tangible bill impacts)
- Bundle HPWHs w/ heat pump space heaters to strengthen overall bill savings, add solar and storage to reduce operating costs
- Enroll customers with more cost-effective installation situations and give leads/jobs
- Pay electricians to install HPWH circuits proactively to make HPWH-ready
- Encourage consumers to take advantage of the funding while it's available because once the funding is gone, the conversation will be 100% on their dime
- Figure out incentives for electrical/panel upgrades to lower costs and facilitate electrification
- Provide renters with information (clear and short) to take to property owners
- Diversify tech to include split systems (this would help with multifamily)
- Tariffed on-bill addresses split incentive barrier
- Create simple message—people don't get heat pumps or care to know about them
- Provide simple education and resources for people who choose to DIY (inevitable)

Barrier #3: Program Landscape

SUMMIT PARTICIPANT CONCERNS

- Too many rebates drive price distortion
- Contractors can't plan for marketing operations/campaigns when incentives start and stop
- Lots of different data requirements and paperwork
- Future statewide program landscape may not include retail channel HPWH rebates
- Small number of contractors making large margins once they figure out how to navigate programs
- Bigger companies have resources to figure out incentives; also using incentives for unnecessary upgrade over profit
- Larger installers can afford incentive admin, puts smaller/more local installers at a disadvantage
- Difficult to scale CPUC funding because of strict Total System Benefit (TSB), Total Resource Cost (TRC) requirements
- Soup of rebates is driving up cost and creating barriers for installers
- Promotions/incentive profit for larger contracting firms
- Some people only know about HPWHs because of incentive

Barrier #3: Program Landscape (continued)

SUMMIT PARTICIPANT IDENTIFIED OPPORTUNITIES

- Statewide application paperwork for all rebates and incentives – master form
- Eliminate all individual California programs and create one statewide process
- Point-of-sale rebate – it's simple and successful in Maine
- One statewide incentive like Maine
- One statewide program/rebate, always available
- Point-of-sale rebates at distributors and retailers
- Run electrification-ready programs (e.g. solar required to make home ready – they already have an electrification there), then small step to upsell or when it stopes working
- Programs become uniform and user-friendly on install and incentives
- A uniform message/concept throughout incentive programs
- Incentive programs develop a faster and simpler payment process
- [Instead of] regional programs with multiple implementers and varied requirements/offers, make it seamless and consistent for all customers
- Programs should shift customers to default to HPWHs as a superior product, with any incentives as an added bonus behind the scenes

Barrier #4: Supply & Demand

SUMMIT PARTICIPANT CONCERNS

- Major incentives for pre-purchase of HPWHs should be held for install
- We should generate demand for the superior experience/savings/etc. vs. an appeal for the "product"

SUMMIT PARTICIPANT IDENTIFIED OPPORTUNITIES

- Require electric readiness at time of remodel statewide – see City of Mountain View, Sunnyvale, Menlo Park as examples
- Create customer value-add "hook"
- Create a positive customer testimonial campaign similar to tankless WHs to capture market interest
- Monetize social benefits and policy mandates
- To reduce upfront cost, perhaps a market structure like Low Carbon Fuel Standard (LCFS) where manufacturers can sell credits for HPWH, perhaps with new easier technologies?
- It's about demand. We need to define ways to accrue more value to the customer.
- City/county program for registered plumbers to get a free HPWH for personal or shop use

Barrier #5: Installation

SUMMIT PARTICIPANT CONCERNS

- We need solutions for existing buildings with recirculation like large homes. We have solutions, just no awareness
- Lacking solutions for multifamily homes that aren't expensive
- Licensing is a structural barrier. Who can do what electrical work? Specialty license can't subcontract to another specialty license
- HPWHs installed with permit aren't comparable to gas installs, where 95% of jobs are not permitted

Barrier #5: Installation (continued)

SUMMIT PARTICIPANT IDENTIFIED OPPORTUNITIES

- Virtual inspections (like LA's) + fee limits + state one-page checklist for permits
- Need protocol for when panel upgrade is necessary and incentives should be focused on solutions to avoid upgrade
- Streamline/automate permitting like for rooftop solar
- 120V or field convertible HPWHs should reduce any electric load concerns
- State HPWH certification could provide an opportunity to expand workforce AND simplify permitting or allow no-permit self-certification
- Training plumbers to run a circuit
- Minor label program for permitting
- Power efficient design is an opportunity! Concerns with panel upgrades is overstated!
- Provide power efficient design (PED) tools and education to contractors, customers, and program implementers
- Utility panel upgrade process could be made easier to navigate/less burdensome
- Contractors should be incentivized to counterbalance electrical load requirements of HPWHs by downsizing electrical needs with combo heat pump washer/dryer
- Gas tax and/or eliminate/move climate credit to gas utilities, and increase climate credit for electric utilities
- Work with air districts to help them roll out zero-noX requirements phasing out gas water heaters
- Publicly Owned Utilities (POU)/Community Choice Aggregator (CCA) coordination on rebates
- Utilize more trainings like Energy Savings and Market Acceleration Consortium (ESMAC) to standardize basic training for contractors
- Zero-emission equipment rule like those in Los Angeles, with waivers: granted automatically - (not verified), attached to gas water heaters for code, gas equipment off shelves, waiver for <80% AMI/space issues/electric capacity

Barrier #6: Other

SUMMIT PARTICIPANT CONCERNS

- Extreme lack of awareness of health impacts

SUMMIT PARTICIPANT IDENTIFIED OPPORTUNITIES

- Lead pilot projects that study the difference in indoor air pollution before and after HPWH installation
- Dishwashers and clothes washers heat their own water to account for cold water in distribution pipe. We need research on smaller wall-mounted heat pumps for showers and kitchen sink use
- Look at program for improving California electric panel readiness for electrification – ready for all gas-to-electric conversions
- We need more cost-effective split heat pump systems that can cover all HPWH applications and climate zones
- What is the point-of-use efficiency of HPWHs (needs to be quantified first) and how can we improve it?

Ideas Brainstorm

Below are all of the ideas generated by participants—grouped by similar general categories—based on the following prompt: If we blow the top off what's possible and think completely pie-in-the-sky, what are all the ideas we can come up with to accelerate HPWH adoption and reach California's 6 million heat pump goal by 2030?

Bulk buys / Reduced product pricing

- Bulk purchasing
- Neighborhood buys for volume discounts/"block parties"
- Demand aggregation through large single-family and multifamily buildings
- California Energy Commission (CEC) purchases 1 million HPWHs in exclusive deal with manufacturers for 50% discount
- Collective buying discount plan via manufacturers or retailers by bringing your friends and family members to get a HPWH of choice
- State purchase from OEM and contractors – minimum quantity required
- Consolidate efforts and pool resources
- Give them away, i.e. give 6M new construction HPWHs to builders
- Partner with installers to make them default during emergency ($ cost difference)
- Good tools for bill impact and rate selection
- California partners with Costco and three major installers to provide guaranteed HPWH pricing at a discount
- California statewide program that standardizes HPWH (like healthcare) installed cost through high volume purchasing and contractor certification program
- Leverage California buying power to "buy" market to tipping point
- Home Depot/Lowe's partner with community-based organizations
- Administer statewide platform to collect commitments, identify and broker all funding streams for localized implementers

Alternative program design

- Bundled packages of incentivized electric home appliances – home makeover package
- Whole home approach to decarbonization
- One-stop shop for incentives and requirements
- Statewide programs funded by all users
- Electrification concierge to show the way
- Hot water as a service (lease, don't buy)
- Incentives for low-income households to cover ALL costs
- Simple programs that are easy to understand
- Direct install program with scale
- Any homes with solar PV gets a water heater
- Make customer support/technical support easy, streamlined, and fast for vendors
- Long-term HPWH rebates
- Enrollment platform development
- Create consistent requirements
- Right-size product and technical requirements

Alternative program design (continued)

- HPWH leasing and rental program
- Direct install programs like Climate Equity Hub in San Francisco
- Electrification awards program
- Standardize HPWH packages – good, better, best
- Make loaners available everywhere

Data / market segmentation

- Interactive zonal map where rates/projects pencil out and educate consumers/contractors (i.e., air conditioner to heat punp, electric resistance switch, certain utility territories)
- Utilities should qualify/rank all homes as A (ready now), B (minor panel or other work), or C (major upgrade)
- Prioritize transitioning easier-to-fuel-switch homes and forget about the tough stuff for now
- Understand electric/gas price market + focus on homes that will see bill decreases with HPWHs
- Target electric-only areas and homes with electric resistance (1 million homes)
- Town-by-town rollout with state, county, and town help
- Zonal strategy to create scale—e.g., identify neighborhoods with similar situations, such as electric small homes
- Know the age of every water heater currently installed in California
- On-board server data on all models

Financing / funding / incentives

- User-friendly financing/incentives
- State incentives/tax credits
- Bridge financing for tax credits
- Require AI/tech companies to not only install HPWH technology but pay for HPWHs for consumers who live nearby
- TECH Clean California funding extensions
- Bill credit as incentive
- Allocate $2 billion in continuous allocations for electrification through cap and trade and other means
- Aggregate financing and carbon markets at state level
- 0% tariffed on-bill financing in all utility territories
- $1000/install for contractors
- 0% financing at point of sale for everyone
- Water heating as a service on PG&E bill
- Aggregate carbon credits through statewide or regional partner
- Energy audit certificate for installation and verification of GHG reduction for HPWHs
- Consistent funding for HPWH programs (remove start and stop)
- Low Carbon Fuel Standard for heat pumps statewide (individualize social benefits)
- Insurers pay for the tax credit
- Gas infrastructure funds electrification
- Grid impacts valuation

Financing / funding / incentives (continued)

- On-bill financing/on-bill instant free financing
- Create carbon credit market
- Secure lots of cap and trade funding for HPWH
- Distributors expand window of payment (e.g., 60 days)
- Support via incentives to manufacturers
- Referral bonus for customers

Policy / regulatory / codes

- Require HPWHs via policy and standards
- Actual working and open protocols for connected HPWHs across OEMs
- Ban gas
- Gigantic health warnings required on all gas appliances
- Create a statewide CARB standard phasing out gas equipment sales
- Funding matched at state, federal, and local level + less complicated
- Massive carbon tax on gas appliances
- Residential new construction inspection regulation = monetization
- "Flexible" 100% zero-emission water heating mandates
- Invest heavily in innovation prize (like NEEA)
- Contractor State Licensure Board (CSLB) licensure for technicians
- Remove regulatory barriers such as California Building Energy Code Compliance (CBECC) energy modeling that forces manufacturers to jump through hoops to add products to software
- Focus on making homes all-electric ready as opposed to incentivizing the technology
- Specialty contractors can't legally subcontract to each other
- Reach codes
- Get rid of natural gas pipelines to homes – force the switch
- Declare war on climate change

Product features and design

- 120V HPWH that meets needs of family of four
- Small volume 120V heat pumps of point-of-use or decentralized applications (how dishwashers and clothes washers run on their own)
- Develop new products in California that can provide a heat pump solution for all residential applications
- Diversify technology – different system types, different types of products
- Make HPWHs stylish, connected with other smart home features beyond what they do
- Voice-enabled (Alexa), able to play music, etc.
- Work to get all emergency replacement units connected and in hot areas, beneficial use of cooling and dehumidification benefits of heat pumps
- No-frills model to lower cost
- Cost parity with incumbent technology so the choice is a no-brainer
- Technology advancements for multifamily homes
- Require all air conditioners to be heat pumps (include inverter)

Contractor engagement

- Any contractor/plumber installing HPWHs gets a free unit for their own home/apartment to gain first-hand experience
- Heat pump lottery for contractors – everyone you install is a ticket, drawings every six months
- Incentivize contractor/installers
- Rural area and disadvantaged communities (DACs) training for contractors
- Partner with and train HVAC contractors
- Simplify the process: bids, rebates, tax credits
- Train contractors on proper installs
- Grow number of trained contractors to do installs, particularly in DACs
- Every contractor has to carry HPWH on truck
- Increase workforce with specialty license (like Oregon)

Marketing / demand-building

- Statewide loaner library for gas customers
- Celebrity influencer outreach and education campaign statewide
- NextDoor social media influencers
- New name – simple, catchy
- Teach the public what a heat pump even is
- Introduce HPWHs at community events like fairs, festivals, etc.
- Real estate valuation
- Massive cross-channel marketing campaigns
- Make tons of videos on benefits/installation
- More targeted advertising on search engines for people with emergency replacements
- Higher marketing for emergency replacements
- More marketing for contractors > customers
- Name Your HPWH contest
- Super Bowl commercial
- Educate via social media/TV/radio promotions
- HPWHs at the front of the store with super low sticker price
- Partner with box stores to encourage them to have HPWHs on the floor

Education and workforce development

- Make heat pumps part of K-12 / middle school science curriculum
- High school trades program
- HPWH certification program (like Oregon's)
- Scholarships and funding to HPWH-specific workforce training and recruiting
- Speaking tours at rotary club, PTA, etc.
- Teach contractors that we do not need to upgrade the panel size
- Hands-on/in-person training, workshops, resource groups
- More local contractor training, including on installs, panel upgrades, and system benefits
- Expansion of contractor/customer knowledge on financing options for HPWHs

Education and workforce development (continued)

- Customer rate comparison tools that include the HPWH installation factor
- Education on cost savings from load shifting as well as yearly cost with and without shifting
- Behavioral program demonstrating carbon impacts based on shifting your water source from fossil fuel to electric
- Customer education including reliability during blackouts
- Encourage DIY installs for lower costs through educational materials

Demand response and connectivity

- Demand flexibility credit/incentive for participating customers withfeedback loop of carbon impacts
- Demand response/smart HPWH app where you earn points toward utility bill
- Require AI companies to develop HPWH load shifting strategies to reduce peak demand
- Auto-enrollment into demand response programs
- Demand response value codified and realized

Permitting

- Eliminate or radically simplify permits
- Permit marketplace
- Reduce permitting friction
- Fixed price rapid permit
- Create one-day permitting
- Reducing permit fees and barriers
- Permitting reform
- Inspector training/education
- Use AI for permitting – benefit from data centers
- City planner/inspector involvement – universal codes
- Consistent requirements
- Reduce permitting requirements – use Oregon's minor label program as example

Rates

- Electrical rates plummet below gas
- Regulate electric utility rates
- Marginal energy cost on added load
- Lower electricity cost
- Change gas vs. electric rates
- Don't add energy cost for low-income households
- Electrification-friendly rates – make it make sense from ongoing costs

Innovation Pathways

A central exercise of the Summit was working in teams to ideate and explore pathways to achieving accelerated adoption for HPWHs. This culminated in the following six concepts where teams outlined how we might catalyze these ideas by working cooperatively toward our shared goal

The Pathways

1. Aggregate Advanced Demand to Reduce Product Cost
2. Streamlining Permitting
3. State-Wide Upstream Incentive Program and Customer Application
4. Matchmaking Tech to California Housing Stock*
5. Creating Market Momentum by Segments*
6. Give Away 1 M HPWHs

*Indicates that CalMTA is exploring this idea further as part of its Market Transformation Initiative

For more information on the Summit, visit https://calmta.org/residential-hpwh-market-acceleration-summit/.

For questions or additional information, please contact Katie Teshima, kteshima@calmta.org.

THE CONCEPT

1. Aggregate Advanced Demand to Reduce Product Cost

THE PITCH

This concept pools resources at the state level to: 1) Identify multiple funding sources and/or opportunities to reduce equipment and installation costs below competitive system pricing, and 2) Build upfront customer demand to ensure a guaranteed pipeline of product sales and installs.

In an ideal scenario, this approach would replace disparate state and local incentive programs and divert funds to a state-wide program with the same set of product and participation requirements. This streamlines the participation process for both customers and installers and reduces market confusion by allowing for a unified market message and marketing strategy.

BARRIERS ADDRESSED

- High first cost
- Low customer value and demand
- Confusion resulting from multiple and varying California programs
- Lack of motivation to replace equipment until it fails
- Lack of business case for installers

KEY STEPS TO CATALYZE

1. Identify existing and potential sources of funding or ways to bring down cost
2. Identify and collaborate with key stakeholders to secure funding
    - Equipment discount (manufacturers & distributors)
    - Rebates/credits (utilities/programs)
    - Carbon credits (carbon markets)
    - Demand flex (utilities, private companies)
    - Health savings costs (insurers)
    - Big tech funding for energy efficiency
    - Install discount (fixed installer pricing)
    - Advance based on utility bill savings
3. Complete program design
    - Research required (e.g., segmentation)
    - Think through logistics/organizations
    - Customer acquisition/education strategy
    - Pilot project design

WHAT NEEDS TO STOP

- Disparate rebates and participation criteria
- Differing demand response-related programs
- Complex path to install (e.g., permitting and paperwork)

WHAT NEEDS TO START

- Collaboration statewide/stakeholder conversations
- Looking at data to set program up for success
- Quantify carbon & health benefits
- Heat pump statewide demand response & load flex. effort
- Program design (+ marketing) + standard operating procedure for installs & participation

WHAT NEEDS TO CONTINUE

- Installer training
- Existing financial & market transformation efforts
- HPWH awareness-building
- State climate & green energy goals/policy levers

PRIORITY SCORING

Feasibility

Impact

THE CONCEPT

2. Streamlining Permitting

THE PITCH

This concept tackles the issue of slow and expensive permitting by streamlining the permit requirements and process across California to create a more positive experience for installers, and consequently their customers. By streamlining the permitting process and making it more affordable, this is expected to increase the likelihood of installers recommending the product and giving HPWHs a more even playing ground compared to a standard gas water heater.

BARRIERS ADDRESSED

- High first cost (in part due to permitting)
- Complex installation requirements
- Long permitting timelines

KEY STEPS TO CATALYZE

1. Standardized permitting checklists to make it easier for installers to work across jurisdictions and operate more efficiently
2. Allow and setup a mechanism for virtual HPWH inspections to reduce cost and lead times
3. Reduce the overall cost for HPWH permitting to help level the playing field for the technology

WHAT NEEDS TO STOP

- City-wide Uniform Plumbing Codes (UPCs), permitting and licensing
- In-person inspection requirements
- Percentage permitting fees

WHAT NEEDS TO START

- Statewide UPCs, permitting and licensing
- Virtual inspections
- Flat rate permitting fees
- Exploration of universal refundable permitting fee (deposit)

WHAT NEEDS TO CONTINUE

- N/A

PRIORITY SCORING

Feasibility

Impact

THE CONCEPT

3. State-Wide Upstream Incentive Program and Customer Application

THE PITCH

This concept works upstream to provide a manufacturer incentive to bring down the overall product cost and ensure product stocking. This is coupled with a state-wide effort to streamline the HPWH incentive application process for contractors and customers who are applying for downstream incentives through their local utility or energy program. These combined efforts would tackle two of the largest barriers preventing HPWH adoption in California.

BARRIERS ADDRESSED

- High first cost
- Installer and customer confusion from multiple programs per territory with disparate participation requirements and incentives
- Unpredictable programs and incentive funds that create mistrust with supply chain

KEY STEPS TO CATALYZE

1. Collaborate to raise and pool funds from multiple entities for the upstream incentive (e.g., CPUC, air districts, Greenhouse Gas Reduction Fund, Community Choice Aggregators)
2. Quantify the benefits (CPUC, general)
3. Create a single contractor incentive application, along with an application programming interface (API) to collect application information that interfaces with incentive applications
4. Track and report the impacts to continue to refine the incentive program and application process

WHAT NEEDS TO STOP

- Complicated rebate and application processes

WHAT NEEDS TO START

- Coordinated and consolidated upstream incentives
- A single, statewide application

WHAT NEEDS TO CONTINUE

- Proceed with existing programs

PRIORITY SCORING

Feasibility

Impact

THE CONCEPT

4. Matchmaking Tech to California Housing Stock*

THE PITCH

This concept is focused on making sure the right customers get the most ideal HPWH for their application (e.g., existing fuel type, unit location, capacity requirements, etc.). This would ensure effective and efficient use of funds by prioritizing California housing stock that's already well-suited for HPWHs and also making sure installed units have only the necessary features, are priced appropriately, and function optimally.

BARRIERS ADDRESSED

- Some California housing characteristics are less than ideal for cost-effectively switching to HPWH
- High first cost and installation cost
- Complex and costly installation requirements
- Lack of contractor product knowledge and experience

KEY STEPS TO CATALYZE

1. Classify/understand housing stock
    - Age, existing equipment, single/MF, space requirements, water heater location, electrical capacity, ventilation, occupant information
2. Understand technology options
3. Identify technology gaps
    - Develop solutions for 20% outliers without cost-effectiveness
    - Manufacturer engagement on system design
4. Understand customer experience/preferences
    - Input
    - Feedback

WHAT NEEDS TO STOP

- Marketing one product type for all homes
- Saying we have a solution for all homes
- Saying it's cost-effective for all homes
- Over-designing & over-specifying products and programs

WHAT NEEDS TO START

- Build demand where there is a "love match"
- Focus on low-cost split systems
- Focus on low draw and small spaces

WHAT NEEDS TO CONTINUE

- Collaboration with other regions on product development & qualified product lists (QPLs)
- Expanding capabilities/product development of 120V

PRIORITY SCORING

Feasibility

Impact

*Indicates that CalMTA is exploring this idea further as part of its Market Transformation Initiative

THE CONCEPT

5. Creating Market Momentum by Segments*

THE PITCH

This concept leans on data collection and analysis to find the most optimal market segments where installing a HPWH is a relatively more affordable and practical solution. This upfront work would ensure funds are being used wisely to reach only those customers with a higher aptitude to select and install a HPWH. This approach could also be phased so that we're systematically addressing the lower-hanging-fruit segments, taking care to fully transform each segment before moving on to harder-to-reach markets.

BARRIERS ADDRESSED

- Some California housing characteristics are less than ideal for cost-effectively switching to HPWH
- High first cost and installation cost
- Complex and costly installation requirements

KEY STEPS TO CATALYZE

1. Identify target market segments
    - Prioritize by financial benefit/value proposition (bill savings, stacked incentives, etc.)
2. Bring in existing & new relationships with key audiences (segment-specific) to align messaging & actions
    - Strategy + tactics + existing programs
3. Partner with active/in-market segment actors to rapidly deploy phased roll-out
    - Electric resistance water heaters
    - Solar PV customers
    - Early 2000s building stock with first WH at end of life

WHAT NEEDS TO STOP

- Working in siloed programs so we can focus on & leverage existing market
- Thinking incentives are the only driver of adoption
- Being limited by individual transactions – instead focus on segment opportunities

WHAT NEEDS TO START

- Identifying all existing electric homes and homes 10-15 years old
- Hone focus for value proposition
- Partner for wide/large public service announcements

WHAT NEEDS TO CONTINUE

- Incentives as a stable baseline
- Large umbrella programs (e.g., TECH)
- Offering opt-in (opt-out?) for value-add (time of use, demand response, etc.)
- Contractor engagement & training (Energy Savings and Market Acceleration Consortium, etc.)

PRIORITY SCORING

Feasibility

Impact

*Indicates that CalMTA is exploring this idea further as part of its Market Transformation Initiative

THE CONCEPT

6. Give Away 1 Million HPWHs

THE PITCH

This concept eliminates the onerous task of convincing customers to install a premium product by pooling funds and resources to purchase and install 1 million units free of charge. This would kick start the supply chain for HPWHs in the California market by getting product stocked and ensuring a legion of trained and experienced installers.

BARRIERS ADDRESSED

- High first cost
- Low customer value and demand
- Lack of motivation to replace equipment until it fails
- Lack of business case for installers

KEY STEPS TO CATALYZE

1. Find money
2. Find manufacturers
3. Find workforce and target market

WHAT NEEDS TO STOP

- Superfluous restrictions (e.g., utility and regulatory barriers, permitting/inspection slowdowns)

WHAT NEEDS TO START

- Market segmentation
- Marketing, education and outreach
- Sales training

WHAT NEEDS TO CONTINUE

- Marketing, education and outreach on bill impacts and co-benefits of HPWHs

PRIORITY SCORING

Feasibility

Impact