



29 September 2025

Market Transformation Advisory Board (MTAB) Meeting

CalMTA is a program of the
California Public Utilities
Commission and is administered
by Resource Innovations.

Agenda



Time	Agenda item	Presenter
1:00 p.m.	1. Welcome, Agenda & Ice Breaker	Stacey Hobart
1:15 p.m.	2. COI Declarations & Review Draft MTAB Meeting Notes from 8/20/25	Stacey Hobart
1:20 p.m.	3. Commercial Rooftop Units: Product Assessment	Garth Torvestad
2:30 p.m.	4. Public Comment	
2:35 p.m.	<i>Break (15 min)</i>	
2:50 p.m.	5. Commercial Rooftop Units: Logic Model and Market Transformation Theory Review	Rick Olson-Huddle
3:05 p.m.	6. Commercial Rooftop Units: Market Progress Indicators (MPIs) & Milestones	Cynthia Kan
4:05 p.m.	7. Application Update	Lynette Curthoys
4:15 p.m.	8. Public Comment	
4:20 p.m.	9. Next Meeting & Next Steps	Stacey Hobart
4:30 p.m.	<i>Adjourn</i>	

Phone participants will be muted throughout the meeting and can raise their hand during the public comment period to be unmuted.

Ice breaker

Two-word check-in:

Two words that describe how you are feeling today.

2. COI Declarations & Review MTAB Meeting Notes

CalMTA is a program of the California Public Utilities Commission and is administered by Resource Innovations.



MTAB declaration of COI



MTAB eligibility

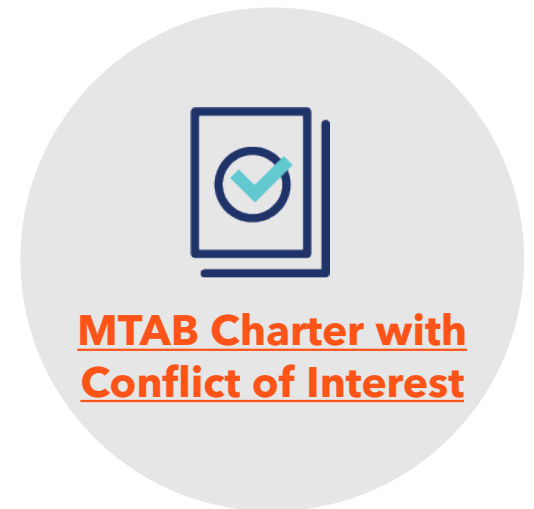
- Can't receive funding from CalMTA or be in pursuit of funding

Recusal requirements

- Can't bid on RFP/RFQ if giving input after Phase I
 - All ideas under development are now in Phase II
- Those with competitive interest can recuse from discussion, but must leave MTAB if responding to RFP
- Agree not to influence remaining MTAB members
- Interpretation, if needed, done by CPUC staff

Transparency

- Public meetings and process where COI concerns can be raised by the public



CalMTA COI policies



- The CalMTA program has robust COI policies to ensure decision-making is transparent, impartial, and unbiased.
- The Resource Innovations team that administers CalMTA has deep experience implementing market transformation and other energy efficiency programs in California and throughout North America.
- Resource Innovations employees and subcontractors who function in decision-making roles for CalMTA are firewalled from any ongoing work with California utilities or other covered entities and sign COI certifications.
- CalMTA seeks CPUC approval when there is a need to draw on specialized expertise from subject matter experts who also support work with covered entities.

MTAB meeting notes



Draft MTAB meeting notes

August 20, 2025

Idea to Initiative updated CRTUs schedule

Part 1

- Market Characterization
- Logic Model
- Market Transformation Theory

August 20

Part 2

- Market Progress Indicators & Milestones
- Product Assessment
- Total System Benefit & Cost Effectiveness

September 29

This section moved to a future meeting, date TBD

Part 3

- Evaluation Plan
- Draft Market Transformation Initiative Plan & Appendices

November 12



3. CRTUs Product Assessment

Garth Torvestad | Contractor, 2050 Partners

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Agenda

- Purpose, process/methodology, and key findings from CRTUs Product Assessment report
- Details and rationale behind selection of key features
- Modeling, savings, and consumer bill impacts
- Update on field study

Product Assessment Report Purpose



- Provide detailed explanation of the methods used to refine and evaluate the Target Technology
- Share key findings that directly inform the development of a market transformation (MT) strategy and interventions
- Identify key technical barriers, opportunities, and potential impacts from the broader adoption of advanced rooftop units (RTUs) in California
- Highlight implications for developing effective MT strategies to achieve that objective

Terms Used in Product Assessment

RTU – Rooftop Unit

CRTU – Commercial Rooftop Unit

ERTU – Efficient Rooftop Unit

Target Technology

CCC – Connected Commissioning and Controls:

- **AFDD+** – Enhanced Automated Fault Detection and Diagnostics
- **App-based startup commissioning**
- **Remote monitoring**

Compression systems and components:

- **Fixed capacity compressor**
- **Staged compressor system**
- **Variable capacity**
- **Variable capacity compressor**
- **Digital scroll compressor**
- **Variable speed compressor**

Context: RTUs in California

- Emissions reductions are a high priority in California. Codes, policies, and programs are likely to drive **increased adoption of heat pump RTUs**
- Annual heating loads in California commercial buildings are relatively low, but **peak heating loads in existing buildings** can still be high
- **Electrification will increase winter peak demand**, especially coincident demand from backup resistance heating, which is poorly aligned with renewable generation
- **Avoided Cost Calculator (ACC) "normalizes" value** of gas savings/ fuel switching, annual electricity savings, and peak demand impacts

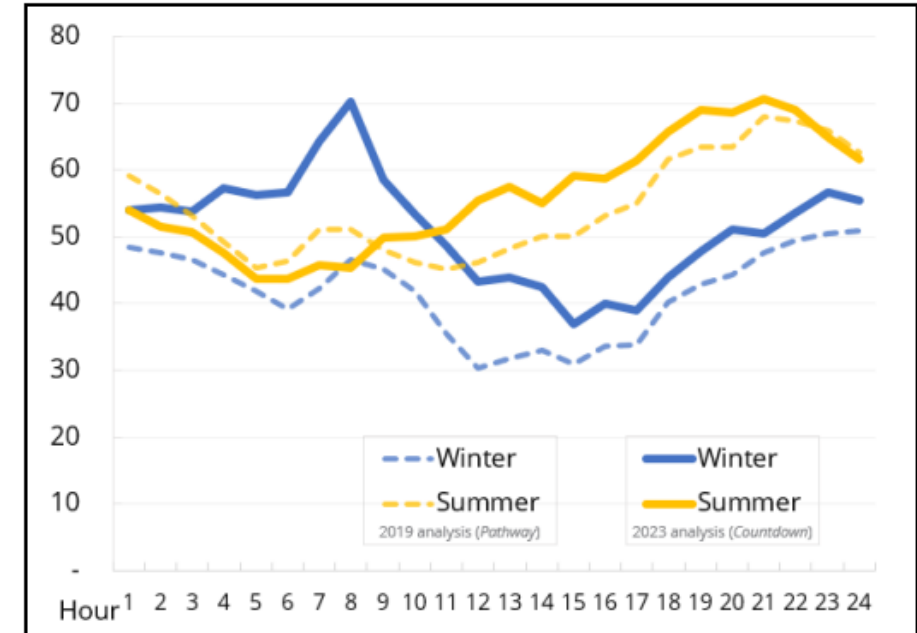


Figure 2: 2045 California Independent System Operator peak load forecast (GW). *Source: Edison International Countdown to 2045*

<https://www.aceee.org/sites/default/files/proceedings/ssb24/pdfs/Applicability%20of%20Cold%20Climate%20Heat%20Pumps%20in%20California.pdf>

Context: RTUs in California

- Provide ~**75% of cooling** to commercial buildings in California
- Account for ~**50% of peak** electrical demand
- State regulation of RTUs ***rated efficiency is preempted*** by federal standards
- Field performance of RTUs is often worse than rated performance due to **installation and commissioning errors and faults** that develop over time

<https://wcec.ucdavis.edu/rtu-optimization-package/>
<https://www.etcc-ca.com/reports/code-readiness-rtueconomizer-analysis-and-field-assessment>

Objectives, Methods, and Findings



Research Objectives

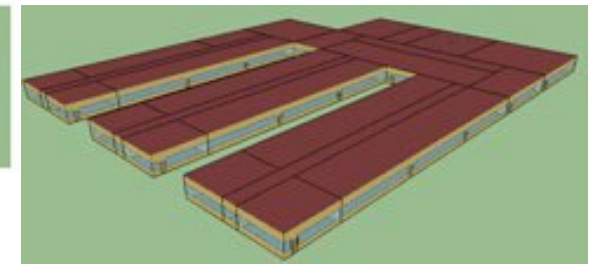
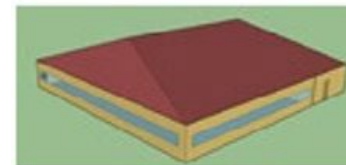
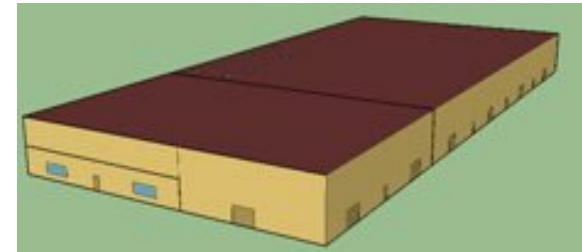
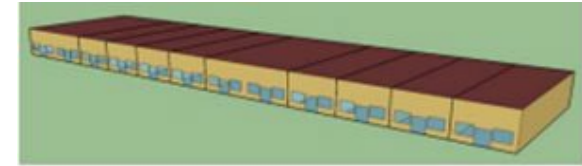
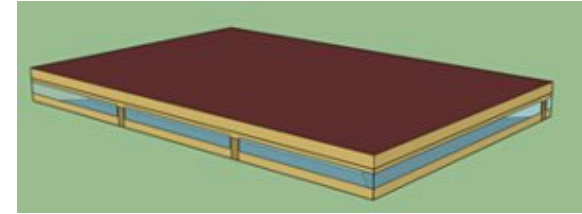
1. Understand the broad set of opportunities to improve RTU performance, including features currently promoted by other efficiency advocates in California and the rest of the U.S.
2. Understand which product features will have the greatest statewide benefit
3. Evaluate currently available RTUs to understand availability, maturity, and any product development needs
4. Assess the timeline for integration of different features identified in the product definition
5. Prioritize market-ready RTU features and attributes that can be integrated into products while minimizing cost to consumers

Research Objectives (cont.)

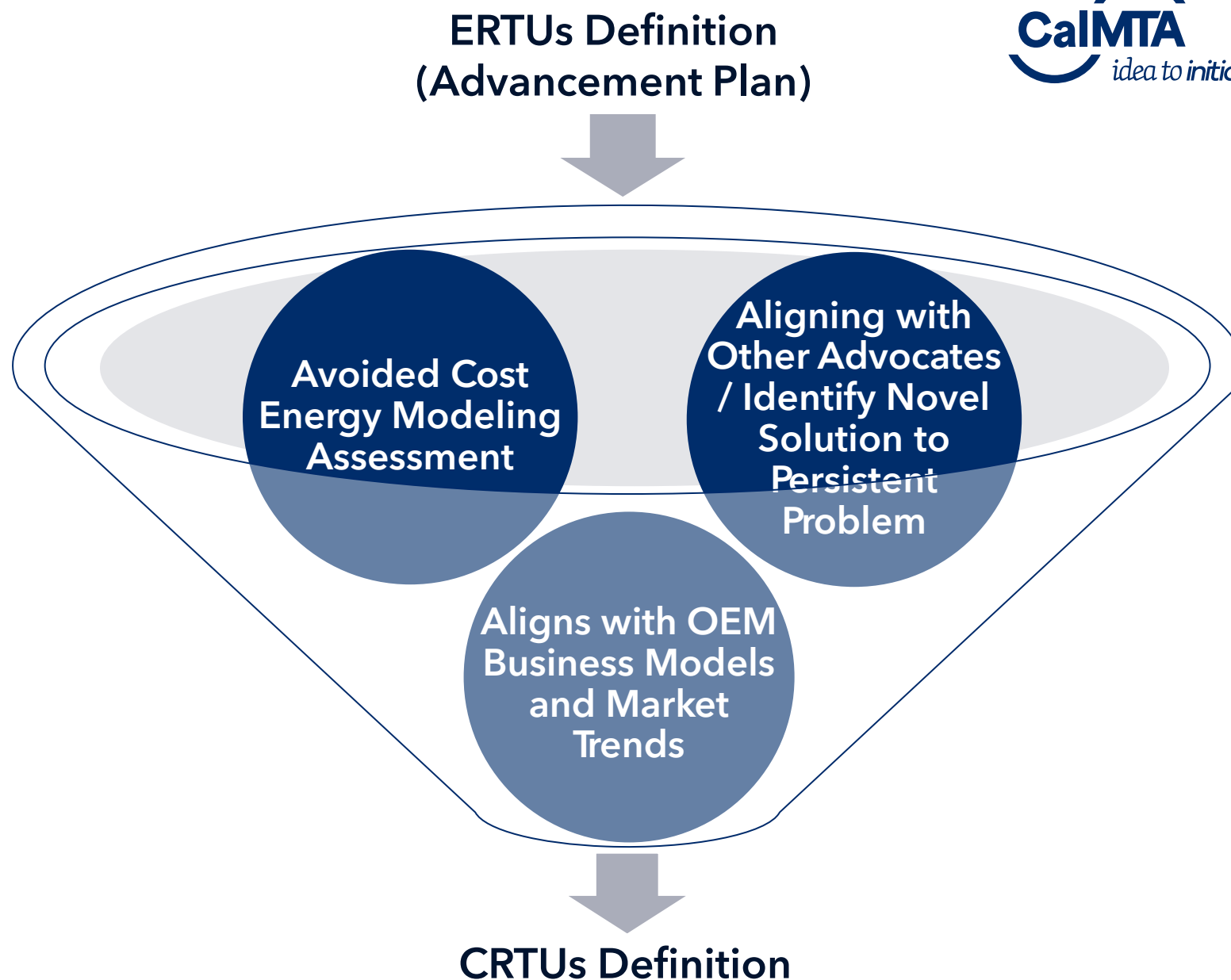
6. Quantify utility bill impact for each of the key RTU features in the product definition
7. Evaluate the potential for app-based remote monitoring and connected commissioning tools to identify and resolve inefficient operation
8. Understand manufacturer perspectives, priorities, and potential for alignment with CalMTA priorities
9. Identify technical barriers and potential solutions

Research Methods

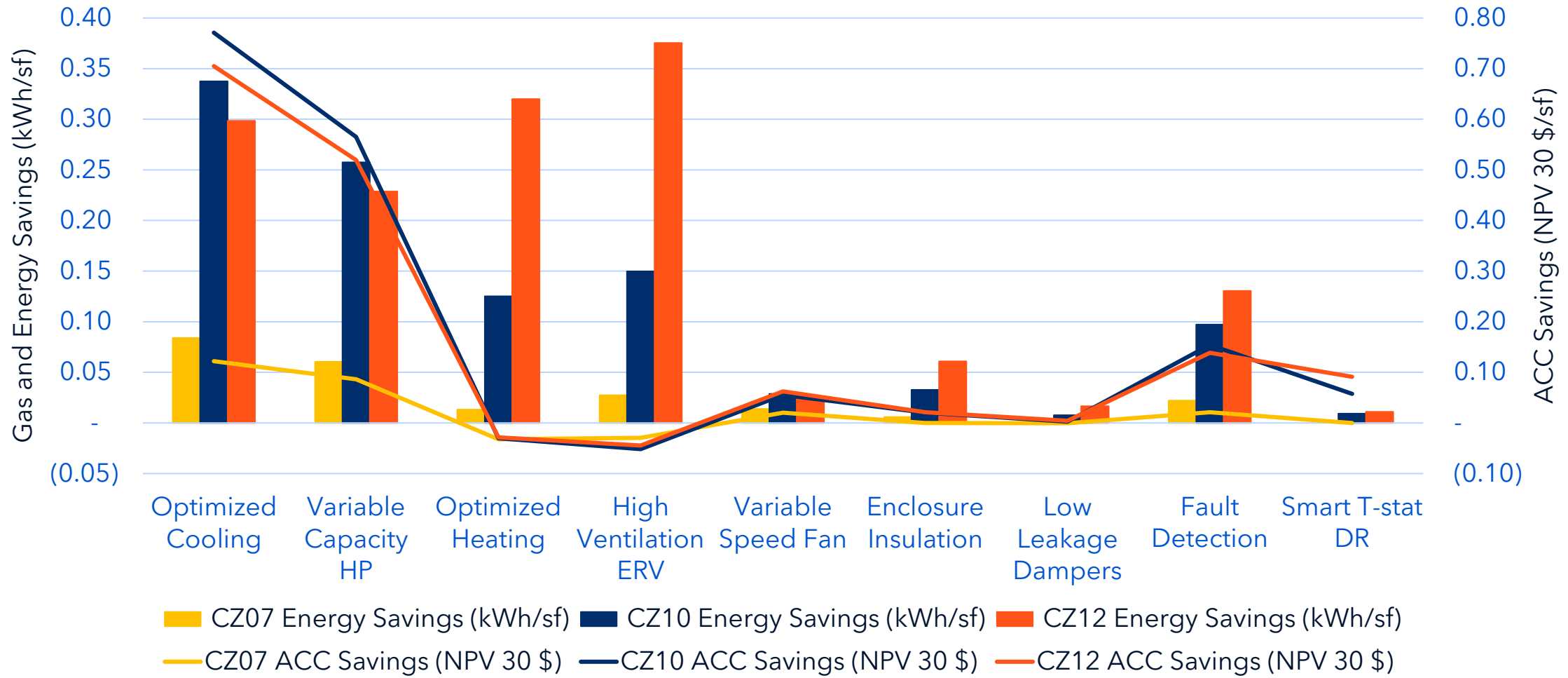
- Energy modeling and analysis to refine CRTUs MTI Product Definition (Phase 1)
- Manufacturer, stakeholder, and expert engagement
- Field study/technology demonstration
- Review of literature and product specifications
- Energy modeling to assess statewide impacts and bill impacts (Phase 2)



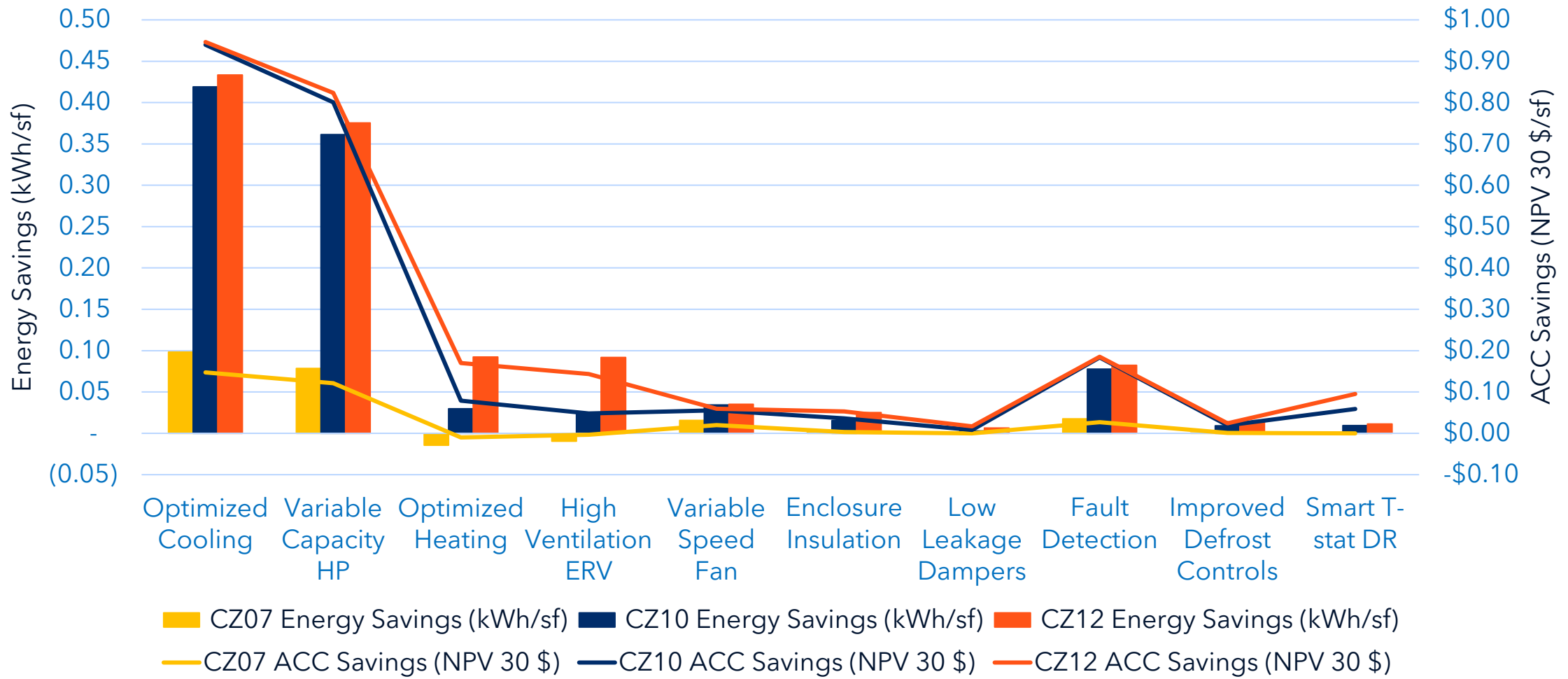
Phase 1 - RTUs Product Research and Refinement



Phase 1 Modeling - gas fuel baseline



Phase 1 Modeling - electric heat pump baseline



Product Definition

CalMTA defines an **RTU as a single-zone**, packaged, forced-air, heating, ventilation, and air-conditioning (HVAC) system with between **3- and 20-tons of cooling capacity** that is installed on the roof of a non-residential building.

CalMTA's Commercial RTUs Initiative will promote increased adoption of **variable-speed heat pump RTUs** that **exceed** federal minimum **cooling efficiency by at least 20%**, and use **sensors, analytics, cloud-connectivity, and simple, app-based tools** to:

- Increase installed efficiency through **improved startup, commissioning, and compliance with Title 24 Acceptance Testing requirements**
- **Optimize long-term operational efficiency** through predictive analytics and machine learning
- **Increase load flexibility and occupant comfort** through integration of weather data, utility DR signals, and thermal load data
- **Remotely monitor RTU performance to detect, diagnose, and resolve faults** by providing alerts to owners and actionable information to HVAC technicians

Key Findings

Finding 1 The largest opportunities for RTUs in California are:

- 1) increasing adoption of heat pumps
- 2) increasing cooling efficiency
- 3) increased adoption of variable speed compressors
- 4) incorporating factory-installed sensors and connectivity

Finding 2 Development of variable speed HVAC equipment in the U.S. has focused on the residential sector. Some mixed fuel CRTUs over 5 tons have variable capacity compression systems, but very few heat pump CRTUs have incorporated an inverter-driven, variable speed compressor.

Finding 3 Energy or heat recovery, enclosure insulation, and similar measures that generate savings in cold climates are generally not cost effective in most of California -- other performance enhancements are better suited to California's climate and energy priorities.

Key Findings (cont.)

Finding 4 RTU performance is regulated at both the federal and state level, and different aspects of RTU performance are covered by each. Federal standards apply equally to equipment used in both new construction and existing buildings, while California's codes have different requirements for new construction and replacement.

Finding 5 Although there are many options for RTUs with connected controls and commissioning, RTU manufacturers have not aligned on consistent standards, strategies, and user interfaces.

Finding 6 Despite some Title 24 requirements for AFDD, many existing RTUs do not operate as intended. However, operational performance can be improved with effective fault detection and diagnostics, customer notifications, and remote access for technicians.

Finding 7 Heat pumps that rely on supplemental electric resistance heat strips can impact customer bills and peak winter electric load, but customers may not be aware since it will not impact heating performance.

Key Product Features and Attributes



Cooling Efficiency

- 20% more efficient than federal minimum, relative to requirements in place at the time of sale
- Integrated Ventilation, Economizing, and Cooling (IVEC) standards will take effect, along with new test procedures in 2029
- Products are already available that will exceed IVEC minimums by 20%
- Until manufacturers redesign and test to the new standards it is difficult to predict market availability in 2029
- Variable speed compressors are one of many ways manufactures can increase rated cooling efficiency

Evolving federal standards and testing make performance a moving target

Size Category	Current Efficiency Metrics	2029 Updated Efficiency Metrics	Test Procedure
<65,000 Btu/h	13.4 SEER2	13.4 SEER2	AHRI 210/240
≥ 65,000 Btu/h and < 135,000 Btu/h	14.1 IEER 3.4 COP	13.4 IVEC 6.2 IVHE	AHRI 340/360
≥ 135,000 Btu/h and < 240,000 Btu/h	13.5 IEER 3.3 COP	13.1 IVEC 6.0 IVHE	
≥ 240,000 Btu/h and < 760,000 Btu/h	12.5 IEER 3.2 COP	12.1 IVEC 5.8 IVHE	

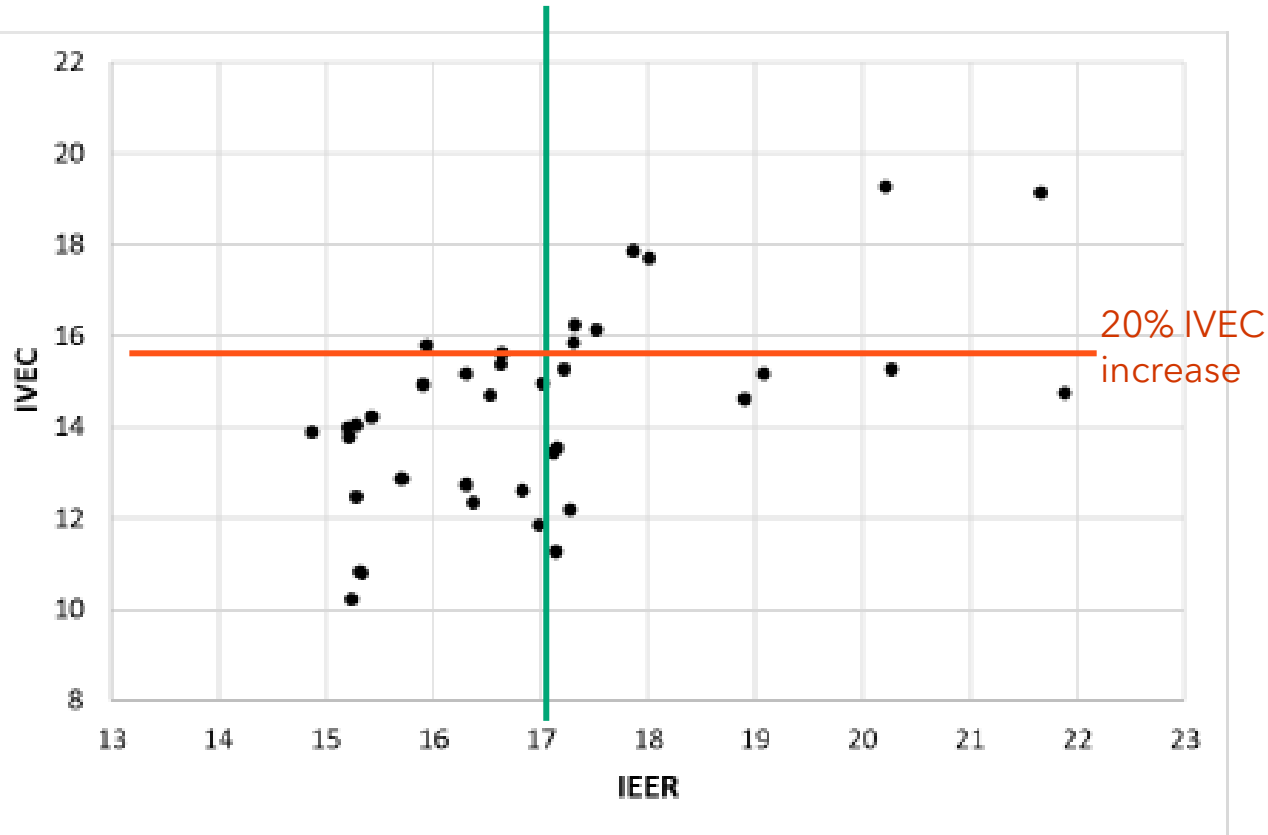
Many heat pump products on the market today meet the proposed target



	Federal Standard Current Minimum		Proposed 20% efficiency increase	
Capacity Range (tons)	Unique Manufacturers*	Unique Model Numbers	Unique Manufacturers*	Unique Model Numbers
≥5.4 and <11.25	21	299	5	141
≥11.25 and <20	24	296	6	189

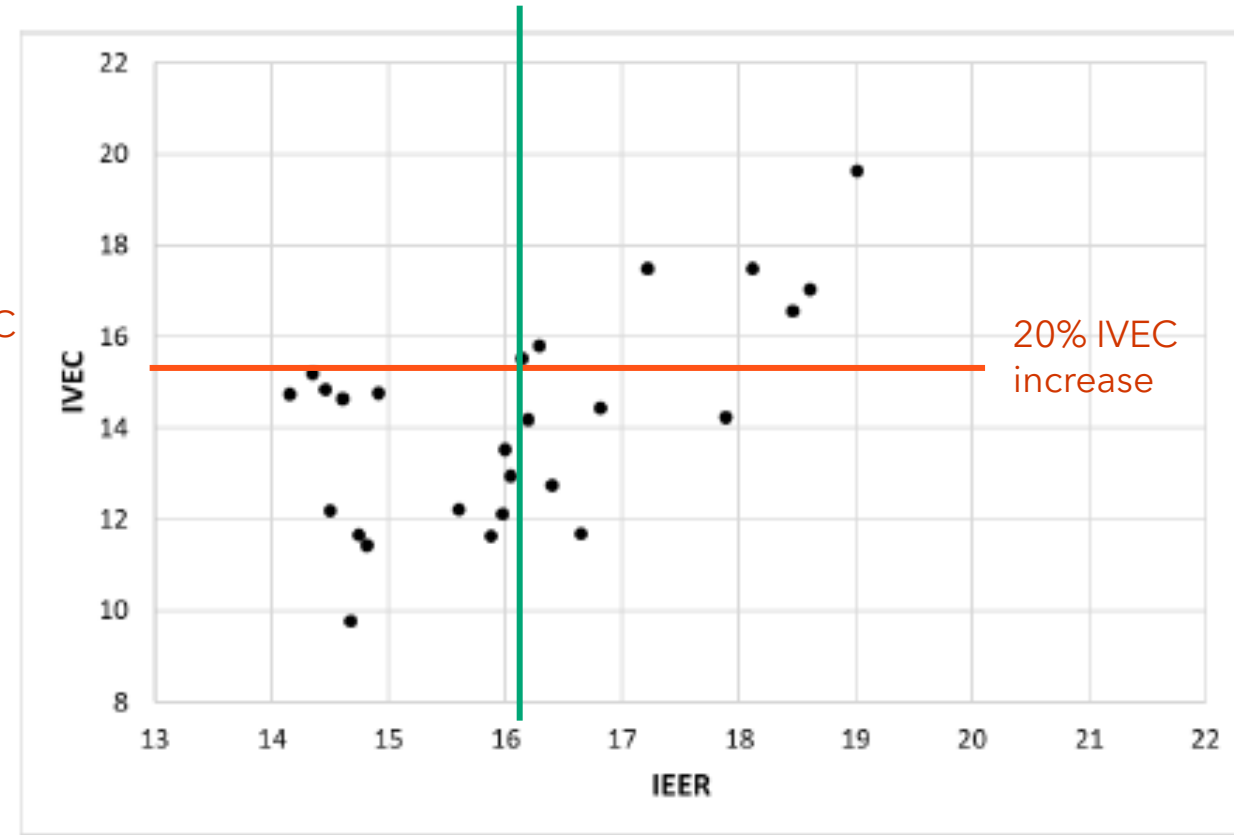
Relationship between IVEC and IEER

20% IEER increase



Relationship for **small AC and HP units** between 65 kBtu/h and 135 kBtu/h

20% IEER increase



Relationship for **medium size AC and HP units** >135 kBtu/h and <240 kBtu/h

Variable Speed Compressors

- Long-term target for technology includes variable speed compressors, also known as inverters
- Offer best-in-class temperature and humidity control during both heating and cooling seasons
- Lower startup power than fixed capacity and staged compressors
- Part-load efficiency benefits are particularly important for heat pumps because compressor capacity is sized to peak heating OR cooling loads, depending on the climate and building
- Sometimes called “cold climate heat pumps” due to ability to exceed rated capacity during low ambient conditions, reducing reliance on resistance heating
- Variable speed can turn down in response to demand signals to reduce demand while maintaining occupant comfort

Connected Commissioning & Controls



- Factory-installed sensors provide robust performance data
- App-based startup and commissioning supports better installed performance from day one
- Enhanced fault detection and diagnostics can identify broader set of performance issues and optimize operation of advanced heat pumps
- Remote monitoring enables building owners/managers, HVAC service providers, and manufacturers to identify, diagnose, and resolve issues
- Connectivity required for remote monitoring also supports participation in demand response programs



Alignment between available heat pump RTU products and Target Technology

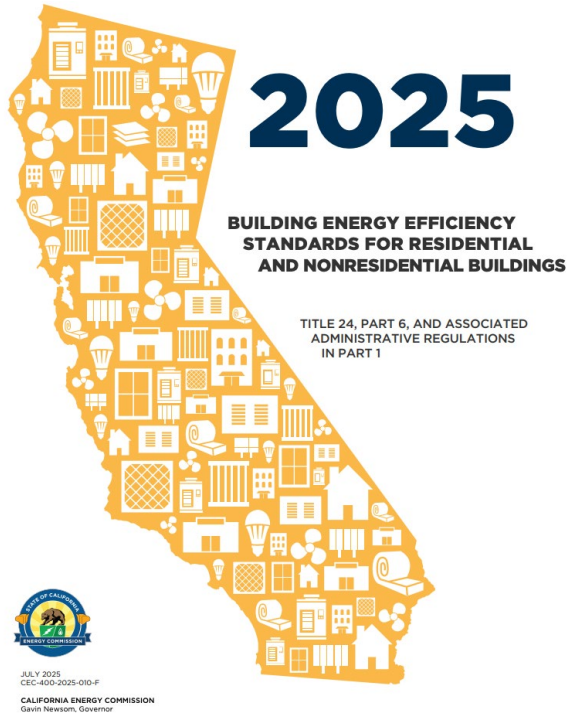


Manufacturer	Brand	Capacity	Variable Capacity	Max. SEER/SEER2/IEER	Percent above federal min	Remote Monitoring / AFDD+	App-Based Start-Up Commissioning
Daikin	Rebel	3-20 tons	Yes	20.4 IEER	45%	Siteline	Quality Install
Aeon	RN	6-140 tons	Yes	22.5 IEER	60%	Prism	N/A
	RQ	2-5 tons	Yes	20.3 SEER	46%		
Lennox	Enlight	3-25 tons	Available	17.5 SEER2 / 17.3 IEER	31% / 23%	Lennox CORE	CORE Service ⁸
	Xion	2-20 tons	Available	14.0 SEER2 / 15.5 IEER	4% / 10%		
Carrier	WeatherMaster	3-25 tons	No	16.8 SEER2 / 17.6 IEER	25% / 25%	SystemVu	BluEdge
	WeatherMaker	3-25 tons	No	13.4 SEER2 / 15 IEER	0% / 6%		
Trane	Precedent	3-25 tons	Available	13.4 SEER2 / 14.1 IEER	0% / 0%	Symbio 700	Symbio 700
Johnson Controls/York	Sun Core	3-12 tons	No	16.8 SEER2 / 17 IEER	25% / 21%	Verasys	RTU Toolkit
	Sun Pro	6.5-12.5 tons	No	21.2 IEER	50%		
	Series 20	15-20 tons	No	18 IEER	28%		
Greenheck	RV/RVE/RVC*	5-30 tons	Yes	23.7 IEER	68%	N/A	N/A
CaptiveAire	Paragon (DOAS)*	3-30 tons	Yes	21.3 IEER	51%	CASLink	Remote Connected Commissioning Services™

Federal standards are the primary regulatory driver for RTU efficiency

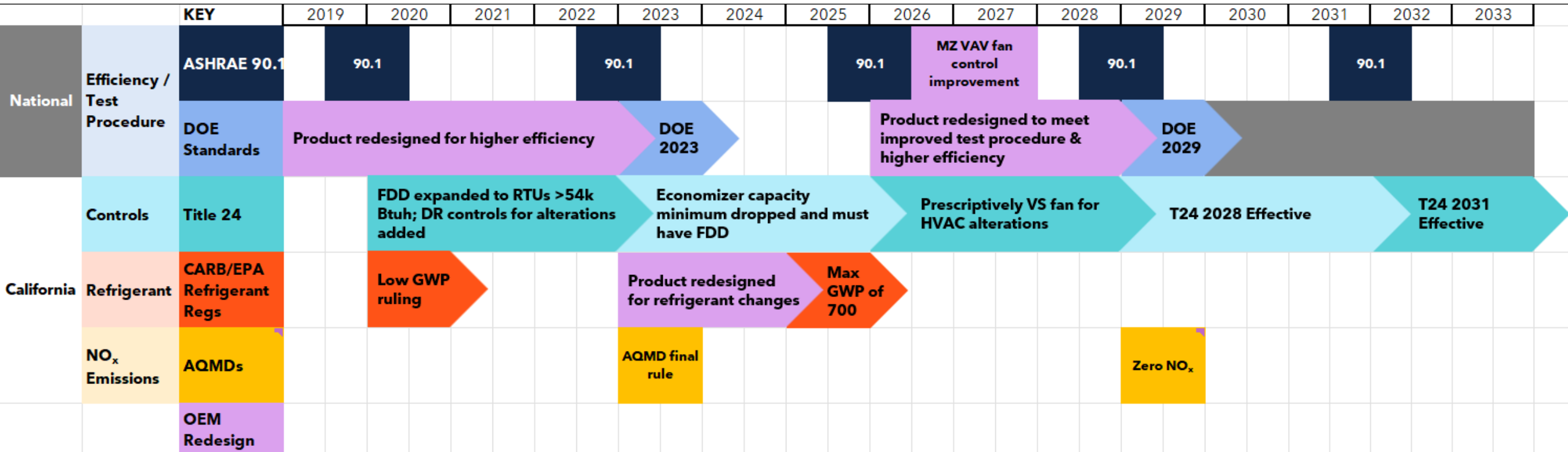
- Federal preemption prevents states from establishing more stringent efficiency requirements for regulated appliances, including RTUs
- Federal test procedures were recently updated to account for additional aspects of RTU performance
- Along with the new test procedure, new federal efficiency standards were introduced that will take effect in 2029
- New IVEC and IVHE metrics make apples-to-apples comparisons to currently available products difficult

Title 24 is better aligned with goals for CRTU decarbonization, connectivity, and commissioning



- Title 24 2022 established prescriptive requirements for single-zone heat pumps in commercial new construction
- Title 24 2025 established two prescriptive pathways for alterations (change outs), allowing either heat pump RTUs or mixed-fuel RTUs with variable speed fan
- Title 24 requires two-stage cooling for units over 65Kbtu/Hr
- Title 24 includes requirements for economizer FDD and demand flexibility. Future cycles could present an opportunity to lock in features such as enhanced AFDD
- CCC could present an opportunity to improve and streamline Title 24 Acceptance Testing requirements
- Low rate of compliance for RTU changeouts may limit the efficacy of Title 24 with respect to the RTU replacement market

Regulatory pressures drive product development activities



- RTU and controls manufacturers are under nearly constant pressure to develop and bring products to market to comply with federal and state regulations
- Gaps in regulatory cycles may present opportunities to influence OEMs
- Product redesigns driven by regulations may also create opportunities to intervene

Technical Barriers

- Inconsistent user experience and capabilities for different remote monitoring and CCC platform controls
- Limited availability of commercial heat pump RTUs with variable speed compressors
- Electrical capacity constraints for heat pump RTUs
- Advanced heat pump RTUs are more susceptible to performance issues related to installation and commissioning errors
- “Black box” factory control logic limits options for interventions

Technical Barriers (cont.)

- Heating season performance and reliance on supplemental heating can drive increased electricity demand
- Third party thermostats can reduce performance of variable speed heat pumps
- Cloud connectivity and perceived security risks may reduce adoption of CCC
- Proprietary data labeling and low adoption of interoperability standards create bottlenecks
- Low cost of sensors

Most scenarios show estimated customer bill savings from advancements in heat pump RTUs

Fuel Type	Case	Electric			Gas			Total *		
		PG&E	SCE/SCG	SDG&E	PG&E	SCE/SCG	SDG&E	PG&E	SCE/SCG	SDG&E
All-Electric	COP 20	-4%	-4%	-3%	0%	0%	0%	-4%	-4%	-3%
	COP 20 + VS	-4%	-3%	-4%	0%	0%	0%	-4%	-3%	-4%
	RM + CCC	-2%	-1%	-1%	0%	0%	0%	-2%	-1%	-1%
	CCC Only	-1%	-1%	-1%	0%	0%	0%	-1%	-1%	-1%
	All	-6%	-4%	-5%	0%	0%	0%	-6%	-4%	-5%
Mixed Fuel	COP 20	3%	-2%	-1%	-63%	-40%	-39%	0%	-3%	-2%
	COP 20 + VS	3%	-1%	-3%	-63%	-40%	-39%	0%	-3%	-4%
	RM + CCC	7%	1%	1%	-63%	-41%	-40%	3%	-1%	0%
	CCC Only	7%	2%	2%	-63%	-40%	-40%	4%	0%	0%
	All	2%	-2%	-3%	-63%	-41%	-40%	-1%	-4%	-4%

KEY

red = estimated customer bill increase (positive %)

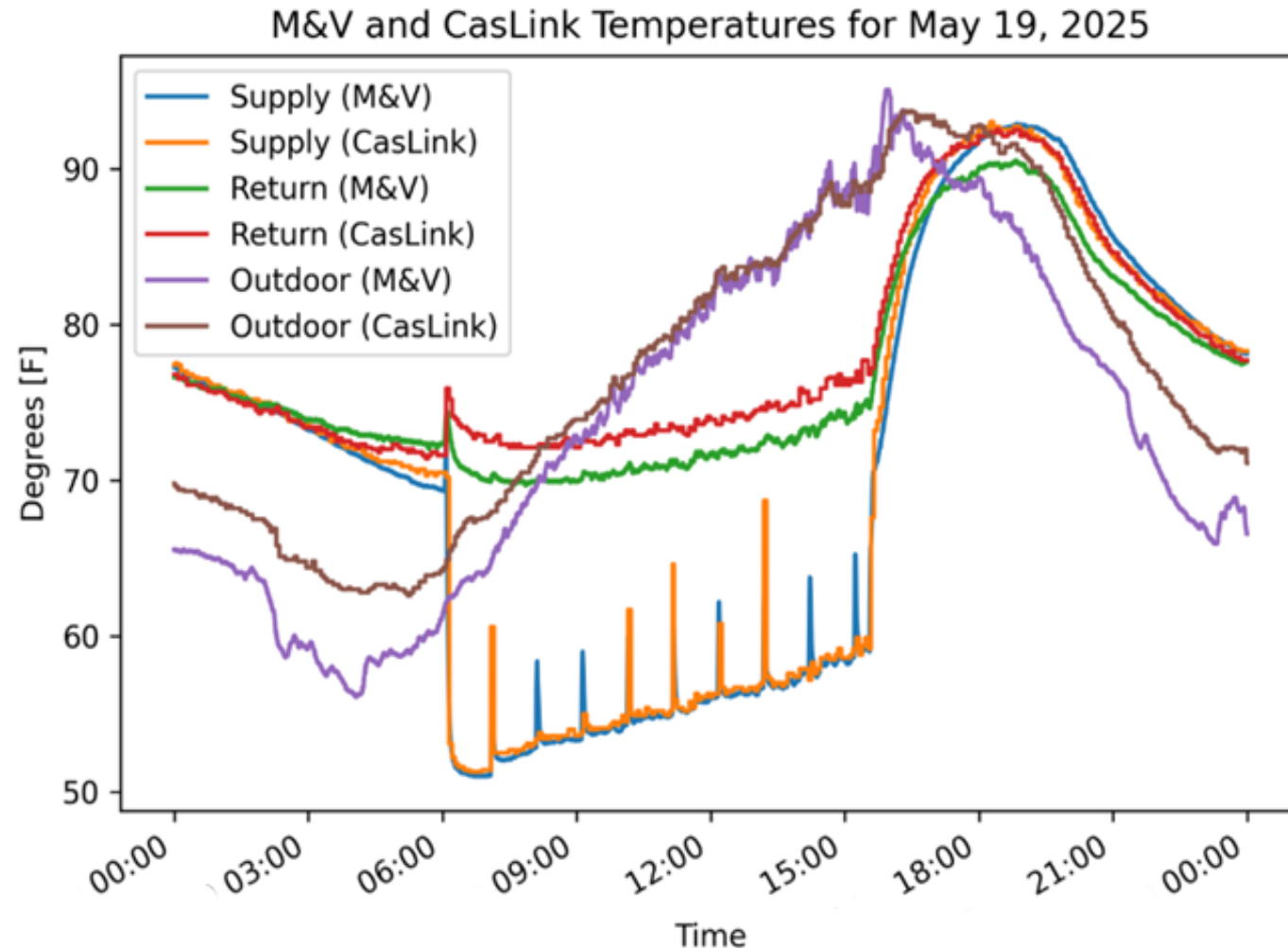
green = estimated customer bill decrease (negative %)

Demonstration project validates CCC approach

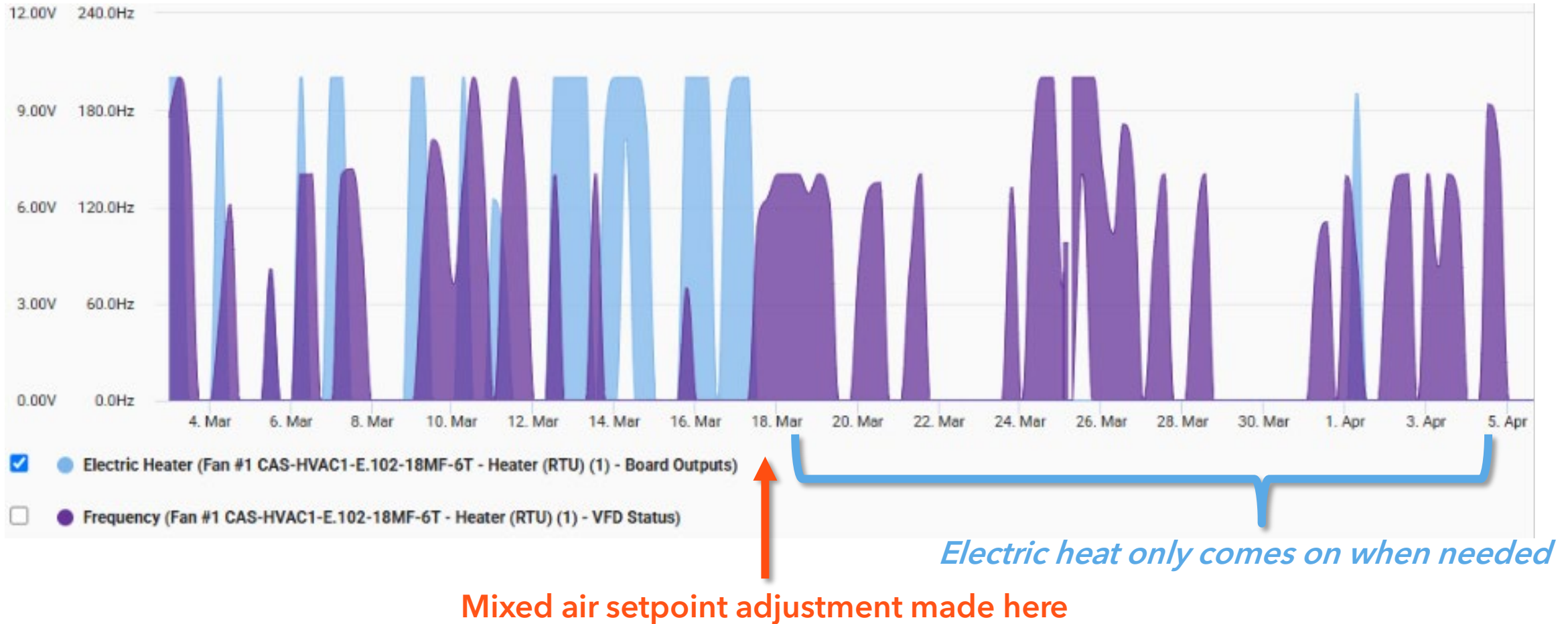


- Installed by UC Davis facilities and instrumented by Western Cooling Efficiency Center (WCEC) staff
- Installed and monitored variable-speed HP with Connected Commissioning and Controls
- Monitored performance
- Validated factory-installed sensor package
- Leveraged app to identify and resolve issues
- Builds off CalNEXT Heat Pump RTU Demonstration and CalNEXT RTU Remote Monitoring Systems project

Factory-installed sensors generally consistent with field-installed monitoring



Remote monitoring helped diagnose excessive auxiliary heat



Remote monitoring used to diagnose and address source of low COP

Project team performed a controls change to address performance issue

Goals

- Improve cooling performance
- Increase compressor modulation

Adjustments made

- Increased “minimum” discharge temperature setpoint (45°F → 55°F)
- Decreased blower fan speed (60Hz → 50Hz)

Hypothesis: It was observed that the unit would run compressors full to achieve very low discharge temperatures. Increasing the discharge setpoint and reducing fan speed would allow compressor to modulate down.

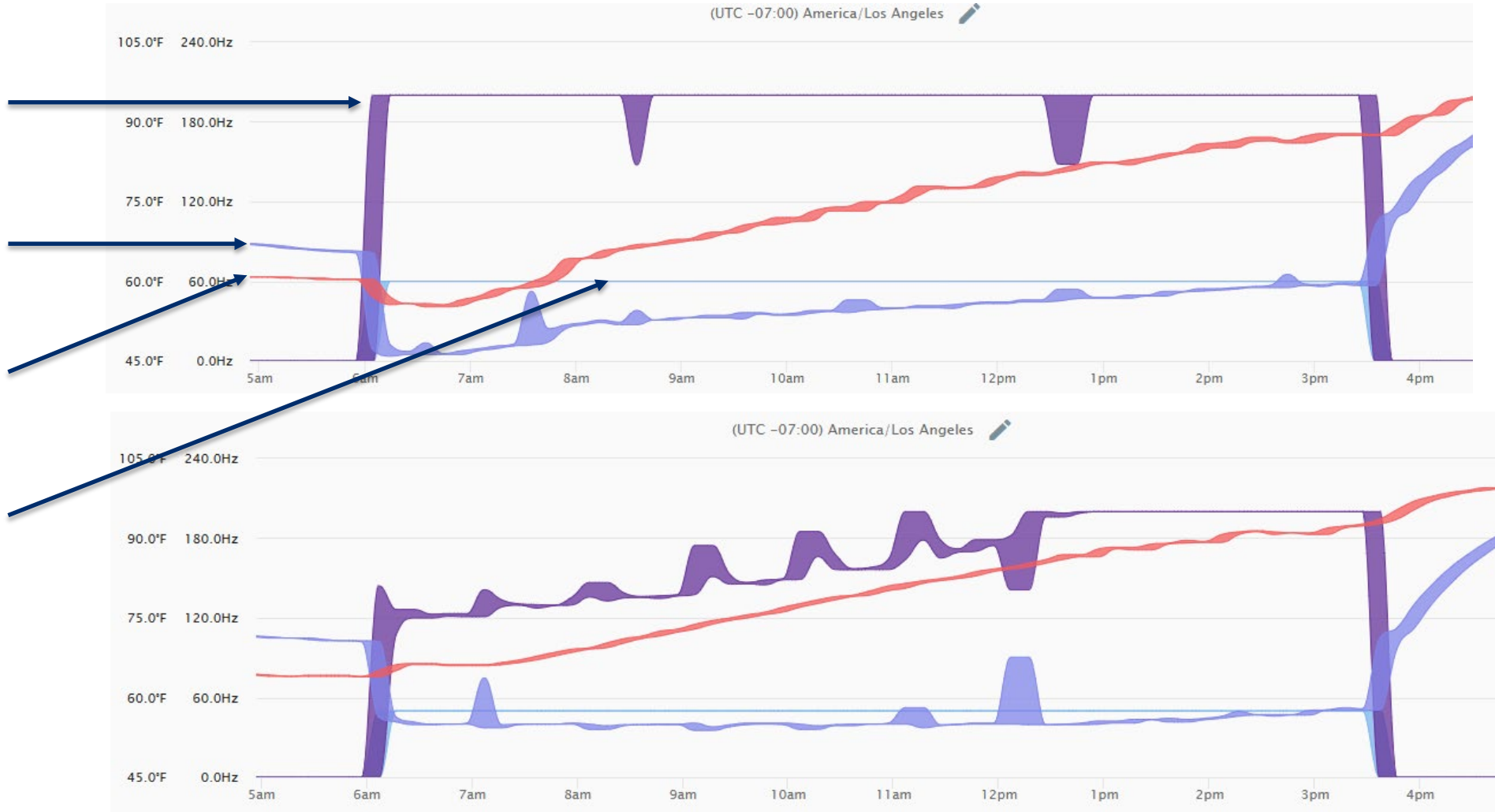
Impact of Controls Change

Compressor
Frequency

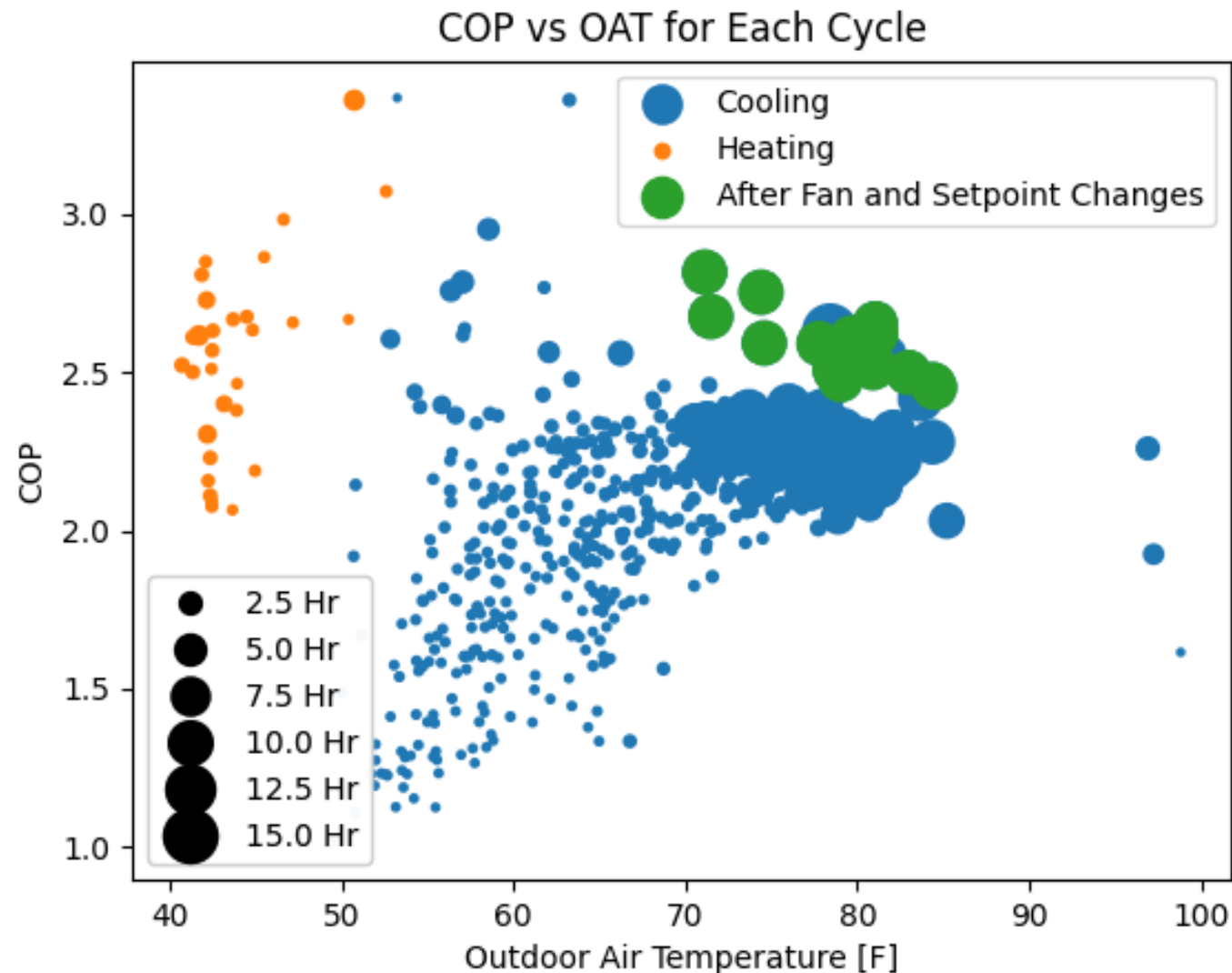
Discharge
Temperature

Outdoor
Temperature

Blower Fan
Frequency



Impact of Controls Change

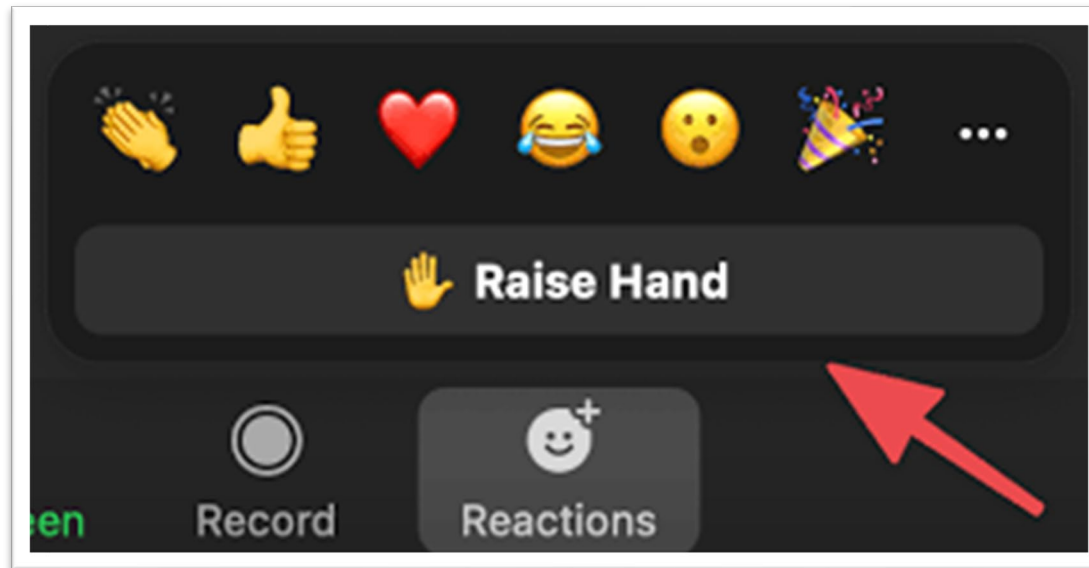


Questions & Discussion

4. Public Comment



Raise your hand using the “Reactions” feature and we will allow you to unmute yourself.



Break (15 min)
We will be back soon.





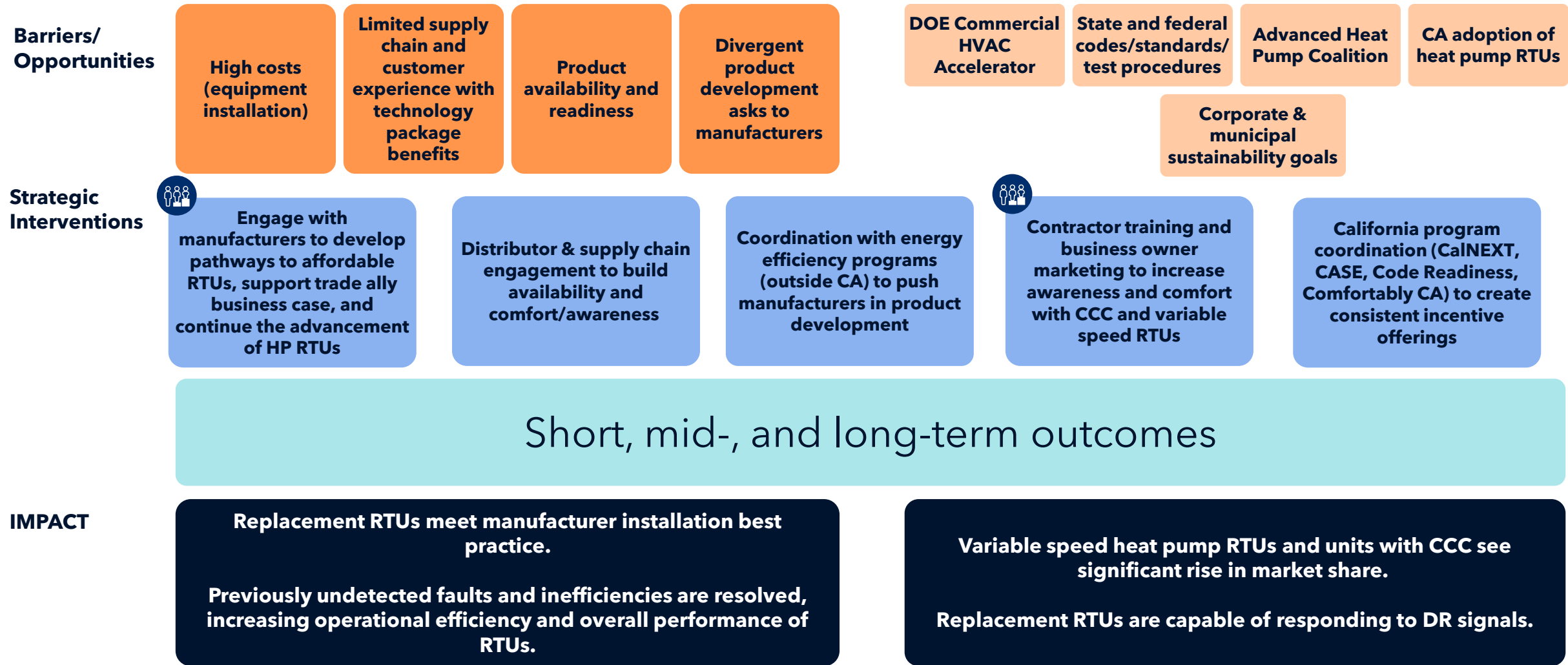
5. CRTUs Logic Model & Market Transformation Theory Review

Rick Olson-Huddle | Strategy Manager, CalMTA

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Snapshot of Logic Model





Engage with manufacturers to develop pathways to affordable RTUs, support trade ally business case, and continue the advancement of HP RTUs

1. CalMTA will collaborate on the development of a **demonstration project**
2. CalMTA will provide **upstream incentives targeted at manufacturers**
3. CalMTA will work to establish **long-term partnerships with manufacturers**

Distributor & supply chain engagement to build availability and comfort/awareness

1. Build distributor and contractor familiarity and awareness through the **initial demonstration project**
2. Long-term: **support and monitor stocking practices** for CRTU products
 - Leverage distributor relationships with HVAC contractors

Coordination with energy efficiency programs (outside CA) to push manufacturers in product development

1. Actively work to influence organizations to **incorporate sensors and CCC**
2. Coordinate with U.S. Department of Energy's (DOE) Commercial HVAC program
 - **Increased performance** aligns well with variable speed specs
 - Phase II also calls for advanced **controls and functionality**



Contractor training and business owner marketing to increase awareness and comfort with CCC and variable speed RTUs

1. Develop key messages and education strategies through **manufacturers, supply chain partners, and state programs**
2. Work with market actors to offer materials in multiple languages, accommodating various learning styles, and delivering content through **established workforce education and training** market actors

California program coordination

1. Coordinate across CalNEXT, Codes & Standards Enhancement, Code Readiness, and Comfortably CA **to create consistent program offerings**
2. Build on the foundation of the Heat Pump RTU Working Group to create a **shared technology roadmap**



6. CRTUs Market Progress Indicators (MPIs) & Milestones

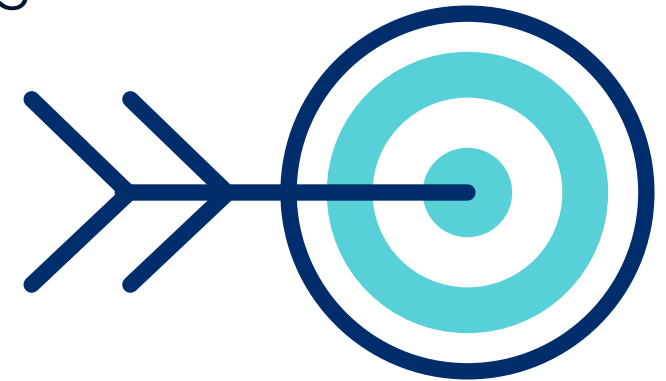
Cynthia Kan | Contractor, Cadmus Group

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MPI and Milestone Development

- MPIs are the measurement, not the target
- Milestones represent an MTI's expected outcomes/targets
- Developed with input from:
 - CRTUs team
 - Adoption Forecasting staff
 - CPUC and Evaluation Advisory Group
- Derived from program theory & logic model (PTLM)
 - Each outcome has one or more MPIs
 - Not all outcomes have milestones, but expected trends per the PT are provided



Metrics by strategic intervention:

Engage with manufacturers to develop pathways to affordable RTUs, support trade ally business case, and continue the advancement of HP RTUs

LM Outcome	Time	MPI	Milestone/ Trend
Demonstration project that documents business case and savings	Short	1 - Number of manufacturers partnering with CalMTA on demonstration project	Three or more manufacturers (of mass market equipment) engage with CalMTA to implement demonstration project by 2028
		EQ1 - Number of demonstration project RTUs installed in DACs	50% of demonstration project RTUs installed in DACs by 2029
		2 - Number of demonstration project RTUs installed with CCC, 20% improved cooling, and/or variable speed features	150 demonstration project RTUs are installed in CA by 2029, of which 20 include all CRTU features
		3 - Percent of demonstration project end-users who have installed and used the mobile or desktop app to examine RTU performance.	No specific milestone, program theory relies on majority of users to engage with app
		4 - Number of demonstration project HVAC installation contractors who agree there is a compelling business case for CCC	No specific milestone, program theory requires majority of contractors to agree there is a business case

EQ = equity DAC = disadvantaged community CCC = connected controls and commissioning

Metrics by strategic intervention:

Engage with manufacturers to develop pathways to affordable RTUs, support trade ally business case, and continue the advancement of HP RTUs



LM Outcome	Time	MPI	Milestone/ Trend
Manufacturers see value in partnership and engage on product refinement	Short	5 - Number of manufacturers meeting with CalMTA after demonstration project completion to discuss product refinement	Two or more mass-market manufacturers meet with CalMTA after demonstration project completion to discuss product refinement by 2030
Upstream incentives address incremental cost barrier for CRTUs	Med	6 - Incremental equipment price of code-min HP RTUs with and without CCC to distributors from partner manufacturers	No incremental equipment price for CCC feature to distributors for equipment produced by partner manufacturers by 2031
Multiple manufacturers incorporate CCC	Med	7 - Number of minimum efficiency product lines including CCC as standard feature (not as an add-on option)	Three product lines include CCC as standard feature by 2031
Easy to use customer and contractor interfaces	Med	8 - Percent of customers and contractors self-report CRTU interfaces are easy-to-use	No specific milestone, program theory assumes CCC interfaces will be intuitive and user-friendly

Metrics by strategic intervention:

Engage with manufacturers to develop pathways to affordable RTUs, support trade ally business case, and continue the advancement of HP RTUs

LM Outcome	Time	MPI	Milestone/ Trend
Customers understand and see value in CCC	Med	9 - Percent of potential RTU buyers (building owners and facility managers of buildings with RTUs) who understand and value CCC	No specific milestone, program theory assumes contractors play a pivotal role in influencing customer purchasing decisions and the perceived value of CCC
Customers prefer product offering CCC and general adoption of HP RTUs increases	Long	10 - Market share of all single-zone HP RTUs with CCC (denominator is all single-zone HP RTUs)	Market share of all single-zone HP RTUs with CCC hits 50% by 2035
Market share of RTUs with CCC increases and equipment costs are on par with competing product*	Long	11- Installed price of RTUs with CCC	Installed price of RTUs with and without CCC are within 5% by 2035
Market share of product incorporating variable speed, controls and IVEC+20% grows*	Long	12 - Market share of RTUs with variable speed, CCC and IVEC+20% (denominator is all single-zone HP RTUs)	Market share of CRTUs with all features is over 30% by 2040

*Multiple interventions lead to these outcomes

Metrics by strategic intervention:

Distributor and supply chain engagement

LM Outcome	Time	MPI	Milestone/ Trend
Distribution and standard supply chain channels stock, sell, and promote CalMTA CRTU product	Med	13 - Percent of distributors stocking CRTUs	60% of distributors stock CRTUs by 2032
HVAC installers and workforce embrace and market benefits of CCC	Med	14 - Percent of HVAC contractors that include CCC in customer bids by default	90% of contractors include CCC in 50% or more bids by 2032
HVAC installers and workforce leverage fault detection and controls, increasing overall HP adoption	Med	15 - Percent of HVAC companies that access customers' CCC to support diagnostics and repairs (Accessing the CCC interface off-site as a step towards addressing the service call)	20% of contractors utilize customer CCC where available by 2035

Metrics by strategic intervention:

Energy efficiency program coordination (outside of CA) to create market consistency

LM Outcome	Time	MPI	Milestone/ Trend
Shared industry tiers/specification incorporate CCC, variable speed, and efficient cooling	Short	16 - Number of EE programs outside of California that incorporate CCC, variable speed, and efficient cooling after engagement with CalMTA	Two EE programs adopt after engagement with CalMTA by 2029
Decreased costs through competition	Med	17 - Installed price of CRTUs (all tiers) relative to code minimum HP RTU	Price premium of CRTUs (all tiers) is no more than 30% by 2040.

Metrics by strategic intervention:

Update contractor training materials to cover CCC and variable speed

LM Outcome	Time	MPI	Milestone/ Trend
Education and training materials developed and incorporated into industry trainings/education; inclusive of ESJ communities	Med	18 - Number of HVAC training organizations (manufacturers, distributors, HVAC industry groups, education institutions, EE programs) that include CRTUs in curriculum	4 HVAC training organizations cover CRTUs in curriculum targeted to California learners by 2032
HVAC Installers and workforce are trained, trusted and available for installations across the state without cost-premiums in ESJ communities	Med	19 - Percent of HVAC companies with staff trained on CCC in each IOU service territory	75% of contractors report staff can support CCC installations and service by 2033
	Med	EQ19 - Percent of HVAC companies serving DACs reporting staff are trained on CCC	Percent of HVAC companies with CCC trained staff located in or serving customers in DACs comparable (within 10%) to general population by 2031

Metrics by strategic intervention:

California program coordination to create consistent incentive offerings

LM Outcome	Time	MPI	Milestone/ Trend
Applicable California programs supporting RTUs align with CalMTA product definition	Med	20 - Number of California EE programs (non-residential HVAC) adopt at least one CRTUs element for incentive eligibility after engagement with CalMTA	3 California EE programs that target non-residential HVAC adopt at least one CRTUs element (CCC, variable speed, 20%+ cooling efficiency) by 2029
Title 24 incorporates CCC	Long	21 - Adoption of CCC in Title 24	CCC is adopted to code by 2037 cycle

Questions & Discussion

7. Application Update

Lynette Curthoys | Vice President
Market Transformation

CalMTA is a program of the California Public Utilities Commission and is administered by Resource Innovations.



Proposed Decision: Approval of Initiatives



- Affirms market transformation approach to energy efficiency
- Finds proposed MTIs to be cost-effective using any of the Commission's approved tests
- Approves Room Heat Pumps and Induction Cooking MTIs and their budgets
- Extends the Implementation Period to 6 years instead of 5 to align with the rest of the energy efficiency portfolio
- Approves continued budget for Phase I and Phase II activities for 6 years
- Finds that approved MTIs should take primacy over Market Support programs that involve the same technologies
- Approves continued focus on on ESJ communities
- Orders CalMTA to provide education and awareness about potential bill impacts

Proposed Decision: Future Processes



- Requires another Application to the Commission to approve the next tranche of MTIs and defers to that decision:
 - Phase III funding for future MTIs
 - A portion of Administration, Operations, and Evaluation funding
- Gas ratepayers will not fund fuel switching MTIs
- Requires Tier 2 Advice Letters (ALs) to reduce funding or discontinue an approved MTI
- Eliminates ABAL requirement, requires annual report, and allows fund shifting between years through 2031 within the approved budget cap
- CalMTA to file a Tier 2 AL by the end of 2028 with a plan to transition to a non-profit by the end of 2031

Alternate Decision: Key Differences



- Approves Room Heat Pumps MTI only; denies Induction Cooking MTI
- Approves a smaller portion of Administration, Operations, and Evaluation funding
- Reduces funding for Phase I and Phase II Concept Development
- Requires future MTI proposals include:
 - Sensitivity analyses for adoption forecasts (TMA and BMA)
 - Demonstration of good-faith effort to secure non-ratepayer funding (if filed after 2028)
- Requires annual CPUC audits for 2026-2028
- Additional requirements specified for the non-profit transition plan AL
- Defers primacy issue to the EE proceeding

Next Steps

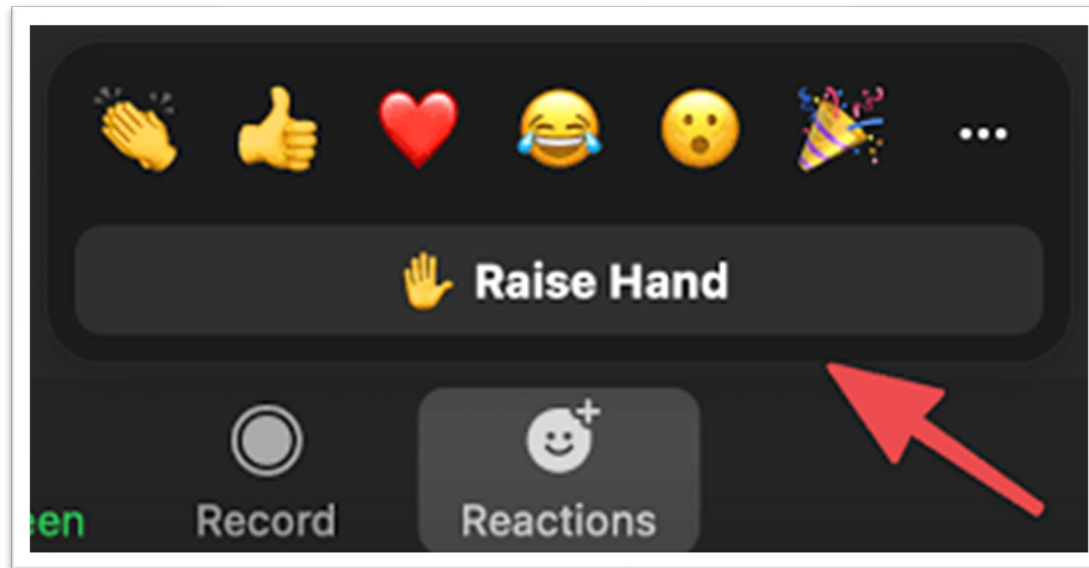


- Opening comments due: October 13
- Reply comments due: October 20
- Proposed decision may be voted on by Commission at October 30 meeting

8. Public Comment



Raise your hand using the “Reactions” feature and we will allow you to unmute yourself.



9. Next Meeting & Next Steps

Stacey Hobart | Principal of
Engagement & Communications

Upcoming MTAB meetings



	Recently added - Between Oct. 16 - 28 (TBD)	Wed, Nov. 12 & Thurs, Nov. 13, 2025
Time	TBD (90 min)	Between 9 a.m. – 5 p.m.
Location	Virtual – Zoom	Hybrid (In-person & virtual) WeWork in San Francisco, CA

	Thurs, Jan. 29, 2026	Thurs, Mar. 5, 2026	Wed, Mar. 25, 2026
Time	Between 9 a.m. – 5 p.m.	Between 9 a.m. – 5 p.m.	9 a.m. – 1 p.m.
Location	Hybrid (In-person & virtual) SF/Bay Area, location TBD	Hybrid (In-person & virtual) SF/Bay Area, location TBD	Virtual – Zoom

Transformative Energy Solutions for the public good

Market transformation is a proven approach that works to remove market barriers so that energy efficient, equitable, and climate-friendly approaches become the new standard practice for all Californians.

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