DOCKETED	
Docket Number:	23-DECARB-01
Project Title:	Inflation Reduction Act Residential Energy Rebate Programs
TN #:	255313
Document Title:	IRA HOMES P4P Workshop Presentation Slides
Description:	Slides presented by CEC Staff and panelists at the Inflation Reduction Act HOMES P4P Workshop on March 21, 2024. Slide deck contains questions posed to stakeholders for public comment.
Filer:	Miriam Joffe-Block
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	3/28/2024 10:55:53 AM
Docketed Date:	3/28/2024

IRA Home Efficiency Rebate (HOMES) Pay for Performance Pathway Workshop

Staff Workshop

March 21, 2024

Housekeeping

1. Today's workshop is being recorded
2. All presentations and a full written transcript will be posted to the CEC website
3. CEC welcomes and encourages written comments and supporting documentation
4. Zoom issues?
   Contact Zoom at (888) 799-9666 ext. 2, or the CEC Public Advisor at publicadvisor@energy.ca.gov or by phone at (916) 957-7910

How to Comment & Connect

During Today's Workshop

During Presentations

- Use Zoom Q&A Feature

During Public Comment Period

- Use Zoom Raise Hand for an opportunity to speak
- On phone, press ***9** to raise hand and ***6** to (un)mute
- When called upon, please unmute, say and spell your name, state your affiliation, and make your comment.

After Today's Workshop

- Please visit: https://www.energy.ca.gov/programs-and-topics/programs/inflation-reduction-act-residential-energy-rebate-programs
- Comments Due: **Friday, April 5, 2024**
- Docket: 23-DECARB-01
- IRAresidentialenergyrebates@energy.ca.gov

Workshop Schedule

10:00 Introduction and Opening Remarks

10:20 HOMES Program Overview

10:45 California Residential Performance-Based Incentive Landscape

12:00 Lunch Break

1:00 Program & Incentive Design

2:30 Break

2:45 Administration & Implementation Considerations

3:45 Public Comment Period – Any HOMES-Related Topic

4:15 Close

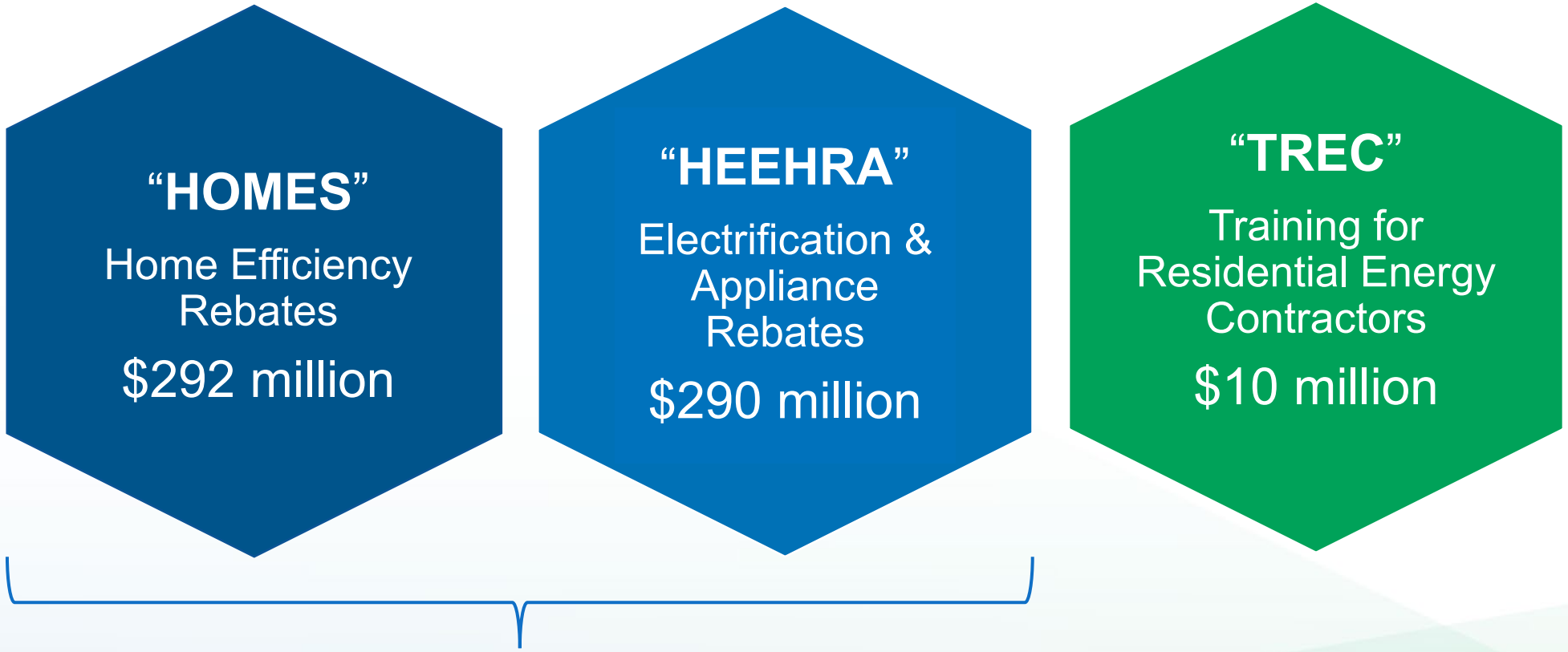
Opening Remarks

J. Andrew McAllister, PhD.

Lead Commissioner

HOMES Program Overview

Inflation Reduction Act (IRA) Residential Energy Funding for States



HOMES Legislative and Regulatory Intent

- Encourage homeowners to make **comprehensive energy efficiency upgrades**
- Spur **market transformation** for project uptake beyond rebate period
- Achieve widespread uptake in **disadvantaged communities**
- Encourage states to value **time of use, location, GHG reductions**
- **Leverage and stack** with other sources of funds
- Reward contractors and aggregators based on **actual savings**

Equity Requirements

Justice40:

- 40% to Disadvantaged **Communities**

Low-Income:

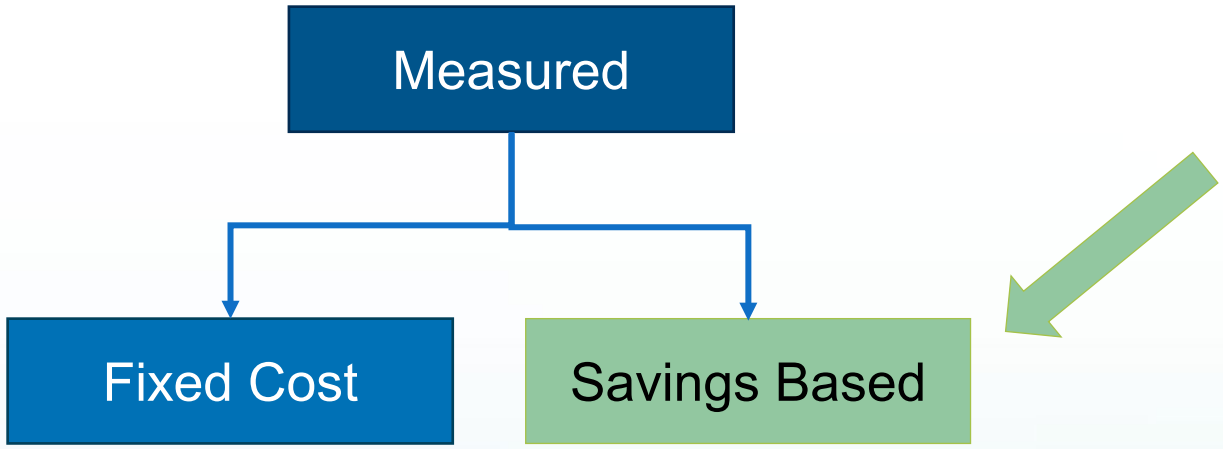
- 40.7% Low-Income **Households**
- 10% Low-Income Multifamily **Households**

Key Components per Statute and Guidance

- Whole-house efficiency rebates
- Single-family & multifamily buildings
- Flexibility with project scope
- Energy savings requirement (portfolio level)
- Pre and post installation requirements
- Consumer protection requirements
- Delivery model: aggregator or implementer
- Community Benefits Plan

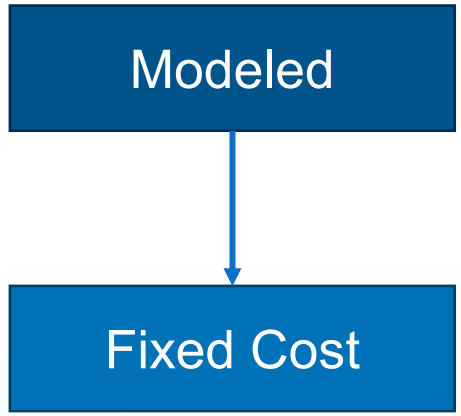
HOMES Allows Two Pathways for Rebate Calculations

9-12 months of post-installation savings calculations using DOE-approved open-source measurement & verification methodology



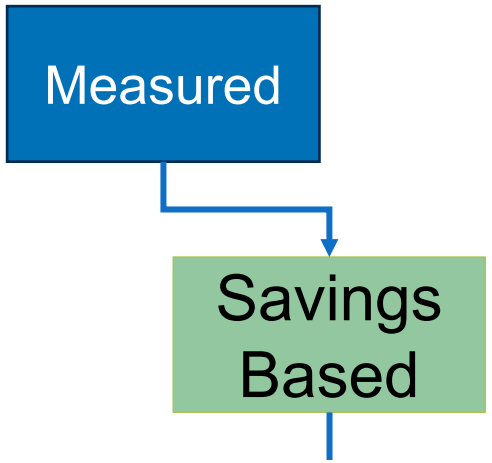
*Threshold for any rebate payment: Portfolio must reach **15% savings** in kwh equivalent*

Savings estimated consistent with BPI-2400 using DOE-approved modeling software



*Incentive value depends on whether estimates are for savings **20-34% or 35%+***

Measured Savings-Based Incentive Pathway



*Threshold for any rebate payment: Portfolio must reach **15% savings** in kwh equivalent*

Low-Income: $4,000 for 20% reduction for average home

Non-LI: $2,000 for 20% reduction for average home

Savings-based Pathway Challenges

Includes requirements more typical of a deemed program

- Rigorous pre- and post–installation requirements
- Data collection
- Eligibility checks

9 to 12-month measurement period prior to payment of HOMES incentive

- HOMES funding cannot be advanced and then “trued-up” at the end of the measurement period, per DOE guidance

Statutory requirements for incentive payments

- kWh savings are valued equally regardless of time or location

Insights from Public Comments:

- Support for braiding funds with EBD DI program
- Support for braiding was often conditional
- Support for a performance-based approach
- Conflicting viewpoints on whether P4P can serve low-income households

Two-pronged Approach for Residential Efficiency and Decarbonization

60%

Equitable Building Decarbonization Direct Install

- Enable additional priority communities to electrify and mitigate extreme heat
- Realize administrative efficiencies
- Meet HOMES requirements to reach low-income households and disadvantaged communities
- Modeled Pathway: fixed-cost rebates

Pay for Performance Pathway

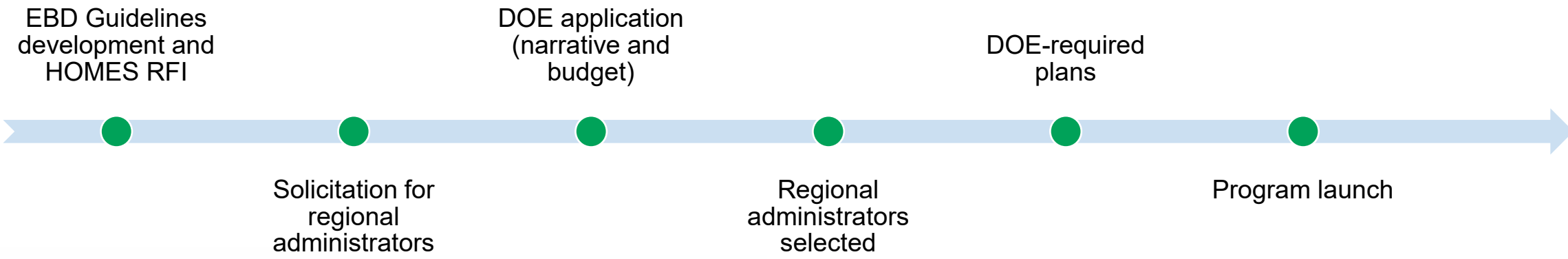
40%

- Support market transformation
- Incentivize investments for grid reliability and resilience by signaling value for key times and locations
- Leverage private capital and scale financing models for middle income participants
- Allow participation at all income levels
- Measured Pathway: savings-based incentives

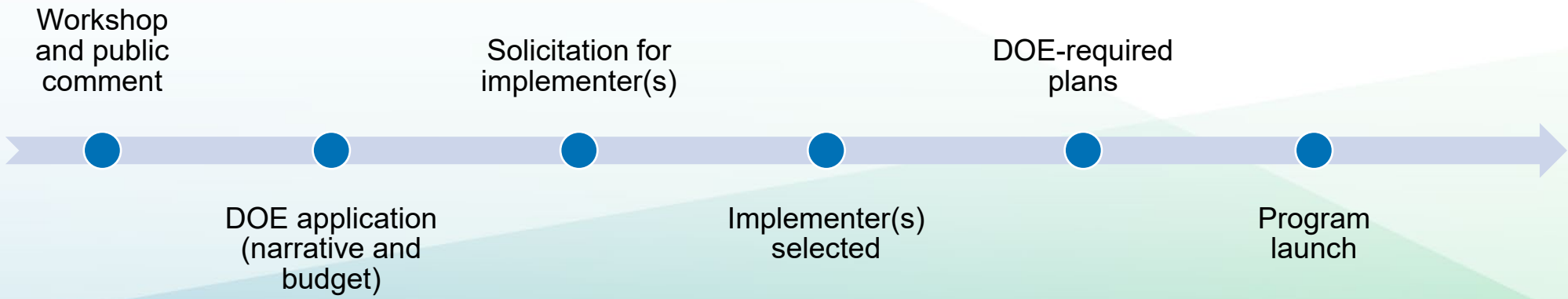
Ability to track and compare outcomes: energy savings, bill impacts, peak load reduction, GHG reduction

CEC HOMES Development Process

Equitable Building Decarbonization Direct Install



Pay for Performance



Pay for Performance

What Do We Mean by "Pay for Performance" (P4P) Program?

- ✓ Incentive payments based on **actual savings measured at the meter**
- ✓ With HOMES, refers to the savings-based method of "**Measured Path**"
- ✓ In California, sometimes referred to as "**NMEC programs**"

Market Access Programs: one "flavor" of P4P

- Incentive pricing based on Total System Benefit
- Uniform rules that apply for every aggregator
- Open procurement model

P4P does not mean:

- Efficiency-as-a-service contracts
- Demand response programs

Status of Residential P4P Programs

Active

Market Access
- MCE
- Peninsula Clean Energy
- 3C-REN

Other
- PG&E HomeIntel

Pending

Market Access
- PG&E
- SCE
- SDG&E

Recently Ended

Market Access
- Sonoma Clean Power
- SCE
- SDG&E
- PG&E

Other
- PG&E Comfortable Home Rebates
- PG&E Home Energy Rewards

- Relatively new and much lower uptake than commercial
- Many programs to date have been small (dozens or hundreds of homes)
- Larger programs have typically involved ‘light touch’ interventions

Key Differences Between Existing P4P Programs and HOMES Rules

	HOMES	Current P4P Residential Programs
Cost effectiveness requirements	None	Total Resource Cost (TRC) (for IOU and CCAs)
Threshold savings required to receive incentive	15% on a portfolio basis	No threshold
Incentive recipient (Implementer, Aggregator, Installer, Customer)	• States must propose a split to DOE between customer and aggregator • Expectation that significant benefit flows to customer	• PAs decide on rules; many leave distribution up to aggregators • Only 3C REN MAP requires pass-through to customer
Advance payments (prior to full measurement period)	Per DOE, HOMES funds cannot be used prior to savings being verified	All programs have some form of advance payments
Incentive value	• Based on simple kWh reduction • $.55 or $1.10/kWh saved	• Based on ACC: 8760 hour calcs • $ value for time of savings
Consumer Protection and **QA/QC** requirements	Specific Consumer Protection Plan, pre-and post audit requirements, bill impact disclosures, documentation, etc.	• Rules set for aggregators • Generally a “light touch”
Eligibility checks	Energy star equipment, Income verification, non-duplication with other fed programs, Incentives do not exceed project costs	PAs may set eligibility requirements

MCE Empowering Our Clean Energy Future

CONTRA COSTA | MARIN | NAPA | SOLANO

Performance Based Programs

WHO IS MCE?

MCE SERVICE AREA

4 Bay Area
Counties

585,000
Accounts

1.5 million +
Customers

MCE's Energy Efficiency Programs

Traditional Energy Efficiency

Residential, commercial, agricultural, and industrial

Demand Response

Programs to reduce energy use during peak hours

Performance Based Programs

Delivering real grid impacts measured at the meter

Performance Based Programs

What are P4P programs?

	Deemed	**Pay for Performance**
Savings Calculations	Prescribed savings Based on standardized measures (work papers)	Measured savings and <u>real grid impact</u> Pre-intervention baseline less post-intervention measurement
Payments	100% upfront at installation	Upfront 20% at installation Quarterly performance based

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Eligibility Criteria

Appropriate meter data

- 12 consecutive months
- 15 minute intervals
- Consistent load shape

Non-industrial customer

- Commercial, residential, multifamily

Significant forecasted savings preferred

- Discretionary load impacts meter

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Roles and Responsibilities

MCE

- Program design, program oversight, implementer management, budgeting, CPUC compliance/reporting, provide meter data

Implementer

- Program management, aggregator management, measurement and verification, reporting, incentive distribution

Aggregator

- Project development, customer management

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P4P Programs

Peak Flex Market

- Daily load shifting and demand response
- HVAC, Battery Energy Storage (BESS), behavioral, EV charging

Commercial Efficiency Market

- Energy efficiency
- HVAC, lighting, refrigeration

Residential Efficiency Market

- Energy efficiency
- HVAC, insulation, HPWH

Commercial Efficiency Market

2023 Results

- Significant market adoption
- Primarily lighting and HVAC
- (37) projects installed
- 50,000,000 kWh lifecycle savings
- $4.3M Total System Benefit

Lessons learned

- Up front incentive of 20% was enough
- Data management and flow is critical
- Aggregators models vary

Residential Efficiency Market

2023 Results

- Low participation
- Smart thermostat projects only

Lessons learned

- Educate and train aggregators
- Simplify process
- Consider other program interactions
- Provide high incentives or direct install

New for 2024

- Focus on whole home projects
- MCE funded grant for HP/HPWH
- Updated marketing approach
- Subprograms focused on whole home

P4P programs will grow

- Measured savings methods are maturing
- Aggregators are learning how to develop projects
- Opportunity for streamlining and stacking
  - HOMES funds can create greater impacts
  - Potential increased incentives
  - Reduced administrative costs
- Integrated Demand Side Management opportunities

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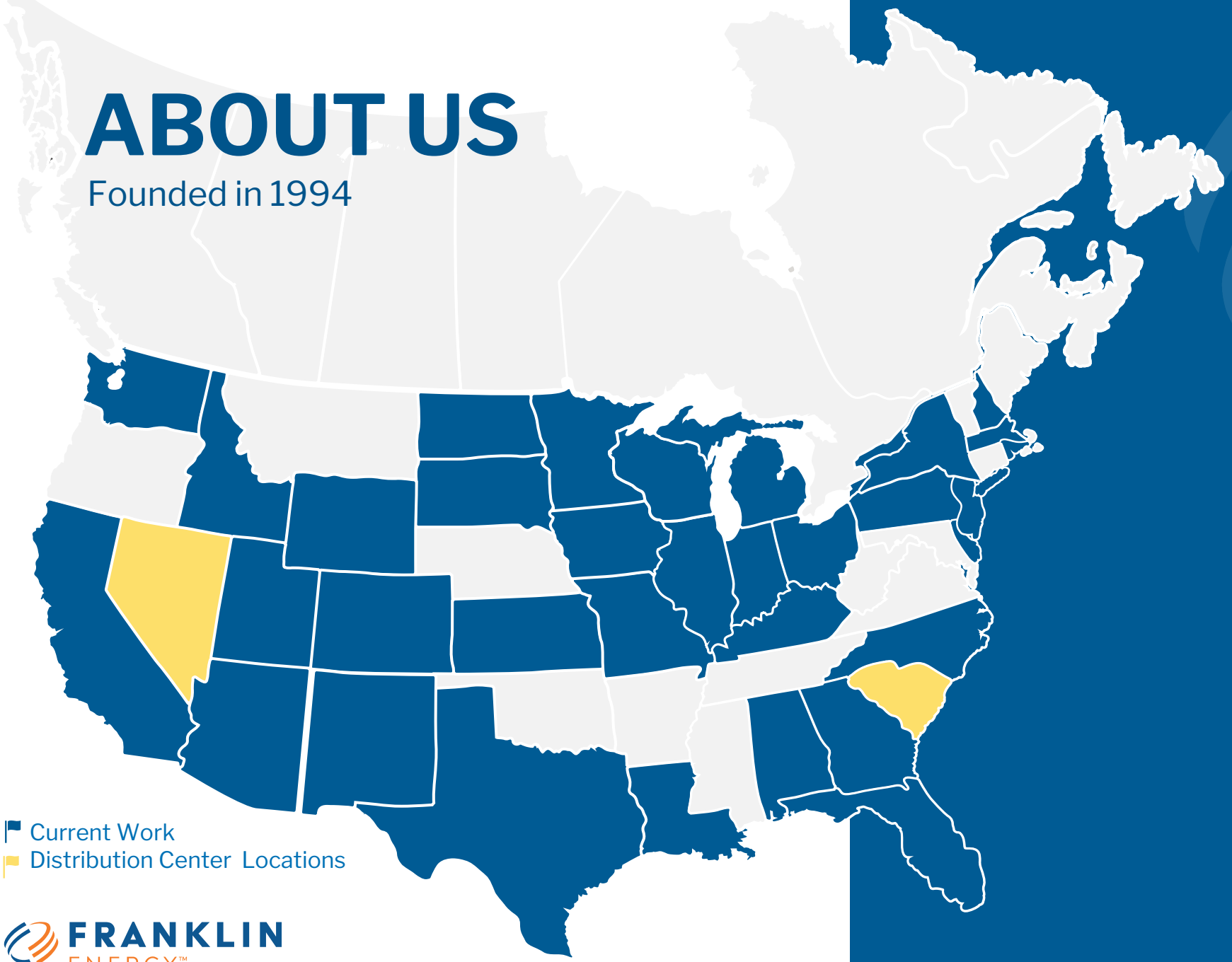
Measured Program Experiences

California Energy Commission Workshop on IRA HOMES

March 21, 2024

ABOUT US

Founded in 1994



Current Work
Distribution Center Locations

150+ clients

500+ programs

33 offices across the US

2 product distribution centers, 180K sq ft

$20M of inventory, thousands of shipments/day

1,000+ employees

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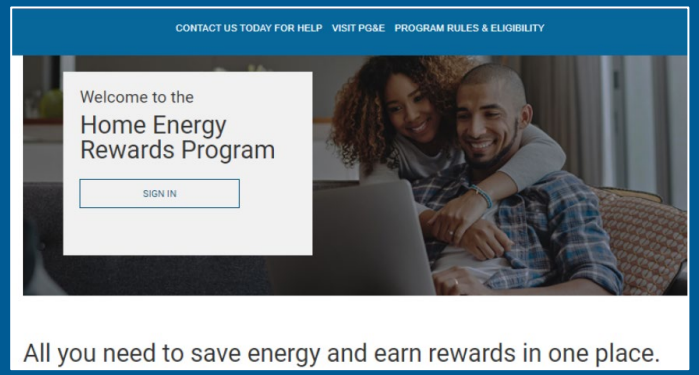
One Program Type, Three Approaches

Home Energy Rewards

- EE Kits
- Behavioral

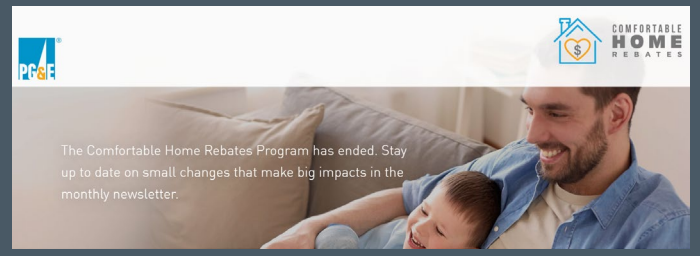


Cool Savers

- Sweepstakes

Comfortable Home Rebates

- Evolved to electrification



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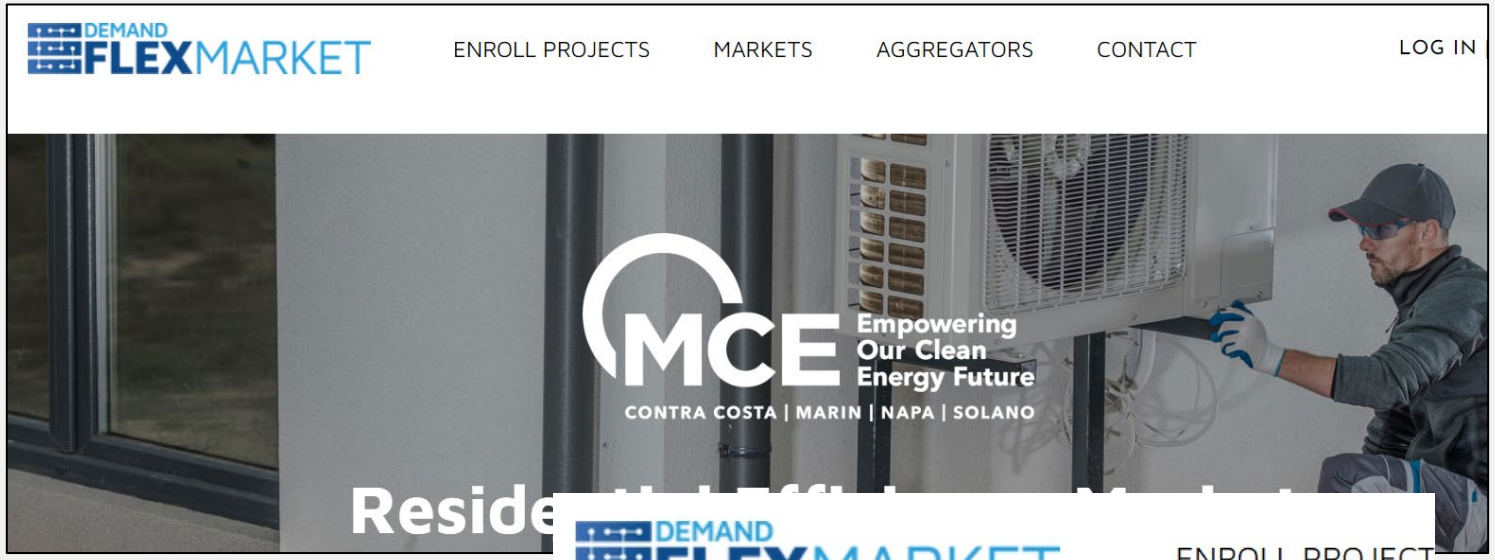
Market Access

- Newest effort
- Buy down interest to 0% financing for customers
- Eliminates upfront cost barriers



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Successes & Challenges

- Program flexibility
  - Sweepstakes
  - Kits
  - Behavioral messaging
  - Measure iteration
- Iteration led to scale
- Clear rules helped
- Traditional incentives still working best

- Challenges
  - Gas and Electric data availability
  - Savings modeling
  - Payment policies
    - Payment timing can create implementer risk
  - Baselines limit customers
    - 12 month pre/post needs consideration to allow for more inclusion
  - Move outs / SAID changes

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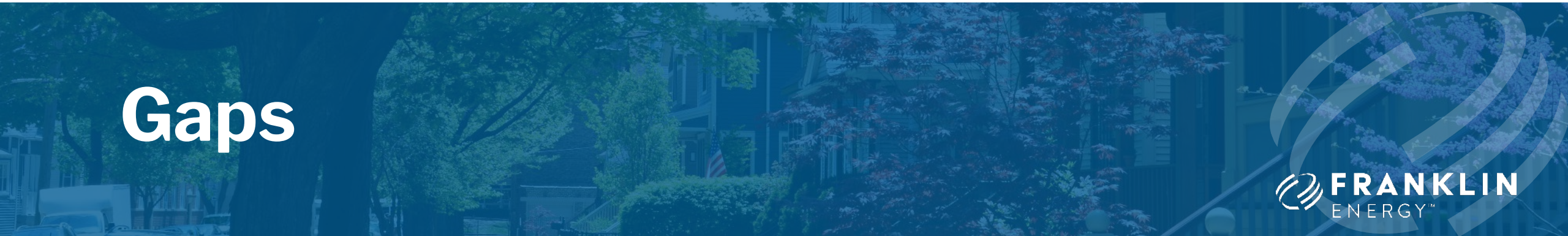
- Customers that aren't a good fit:
  - Multifamily
  - Mobile homes/parks
  - Renters
- Customers that may not be a good fit:
  - Low Income (depending on intervention costs)
  - Solar and electric vehicles (because of baseline modeling)
- Broadly, ineligible customers should have a backup methodology



Gaps

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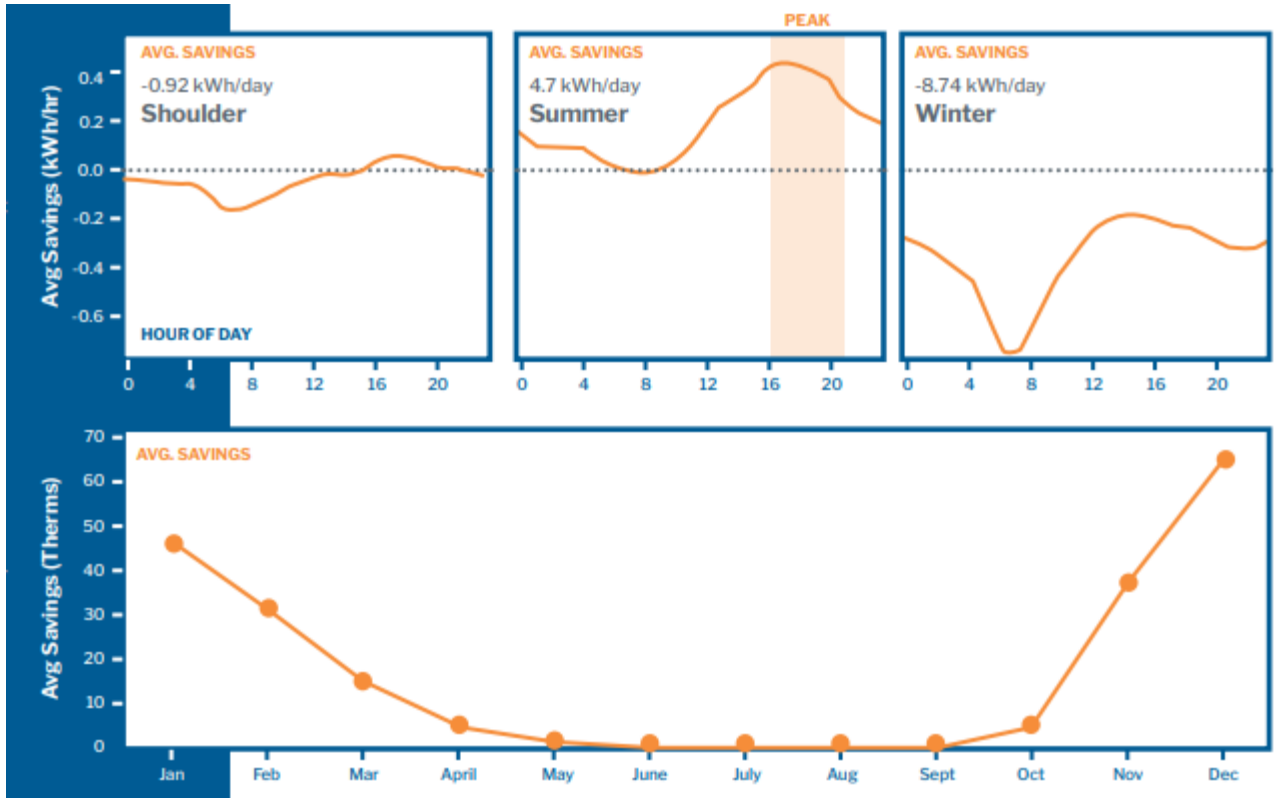
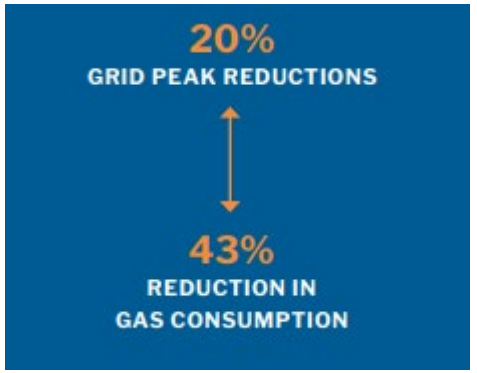
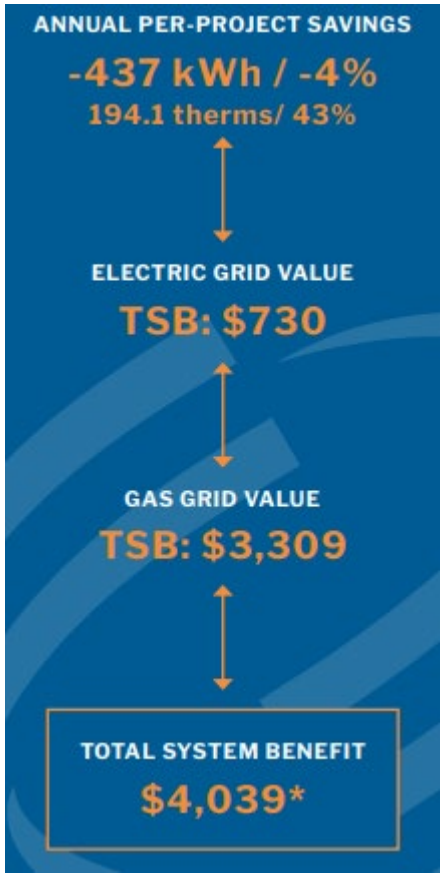
Program Results

- ~10,000 customers served in 2.5 years
- ~100,000 MMBtu (1M Therm eqiv.) saved
- Significant TSB, and peak reductions
- https://www.franklinenergy.com/case-studies







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THANK YOU.

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Discussion / Public Comment

Questions for Stakeholders

Scale and market transformation

1. Residential P4P programs in CA have been small. How can a P4P approach scale to move tens of millions of dollars in residential decarbonization incentives quickly?
2. Can existing residential P4P programs adjust to incorporate HOMES requirements?
3. How can the unique needs of multifamily properties be addressed through a residential P4P program?

Public Comment

Instruction

- 3 minutes or less per person
- 1 representative per organization

Zoom App/Online

- Click “raise hand”

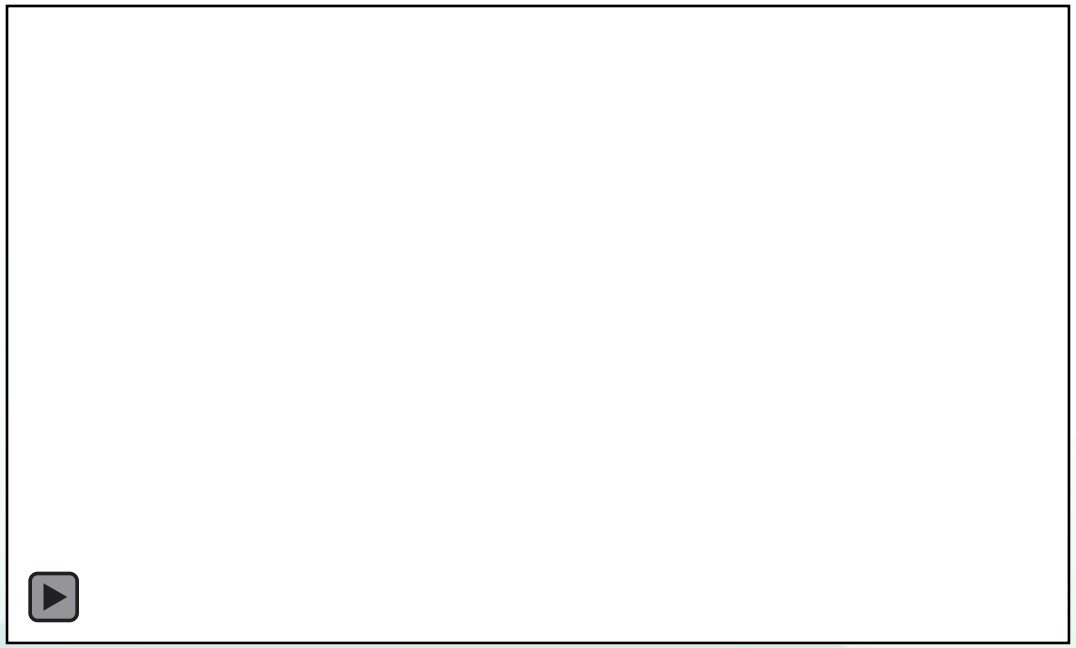
Telephone

- Press *9 to raise hand
- Press *6 to (un)mute

When called upon

- Public Advisor will open your line
- Unmute, spell name, state affiliation, if any

3-MINUTE TIMER



For Phone Participation: Dial (669) 219-2599 or (888) 475-4499
Enter Webinar ID: 822 1750 7281 and Passcode 833445

On Break

Program & Incentive Design

Incentive Design: Policy Objectives

Climate

- Energy efficiency
- GHG mitigation
- 6 million heat pumps by 2030

Energy

- Load flexibility and net peak demand
- Grid reliability & resiliency
- Address locational grid constraints

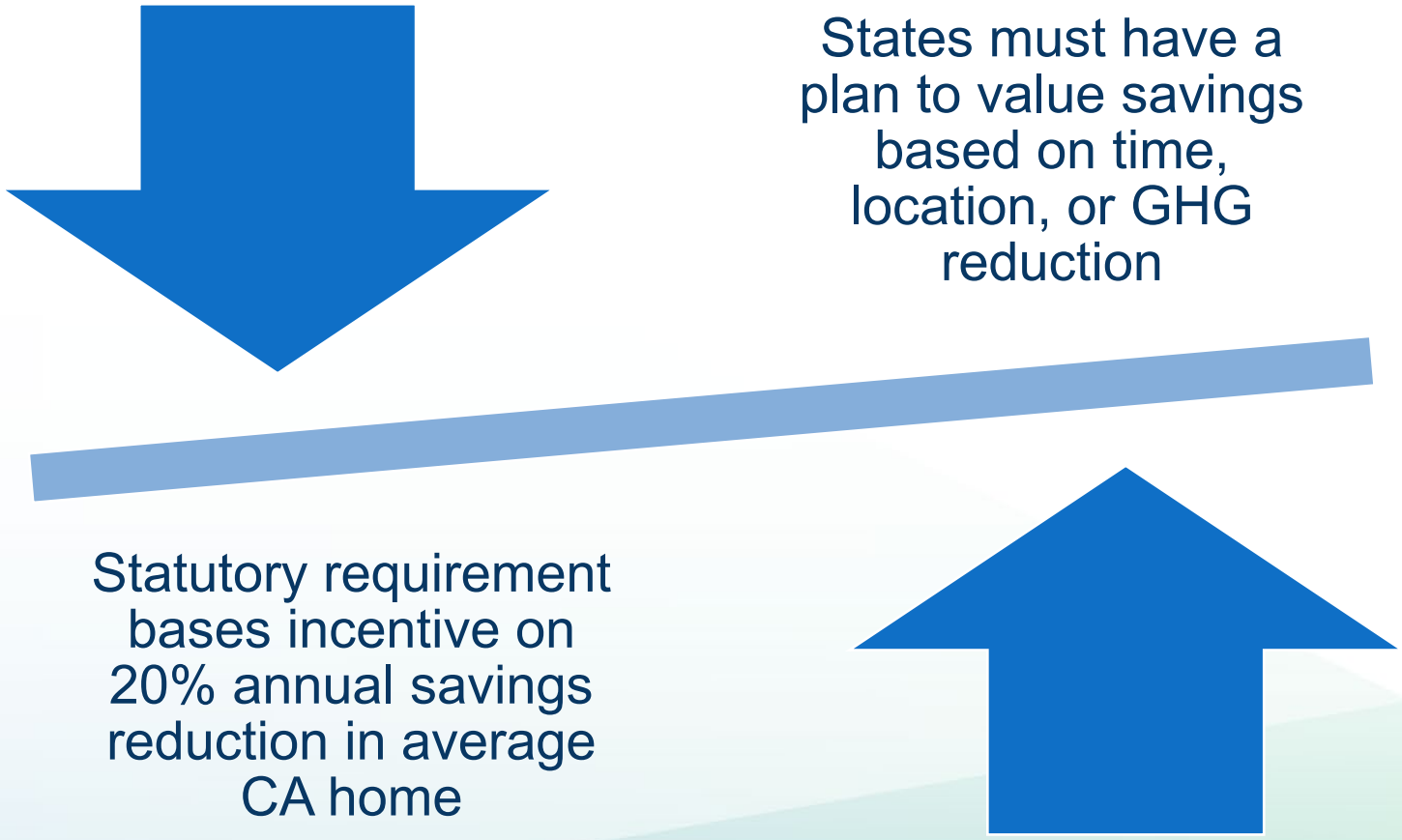
Reach & Scale

- Equity and Affordability: Low-income households and underserved communities (2021 IEPR)
- Complement EBD Direct Install to reach all households
- Leverage third-party capital and investments at scale (2021 IEPR)

DOE Incentive Structure Rules

- Total rebate funds may not exceed 100% of project cost
- Incentive payments to aggregators after 9 to 12-month M&V period
- Incentive amount must be estimated upfront and value passed on to customer
- States must plan for excess (underestimated) savings and who will benefit from higher-than-expected incentives

Balancing HOMES Incentive Calculation Requirements



CEC Staff Energy Impact Analysis

- Analysis supporting EBD Direct Install Program
- Publish methodology and results report (Jun/July)
- CEC contact: Tiffany Mateo
  - Tiffany.mateo@energy.ca.gov

Modeled Home Prototypes

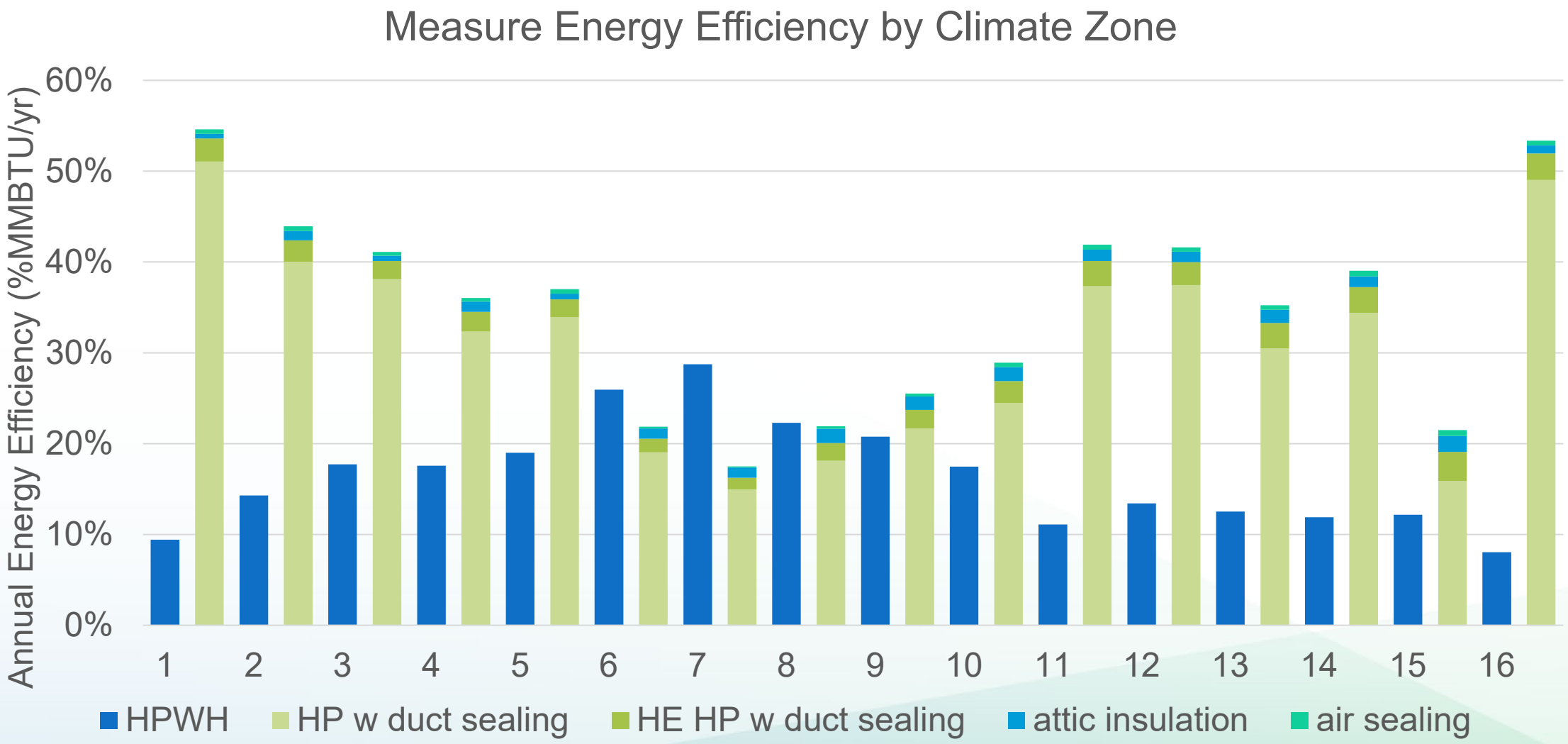
Residential Type
2-bedroom Single-family
3-bedroom Single-family
4-bedroom Single-family
8-unit Low rise Multifamily
88-unit Midrise Multifamily
2-bedroom Single Wide Manufactured Home
3-bedroom Double Wide Manufactured Home

Vintage Category
Pre-1975
1975-1983
1984-2005

Vintage Category
Pre-1976
1976-1994
Post-1994

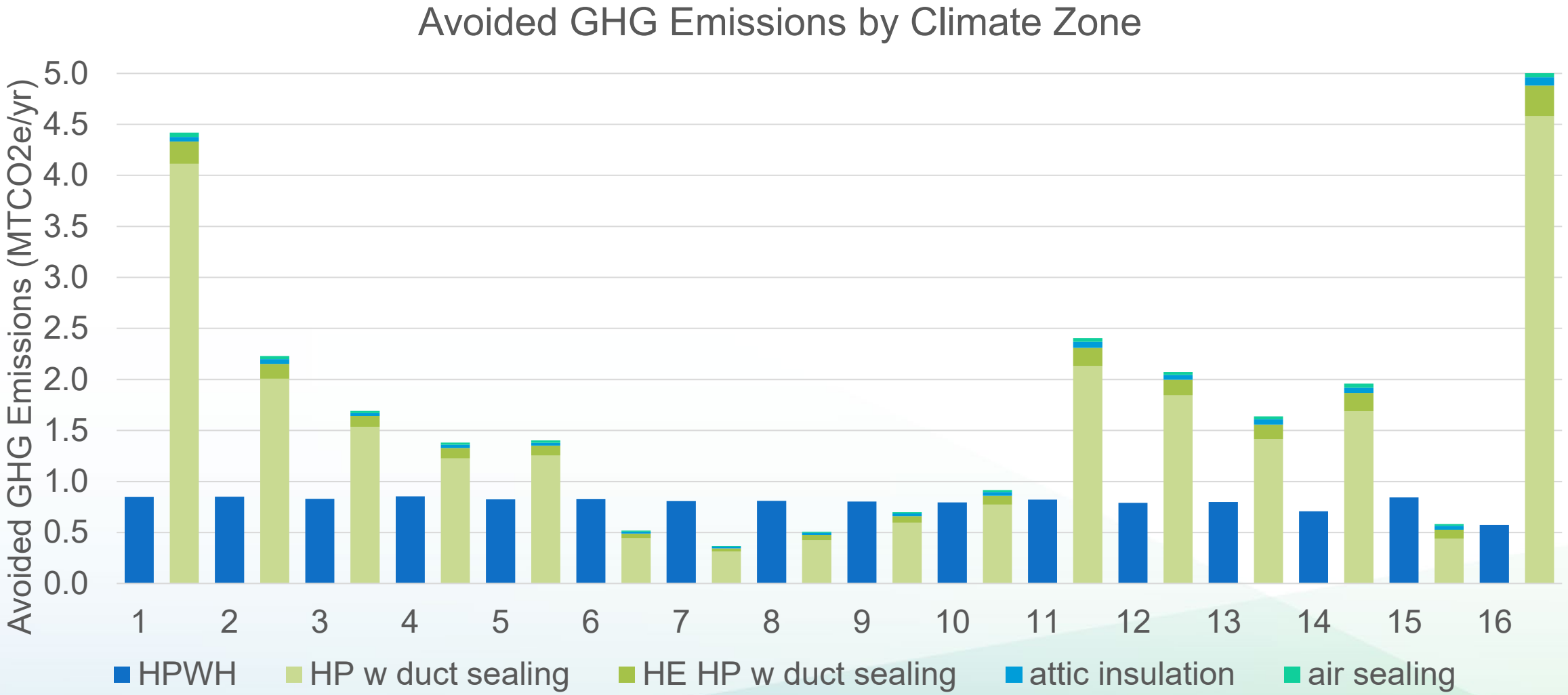
Models were created and run in all 16 climate zones.

Modeled Energy Efficiency



Data results represent a 3-bedroom, 1750sqft, 1976-1983 vintage prototype

Modeled Avoided GHG Emissions



Data results represent a 3-bedroom, 1750sqft, 1976-1983 vintage prototype

Modeling Analysis Next Steps

- Publish methodology and results report (Jun/July)
- Analysis Updates (Aug/Sep)
  - Update utility rates, include non-CARE rates, include rate change projections
  - Include solar PV and battery measures
- Compare modeling results with meter data

Meter-based insights from TECH heat pump projects

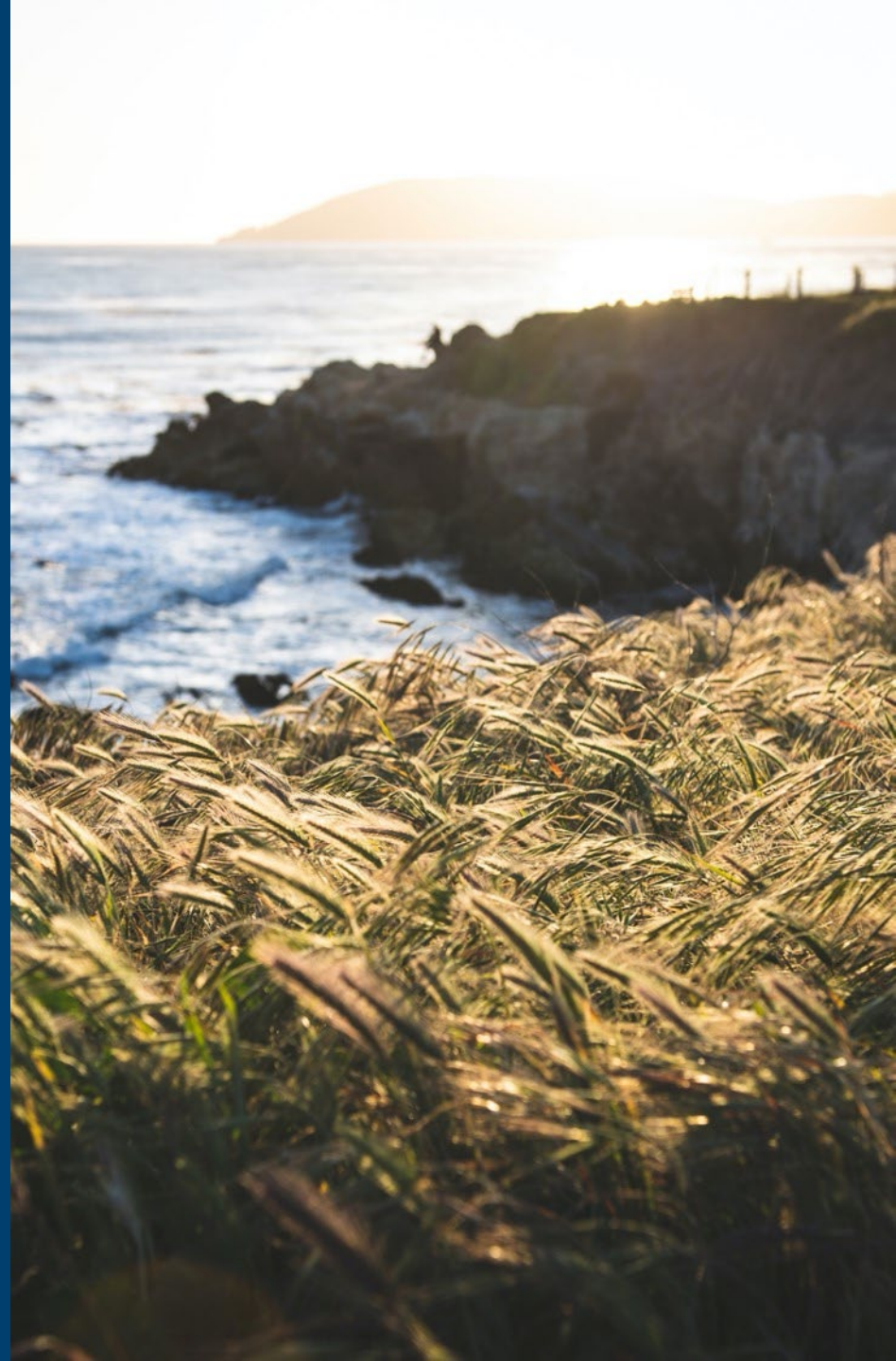
Presented at CEC HOMES Workshop

Dylan Sarkisian

Senior Data Scientist, Energy Solutions

March 21, 2024

TECH CLEAN CALIFORNIA



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Preliminary Impacts Analysis

How can we quantify grid benefits and bill savings for participants?

Preliminary Results Rely on a Limited Dataset

Analysis Purpose

- Establish methodology and capabilities for impact analysis
- Develop preliminary results for first look at program outcomes
- Set the stage for the larger analysis expected later in 2024

Inputs for This Analysis

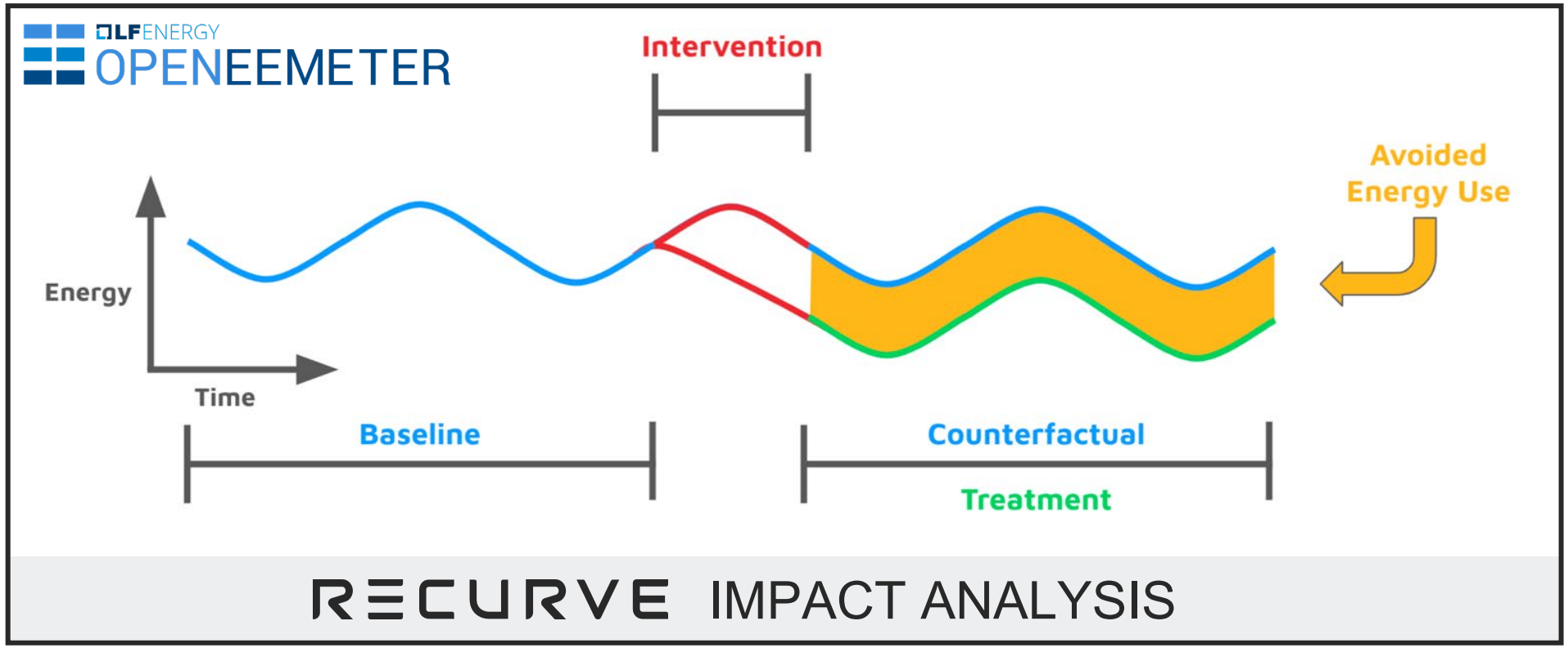
- Sites in PG&E service territory
- Meter data through March 2023
- Filtered from 2117 total project sites to 176 sites:
  - Without rooftop solar
  - With 12 months of electricity and gas meter data
  - For which an accurate counterfactual could be created

Inputs for Next Analysis

- Thousands of projects across multiple electric and gas IOUs
- Data through end of 2023
- Broader representation of:
  - LMI Customers
  - Equipment types
  - Climate zones
  - Rate codes

TECH Clean California Participant Impact Analysis

- **Collaborators**: Recurve, California Energy Commission, California Public Utilities Commission, Opinion Dynamics
- **Project Data source**: participating contractors' incentive applications, available in anonymized dataset on techcleanca.com
- **Energy Data source**: Electricity and gas meter interval data and billing data from six largest CA utilities, starting 2018
- **Analysis Method**: open-source OpenEEMeter methods analyze weather-normalized change in electricity and gas usage



Heat Pump HVAC Retrofit Project Results to Date

143 Northern California Heat Pump HVAC Retrofits

Median Project Features and Impacts [1]	
Total Project Cost	$18,244
Change in Gas Usage	- 44%
Change in Electricity Usage	+ 17%
Change in Peak Demand	- 2%
Annual Utility Bill Savings	$154
Lifecycle Total System Benefit	$3,150
GHG Savings	0.56 MT CO_2e

Learn more about heat pump HVAC retrofits:

Cost Drivers

Energy, Grid, and GHG Impacts

[1] Preliminary results based on 143 single family homes in PG&E gas service area with complete cost, savings, and bill impacts data. Sample size will increase over time.
[2] Derived using California Public Utilities Commission Avoided Cost Calculator

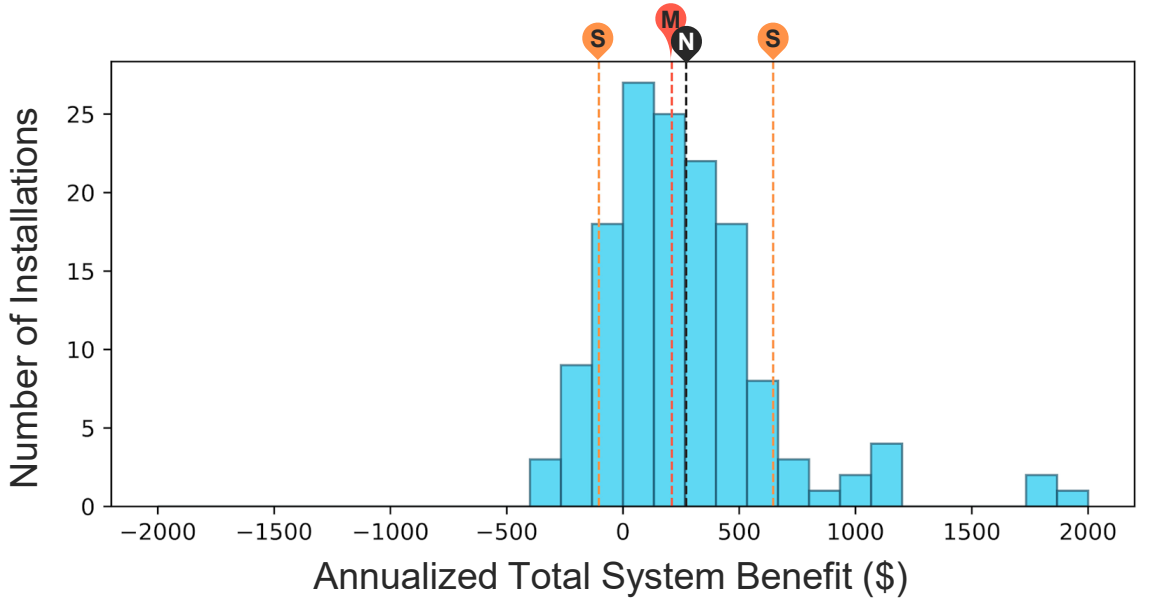
A Tale of Two Distributions: 143 Northern CA Heat Pump HVAC Retrofits

Annualized Total System Benefit

- **M** Median: $210
- **N** Mean: $271
- **S** Std Dev: $376 (*139% of mean*)

  % of Sample >0: 79%

A standard bell curve with a small positive tail. Low risk of substantial negative outcomes

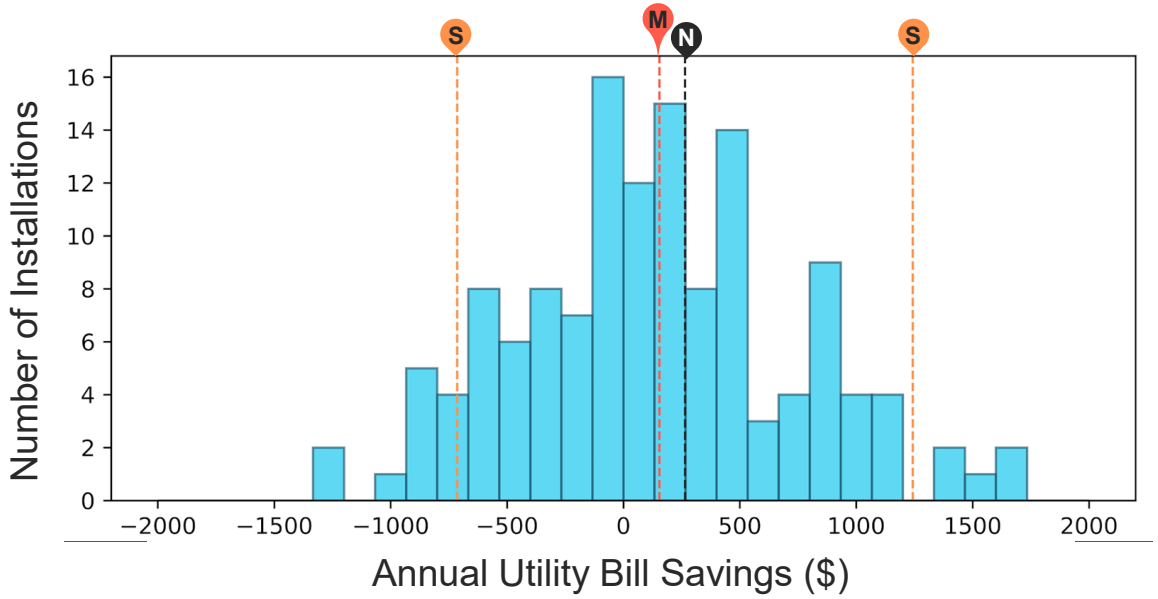


Annual Customer Utility Bill Savings

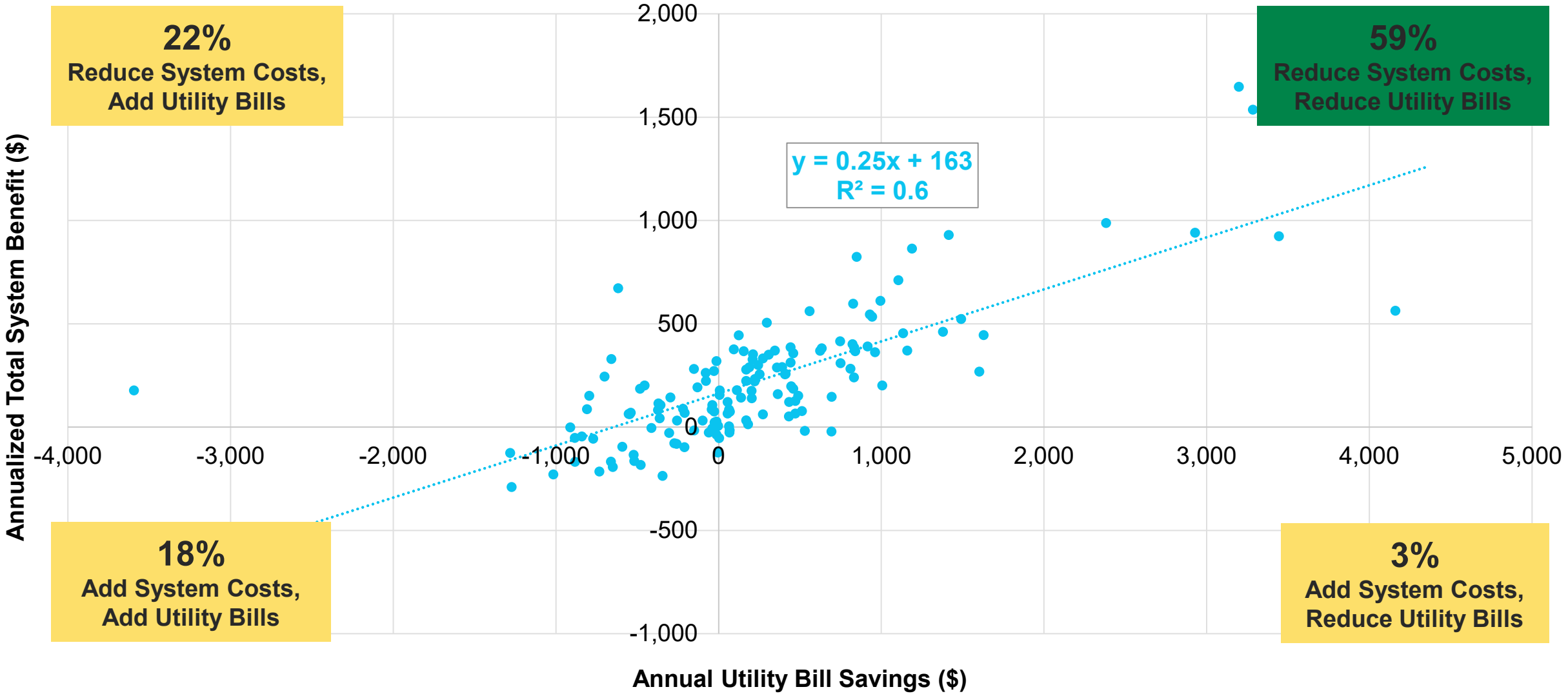
- **M** Median: $154
- **N** Mean: $264
- **S** Std Dev: $982 (*372% of mean*)

  % of Sample >0: 59%

Starting to coalesce into a bell curve, but long tails in both directions. Higher risk of substantial negative and positive outcomes



System Benefit vs Bill Savings: 143 Northern CA Heat Pump HVAC Retrofits



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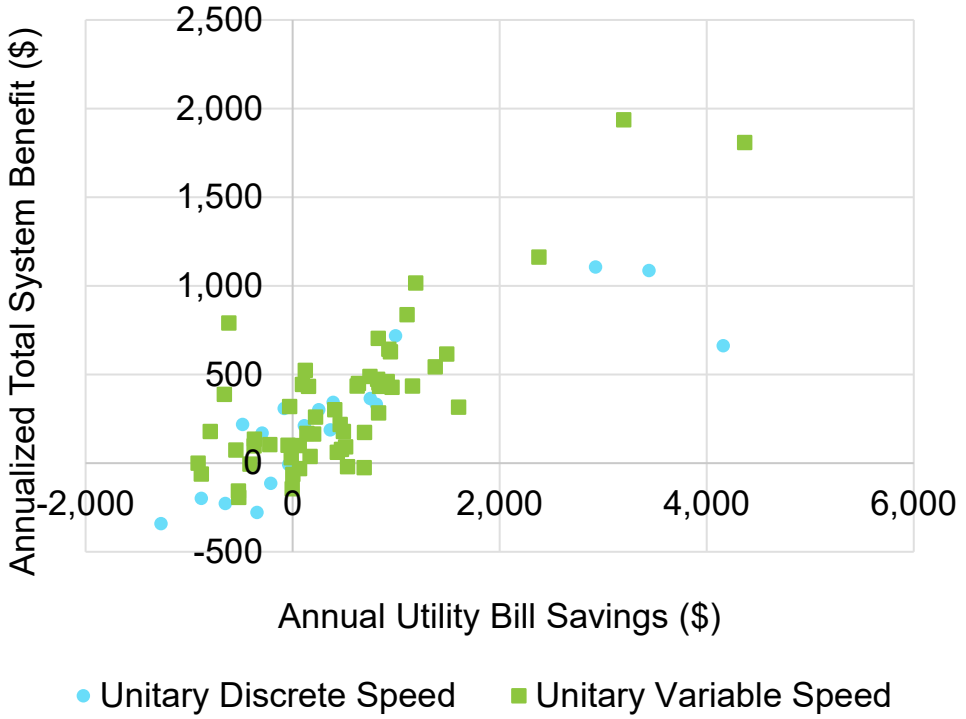
Savings Drivers

Which project features help maximize grid benefit and bill savings?

Heat Pump Compressor Type

N = 76 (Unitary Systems Only, no Mini-Splits)
Region = Northern California

Compressor Type	Discrete Speed	Variable Speed
Number of Projects	20	56
Median Total System Benefit	$215/yr	**$272/yr**
Median Utility Bill Savings	$55/yr	**$445/yr**
% with +TSB and +Bill Savings	50%	**64%**



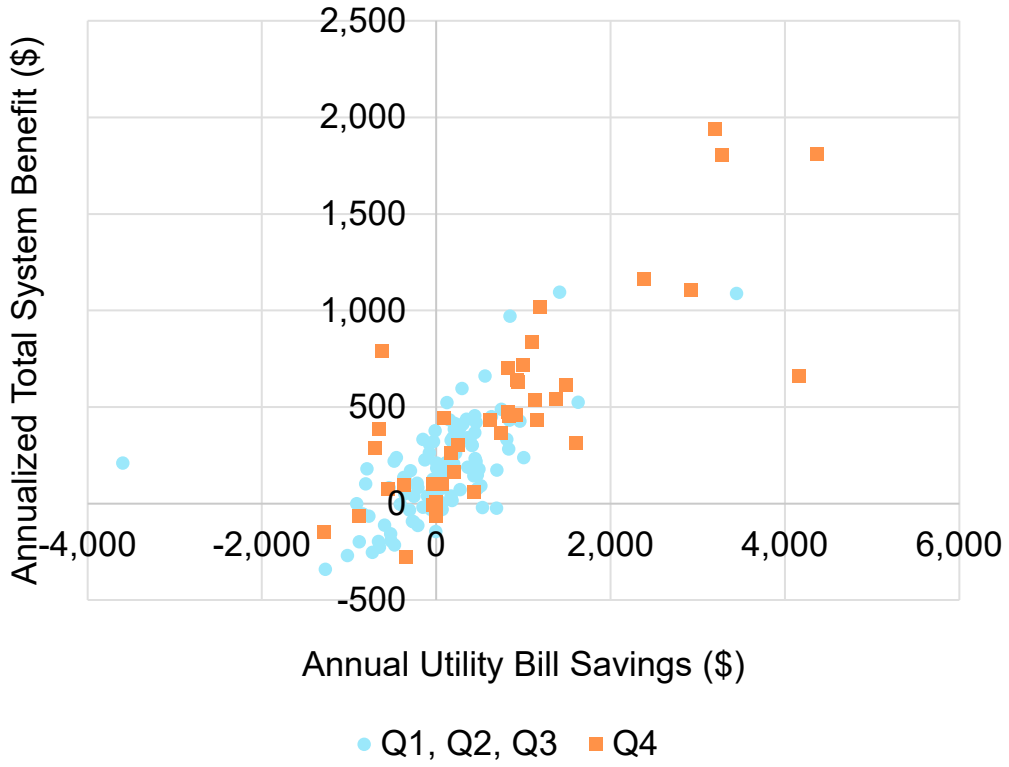
Among unitary heat pump HVAC, systems with variable-speed compressors had statistically significantly[1] greater utility bill savings than discrete speed. Mini-splits have lower bill savings in part due to infrequent (27%) replacement of AC units

[1] Measured using one-tailed Wilcoxon Rank Sum Test with a 5% significance level. The difference in Total System Benefit was not found to be statistically significant for this sample

Pre-Retrofit Cooling Load

N = 140
Region = Northern California

[Quartile] Pre-Retrofit Cooling Load	[1] Minimal Cooling	[2] Minimal Cooling	[3] Some Cooling	[4] Super Cooler
Number of Projects	34	26	43	40
Median Total System Benefit	$143/yr	$171/yr	$179/yr	**$440/yr**
Median Utility Bill Savings	-$20/yr	$88/yr	$154/yr	**$786/yr**
% with +TSB and +Bill Savings	47%	58%	51%	**70%**



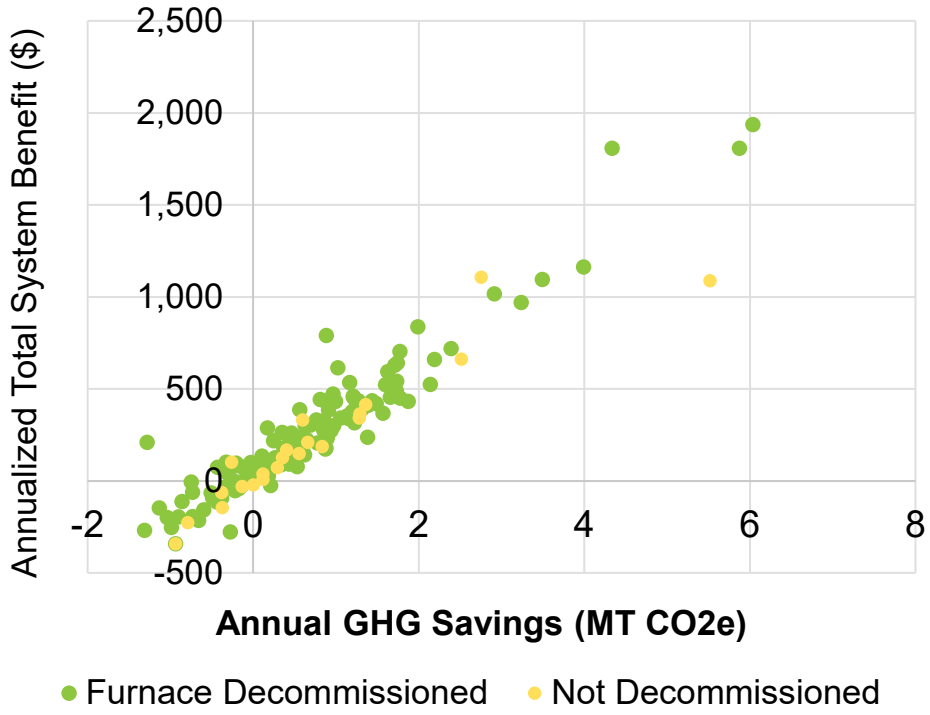
Homes with the top 25% highest cooling load before participating had statistically significantly[1] greater total system benefit and customer utility bill savings than the rest

[1] Measured using one-tailed T-test with a 5% significance level and one-tailed Wilcoxon Rank Sum Test with a 5% significance level

Furnace Decommissioning

N = 143
Region = Northern California
All homes used natural gas furnaces

Furnace Decommissioned	No	Yes
Number of Projects	22	121
Median Total System Benefit	$138/yr	**$227/yr**
Median Utility Bill Savings	$154/yr	$154/yr
% with +TSB and +Bill Savings	55%	57%
Median GHG Savings	0.38 MT CO2e/yr	**0.62** MT CO2e/yr



Homes where the furnace was fully decommissioned **did not** have greater utility bill savings. They **did** have greater median total system benefit and GHG emissions savings, but not to a statistically significant extent.

3 Next Steps

How can analysis like this be used by decarbonization programs?

Next Steps

Expand Sample Size

- Further explore preliminary bill impact findings with larger metered sample size later in 2024
- Analysis by rates, climate zone, etc.

Compressor Type

- Measure incremental cost of variable speed
- Require and/or pay higher incentives for variable speed

Pre-Retrofit Cooling Load

- Target high cooling homes with utility marketing and paid media
- Offer higher incentives and/or specialized sales tools to contractors who convert “super cooler” homes to HP

Furnace Decommissioning

- Train contractors to commission dual-fuel systems
- Offer higher incentives for best gas-saving configurations

Get Involved!

Visit our public reporting website to learn more about:

- Incentives
- Regional Pilots
- Quick Start Grants
- Project Data
- Energy Impacts (coming soon!)

Public Reporting Website
techcleanca.com/

Preliminary Customer Bill Impacts Analysis:
techcleanca.com/about/reporting/

Thank you

Dylan Sarkisian
Senior Data Scientist
TECH.Data@energy-solution.com

Energy Solutions

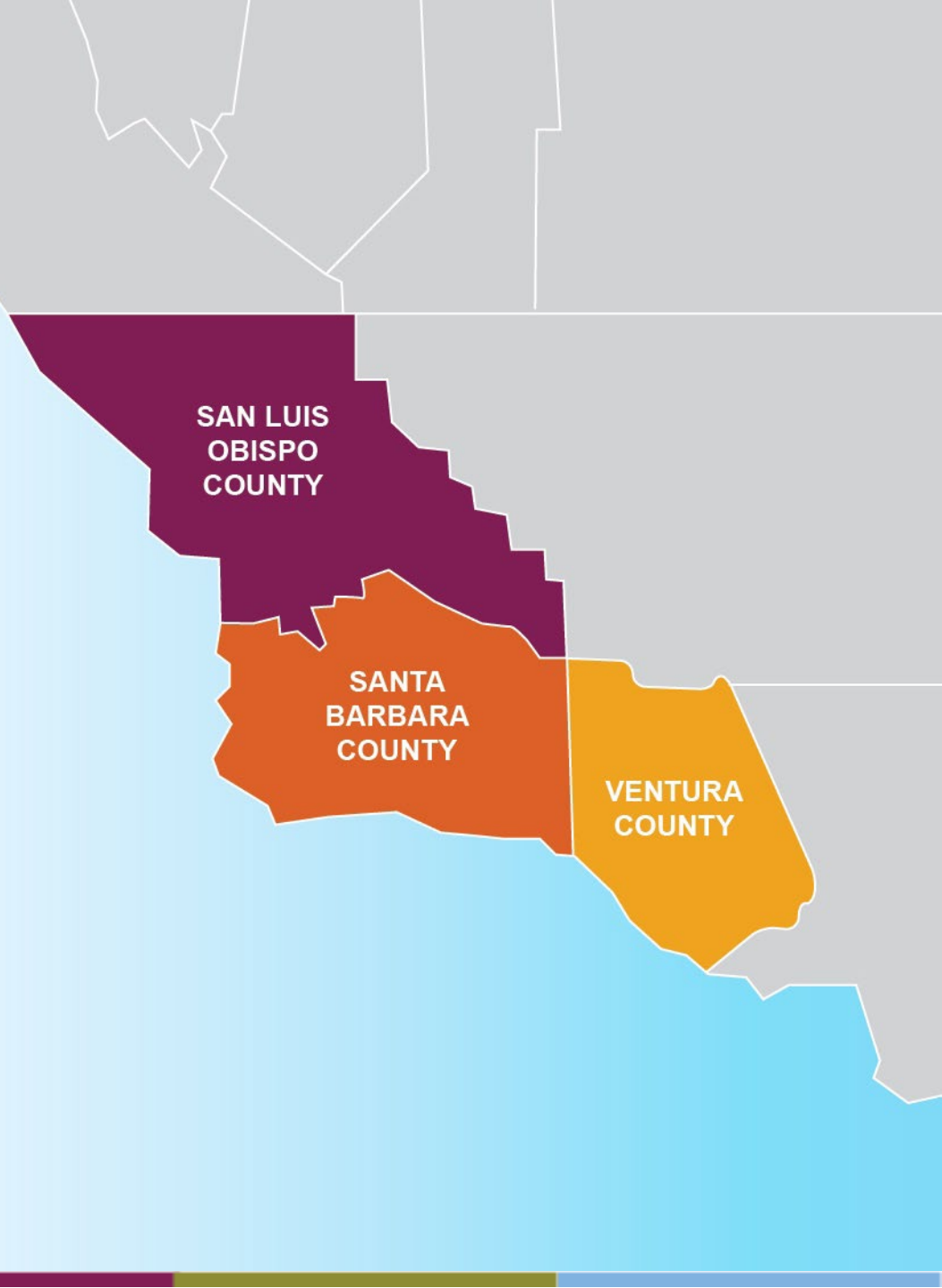
3C-REN's NMEC Residential Program

Single Family Home Energy Savings

March 21, 2024 | April Price

3C-REN: Tri-County Regional Energy Network

- Three counties working together to improve energy efficiency in the region
- Services for:
  - **Building Professionals:** industry events, training, and energy code compliance support
  - **Households:** support with home energy upgrades
- Funded by ratepayer dollars that 3C-REN returns to the region
- Focus on Hard to Reach Customers!



3C-REN HOME ENERGY SAVINGS

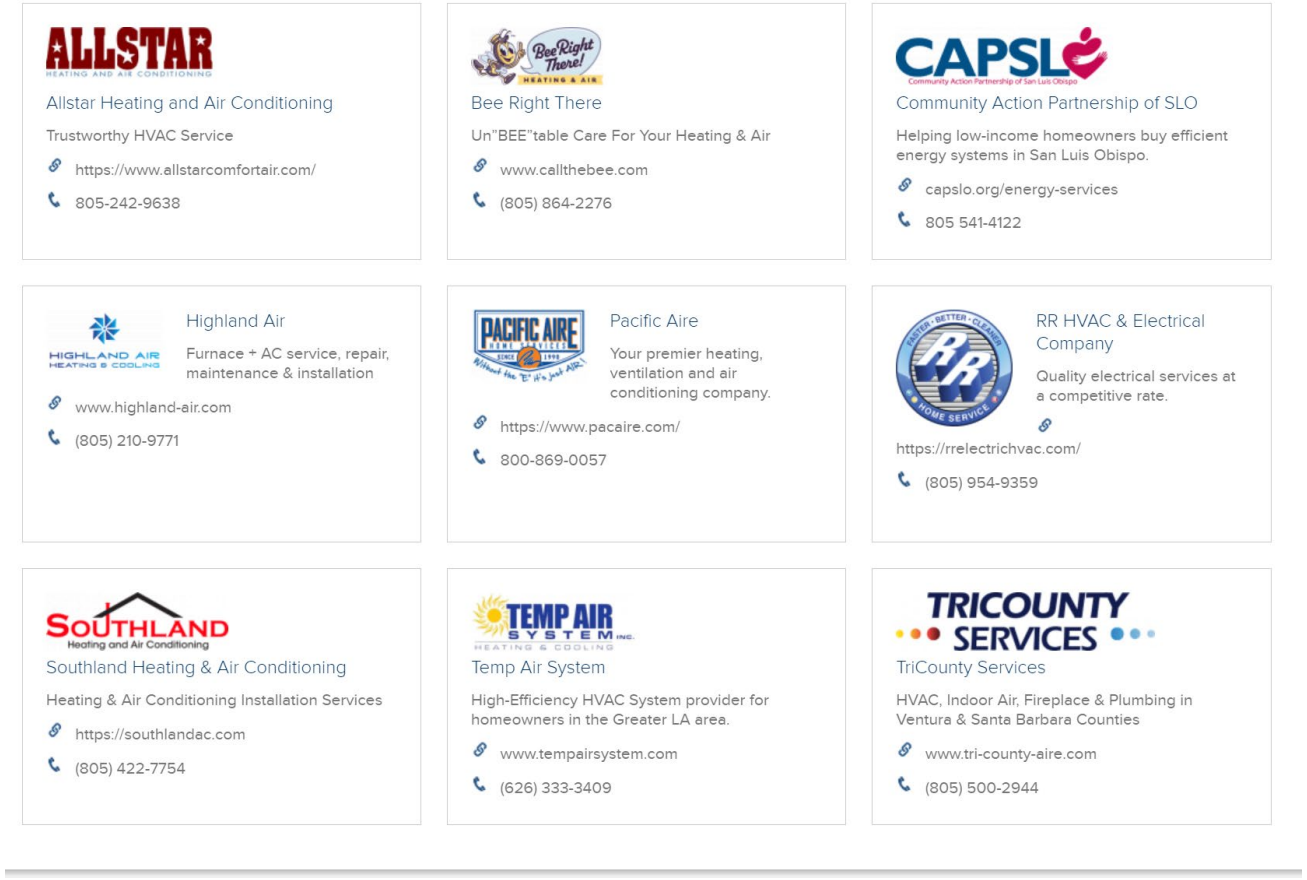
Single-Family Program

- Discounted pricing available from enrolled contractors—**up to 75% off project costs**.
- Projects that save energy (gas or electricity)* are eligible for incentives when you work with a 3C-REN enrolled contractor.
- The actual incentive depends on how much energy the project will save.

*not solar

Enrolled Contractors

Example: HVAC Enrolled Contractors



Allstar Heating and Air Conditioning
Trustworthy HVAC Service
https://www.allstarcomfortair.com/
805-242-9638

Bee Right There
Un"BEE"table Care For Your Heating & Air
www.callthebee.com
(805) 864-2276

Community Action Partnership of SLO
Helping low-income homeowners buy efficient energy systems in San Luis Obispo.
capslo.org/energy-services
805 541-4122

Highland Air
Furnace + AC service, repair, maintenance & installation
www.highland-air.com
(805) 210-9771

Pacific Aire
Your premier heating, ventilation and air conditioning company.
https://www.pacaire.com/
800-869-0057

RR HVAC & Electrical Company
Quality electrical services at a competitive rate.
https://rrelectrichvac.com/
(805) 954-9359

Southland Heating & Air Conditioning
Heating & Air Conditioning Installation Services
https://southlandac.com
(805) 422-7754

Temp Air System
High-Efficiency HVAC System provider for homeowners in the Greater LA area.
www.tempairsystem.com
(626) 333-3409

TriCounty Services
HVAC, Indoor Air, Fireplace & Plumbing in Ventura & Santa Barbara Counties
www.tri-county-aire.com
(805) 500-2944

Learn More: https://www.3c-ren.org/for-residents#!directory

3C-REN Eligible Upgrades: Heat Pumps & Beyond

3C REN

Program Priorities: HTR and Electrification

- Incentives for Hard to Reach (HTR) customers are 3X higher than for market rate customers
- For Electrification projects, we increased the value of therm savings and devalued the kWh impacts

Incentives

Heat Pump HVAC System

- $3,000 average (but big variance)

Heat Pump Water Heater

- $1,000 average

All energy efficiency projects in 2023

- Market-rate customer incentives were clustered in the $500-$5,000 range

Hard to Reach customers receive 3x the incentive dollars from 3C-REN

Incentive Pathway

1) Contractor talks to a customer about a project that saves money.

2) Contractor estimates the energy savings associated with the project, and submits the project to Recurve

3) Contractor is paid half of the estimated incentives

4) Contractor pays the customer all of the upfront payment (shown on customer invoice)

5) Contractor is paid the balance of the incentive over the year following installation based on ACTUAL energy savings (performance payment)

Role of the Aggregator

- Support contractors with energy savings calculations
- Advance incentive dollars
- Support electrification planning and HTR customer support
- Opportunity: Support with layering incentives

Vision

- HTR Customers are prioritized by contractors
- Prices for EE and Electrification projects drop in our region
- Contractors sell more electrification projects because of higher incentives and become comfortable with electrification
- Customers do comprehensive energy upgrades
- Our incentives, when stacked with other programs result in a “Direct Install-like” experience for HTR customers.

Successes

496 Total Projects

227 HVAC Heat Pump Projects

30 Heat Pump Water Heaters

(Other projects include pool pumps, lighting, HVAC upgrades, insulation)

~20 active contractors

46 HVAC Heat Pump projects accessed TECH Incentives

17 Heat Pump Water Heater projects accessed TECH Incentives

Challenges

- 20 HTR projects to date
- Homes with low energy use= lower incentives
- Many projects are single measure
- Currently unable to serve propane customers

Opportunities

Grow Outreach Efforts

- Work with Promoters
- Outreach to Mobile Home Communities

New aggregators= more comprehensive upgrades

- Environmental Nonprofits, CCAs (broader electrification planning support)

Multifamily

- 3C-REN currently serves our Multifamily customers through a different program that is offered to property managers.

Thank you!

For more info:
3c-ren.org

For questions:
info@3c-ren.org

aprice@countyofsb.org

TRI-COUNTY REGIONAL ENERGY NETWORK
SAN LUIS OBISPO • SANTA BARBARA • VENTURA

Program and Incentive Design Panel

Sealed

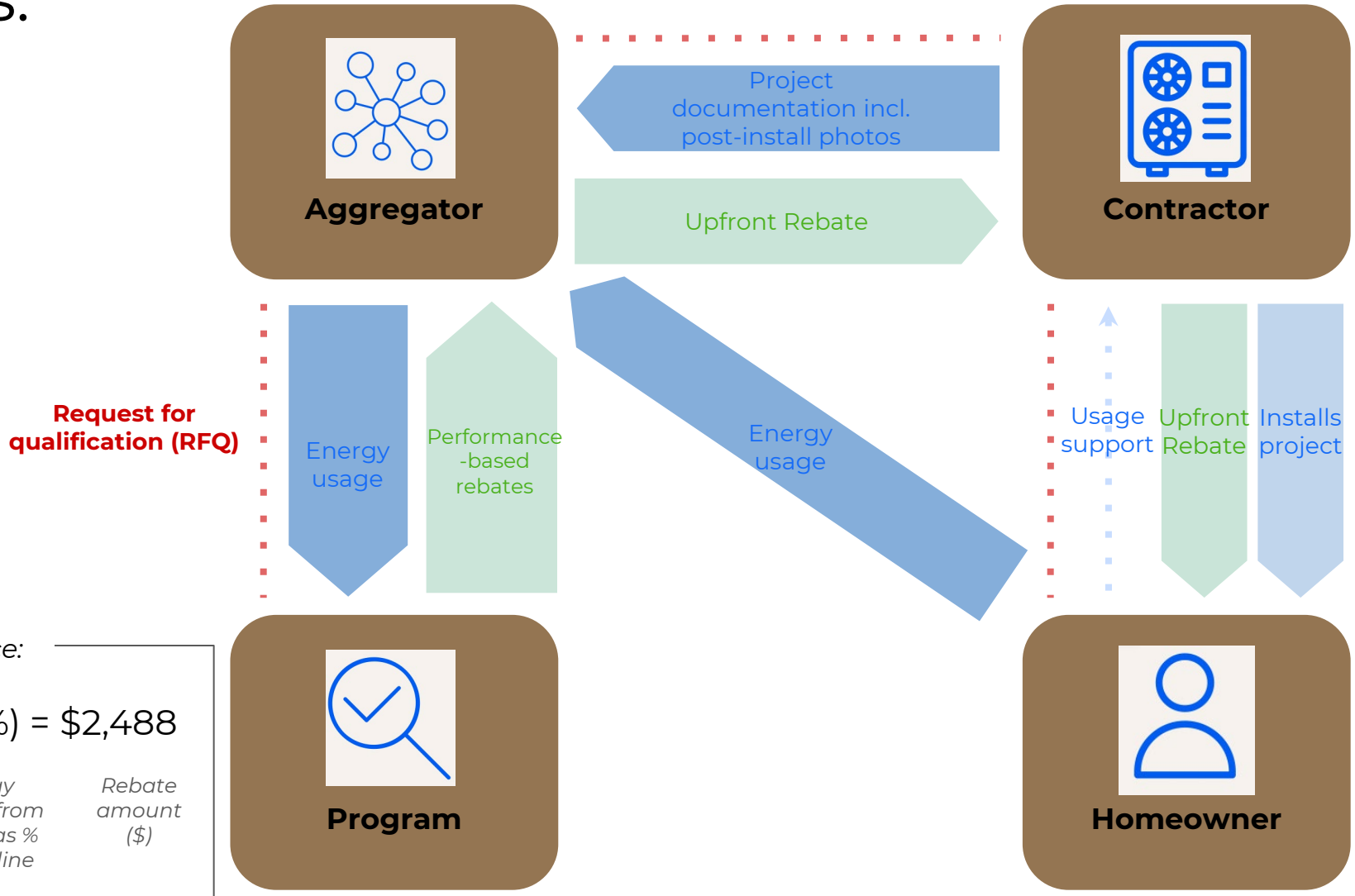
Meet Sealed.

Sealed provides software and solutions to contractors, enabling them to install more home weatherization and electrification projects and grow their business.

Sealed also serves as an aggregator of projects for utility and government incentives, handling all rebate processing and payment on behalf of contractors.

Measured Savings: How it all works

- Cash
- Contract
- Services / Data



Example calculation - pay-for-performance:

($0.55/kWh) * (18,127 kWh) * (25%) = $2,488

Per-kWh incentive rate for CA ($/kWh))	*Avg. baseline annual energy usage for home in CA (kWh)*	*Energy savings from retrofit as % of baseline (%)*	*Rebate amount ($)*

California can leverage the ACC and other policy priorities to send price signals to the market

Sealed ingests **market signals and project information** to make accurate calculations and savings predictions...

Utility

Climate zone

Load shape of installed measures

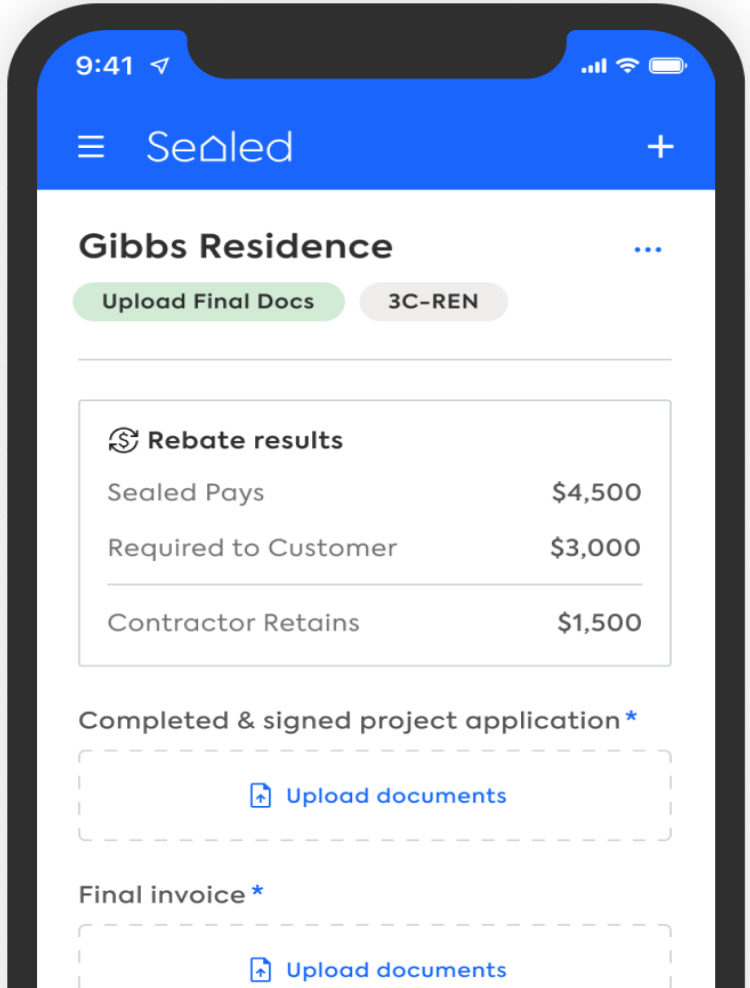
EUL of installed measures

Expected annual Therms and kWh savings

Annualized ACC values adjusted for load curves of each measure

Multipliers for local contractors, hard-to-reach customers, and electrification projects

...Resulting in **simple, upfront rebates** for contractors & customers



IRA HOMES gives states flexibility to prioritize certain goals, especially related to low-and-moderate income households

States have flexibility with HOMES to prioritize desired grid and GHG goals…

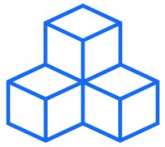
PART 2—RESIDENTIAL EFFICIENCY AND ELECTRIFICATION REBATES SEC. 50121. HOME ENERGY PERFORMANCE-BASED, WHOLE-HOUSE REBATES.

(b) APPLICATION.—A State energy office seeking a grant under this section shall submit to the Secretary an application that includes a plan to implement a HOMES rebate program, including a plan—(3) to value savings based on time, location, or greenhouse gas emissions;

…and provide low-and-moderate income households with the highest benefits

2X for Equity

- Incentives per project are doubled for low- or moderate-income (LMI) households
- Applies for both the measured and modeled pathways



Other adders

- There's additional ability for adders rather than just adjustments for LMI households

NOTE: The above represents Sealed's interpretation of the IRA statue and will require DOE approval
Source: Inflation Reduction Act - HR5376; Sec. 50121 (b) (3) here

Detail | IRA HOMES gives states ability to align grid-reliability goals and GHG goals into rebates

1 Decide what to index on

2 Determine the weightings*

Time	*Use the avoided cost curve (ACC) to determine the relative value of energy saved throughout year*
Location	*Use targeting to define energy savings in certain geographic areas as higher value*
Greenhouse gas emissions	*Use grid emissions intensity as weighting for valuing energy savings*

(*) Examples only. Not exhaustive list of possible options.
NOTE: The above represents Sealed's interpretation of the IRA statue and will require DOE approval

Illustrative example: targeting peak electric savings

Category	**Weighting factor**
Summer morning peak *Jun-Aug; 6-9a*	10x
Summer evening peak *Jun-Aug; 4-8p*	100x
Winter evening peak *Sept-Apr; 4-8p*	10x
All else	1x

Flexibility to choose weightings (which months, hours) and factors

CA can also prioritize grid constrained areas with HOMES

There's a few ways this could work:*

A ***Super incentives***

- E.g., if PG&E knows there's certain areas of territory that are grid constrained, can apply weightings for super incentives that deliver critical peak reductions

B ***Stacked incentives***

- E.g., PG&E could stack their own incentive for certain grid constrained areas of territory on top of HOMES

(*) Examples only. Not exhaustive list of possible options.
NOTE: The above represents Sealed's interpretation of the IRA statue and will require DOE approval

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Outreach Manager

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Thank you!

Sealed


NO
PARKING
8:30 AM TO 12:30 PM
MONDAY
STREET SWEEPING
Sealed

Discussion

Questions for Stakeholders

Incentive Structure

1. How should HOMES incentive structure related to kWh reduction be aligned with CPUC policy around the Total Systems Benefit (TSB) and Avoided Cost Calculator (ACC)?
2. What is best way to incentivize projects in grid-constrained locations?
3. How can federal funding help navigate some of the constraints with Total Resource Cost (TRC) requirements for residential projects?
4. How does P4P work when interval meter data is not available?
5. How should the program control for the risk of contractors underestimating savings and retaining excess savings?

Public Comment

Instruction

- 3 minutes or less per person
- 1 representative per organization

Zoom App/Online

- Click “raise hand”

Telephone

- Press *9 to raise hand
- Press *6 to (un)mute

When called upon

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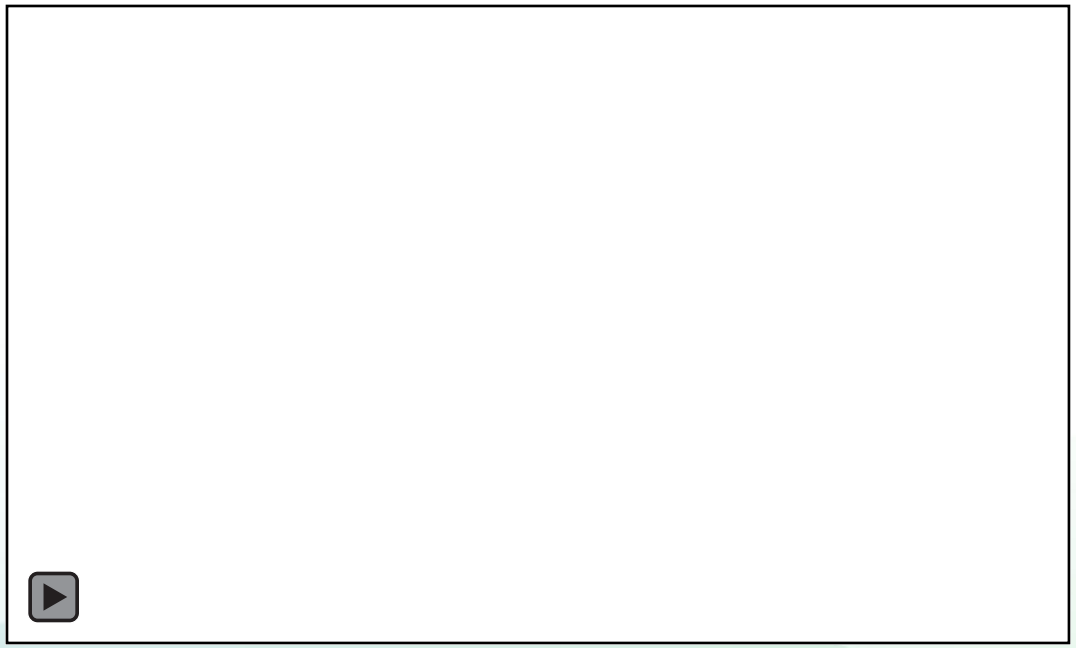
3-MINUTE TIMER



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On Break

Administration & Implementation Considerations

Pay for Performance Program Roles

Program Administrator

- Allocate funding
- Design & oversee program
- Hire implementers
- Provide or arrange for meter data
- Compliance reporting

Implementer

- Targeting, marketing and outreach
- Manage and support aggregators
- Distribute incentive payments

M&V Provider

- Perform NMEC analysis
- Calculate incentive payments

Aggregator

- Verify eligibility (customer, measures, etc.)
- Estimate project incentive value
- Finance incentive amount (prior to payout)
- Provide data to program

Installer

- Scope projects
- Engage customers
- Collect site and project data
- Install projects

Can be same entity

Can be same entity

Additional HOMES Requirements

Program Administrator

- Justice 40 requirements
- Contractor requirements

Implementer

QA/QC:
- Post project desktop audit
- Site/virtual inspections
- Third party certificate to customer

- DOE rebate reservation system integration

M&V Provider

Eligibility checks:
- Incentive passed to customer
- Income verification
- Equipment: ENERGY STAR, etc.
- No duplication with other federal awards
- Total up-front funding does not exceed project cost
- Financing cooling off period

Aggregator

Contractor/ Installer

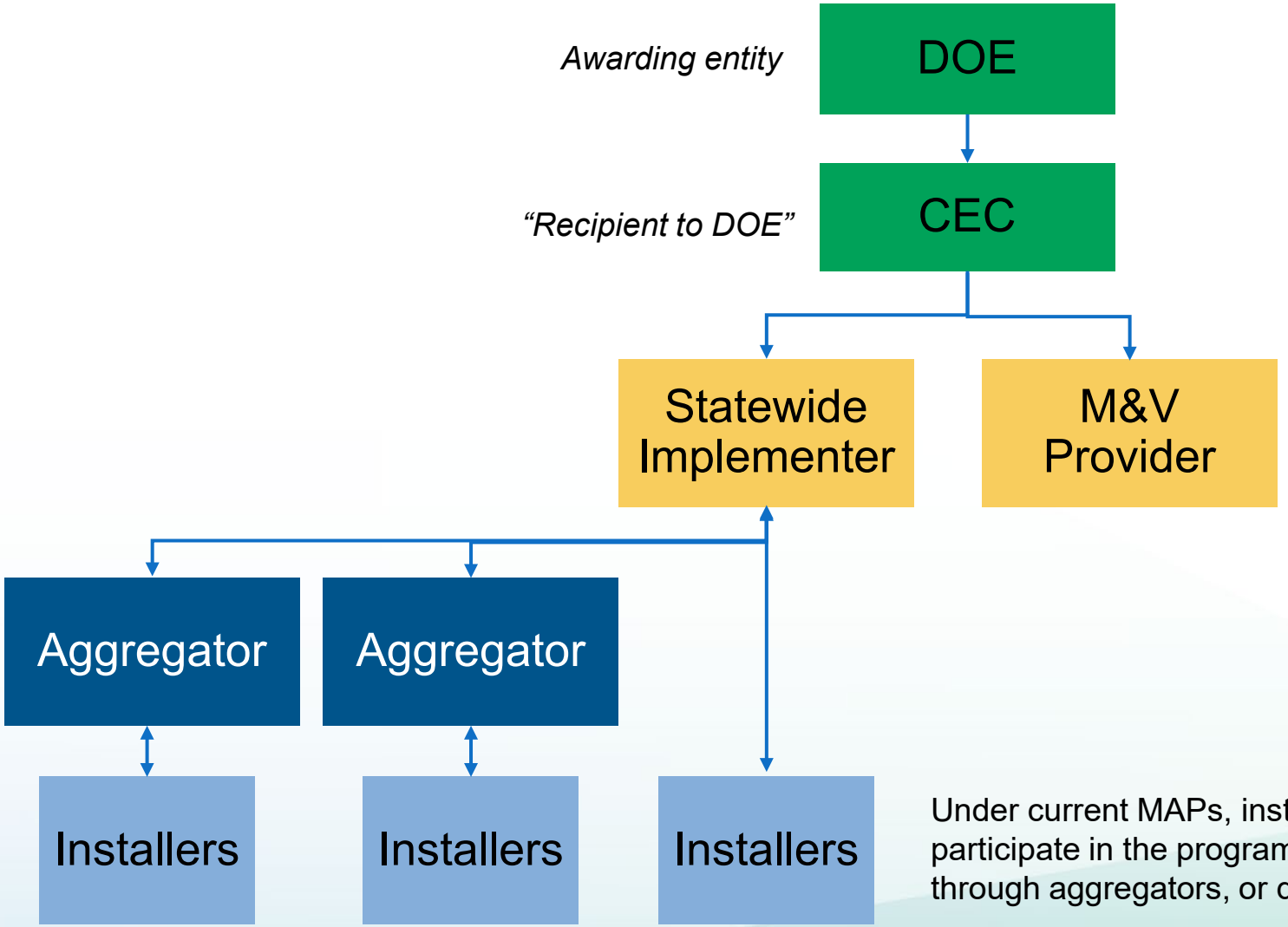
- Home assessment (BPI 1100)
- Bill Impact Disclosure to customer

?

?

?

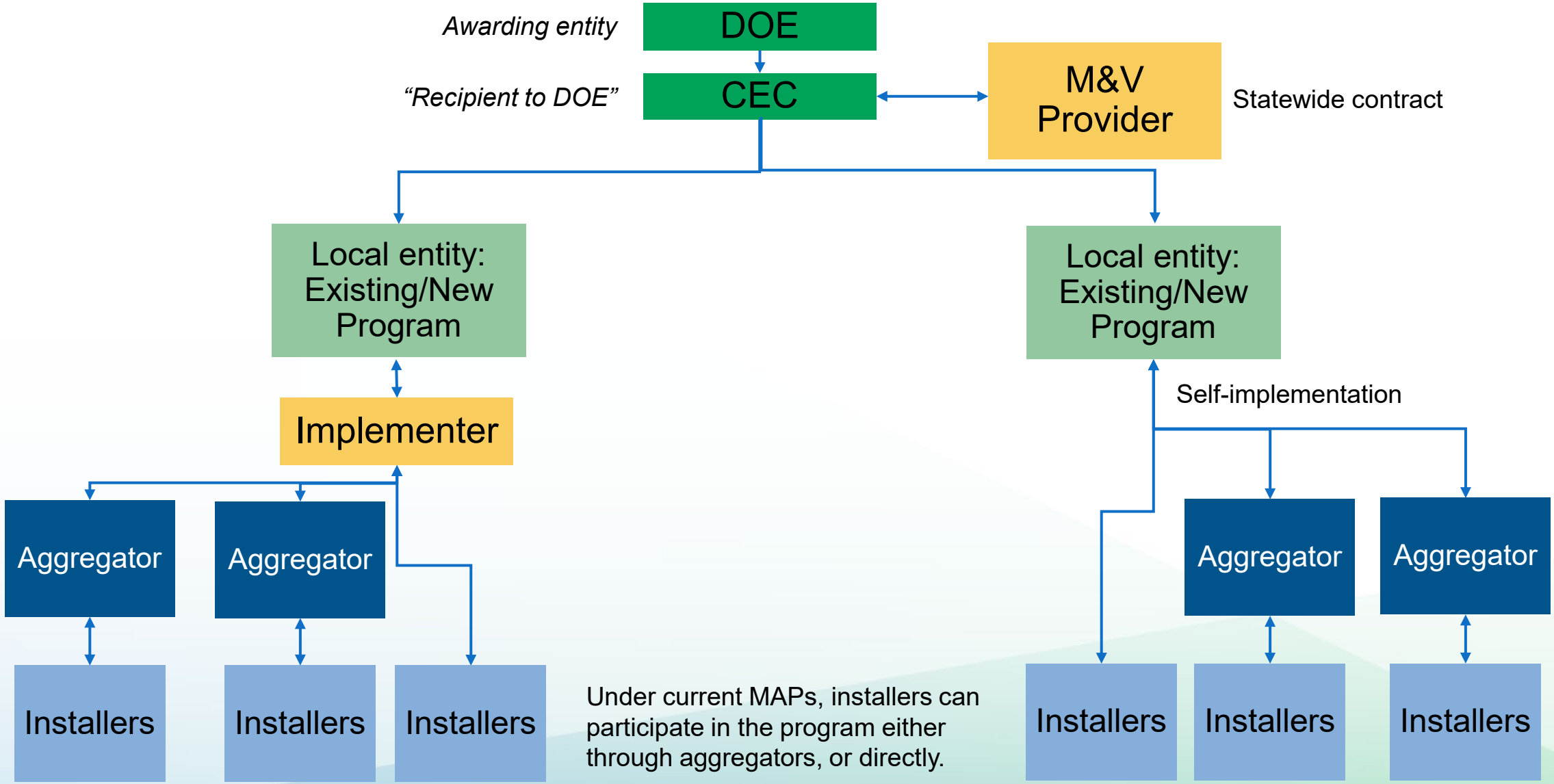
Option 1: Single, State-Administered Program



State could contract with an M&V provider in addition to the Implementer, or M&V could be a component of the Implementer Scope of Work

Under current MAPs, installers can participate in the program either through aggregators, or directly.

Option 2: Pass Through Funding to Local Programs




RECURVE

The Grid is a Balance of Supply and Demand

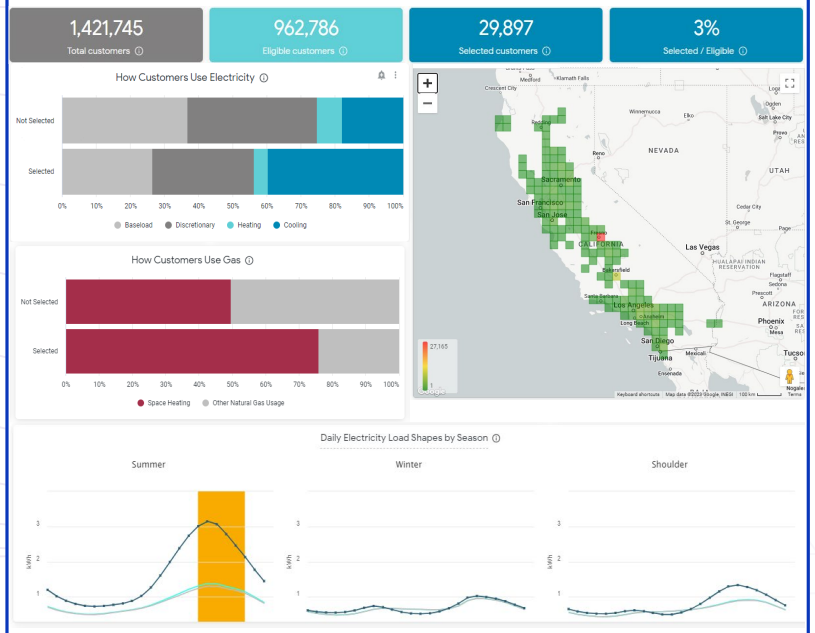
Supply ☰ Demand

Supply: Energy Resources

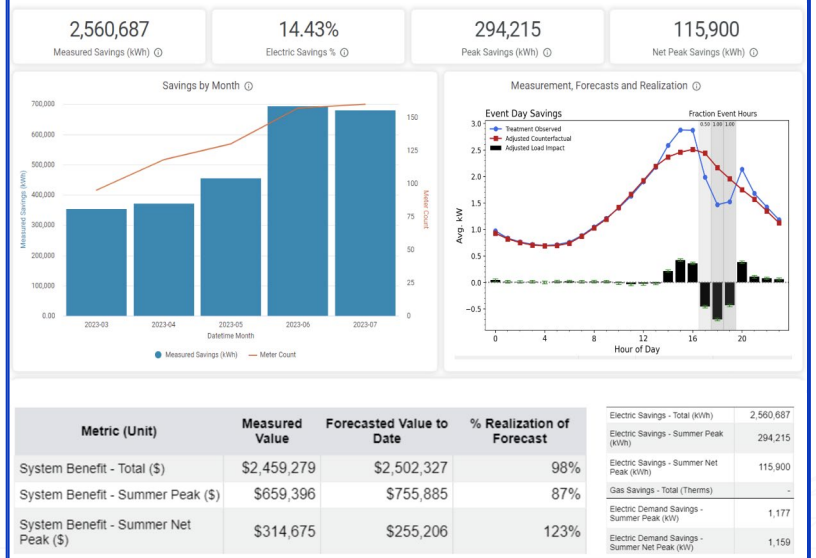
Demand: Load Modifying Resources

Recurve Solutions

Resource Planner



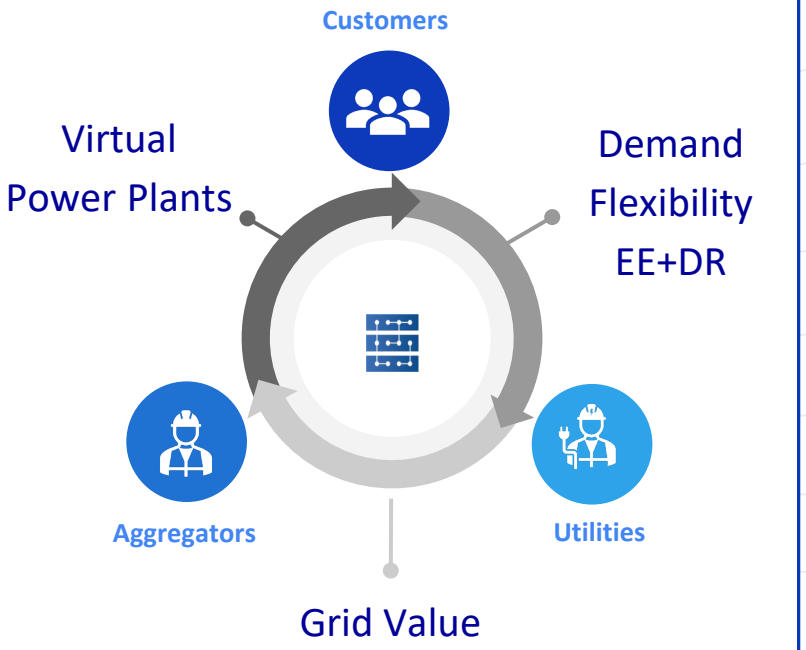
Fleet Manager



Metric (Unit)	Measured Value	Forecasted Value to Date	% Realization of Forecast
System Benefit - Total ($)	$2,459,279	$2,502,327	98%
System Benefit - Summer Peak ($)	$659,396	$755,885	87%
System Benefit - Summer Net Peak ($)	$314,675	$255,206	123%

Electric Savings - Total (kWh)	2,560,687
Electric Savings - Summer Peak (kWh)	294,215
Electric Savings - Summer Net Peak (kWh)	115,900
Gas Savings - Total (Therms)	-
Electric Demand Savings - Summer Peak (kW)	1,177
Electric Demand Savings - Summer Net Peak (kW)	1,159

DEMAND FLEXMARKET



Meter Analytics Platform

Automated data intake, paralyzed cloud-computing, open-source modeling and analytics, SOC 2 / NIST Security

Considerations: Local Programs v. Statewide

Local

Speed of lauch tied to existing infrastructure

- Offer speed of launch
- IOU, CCAs, RENs are pioneers of the approach bring experience and infrastructure
- Market access programs are required for all major IOUs
- CCA, Muni, IOUs can value load and reliability; stack with IRA incentives or other sources

Centralized

Comprehensive coverage with statewide implementation

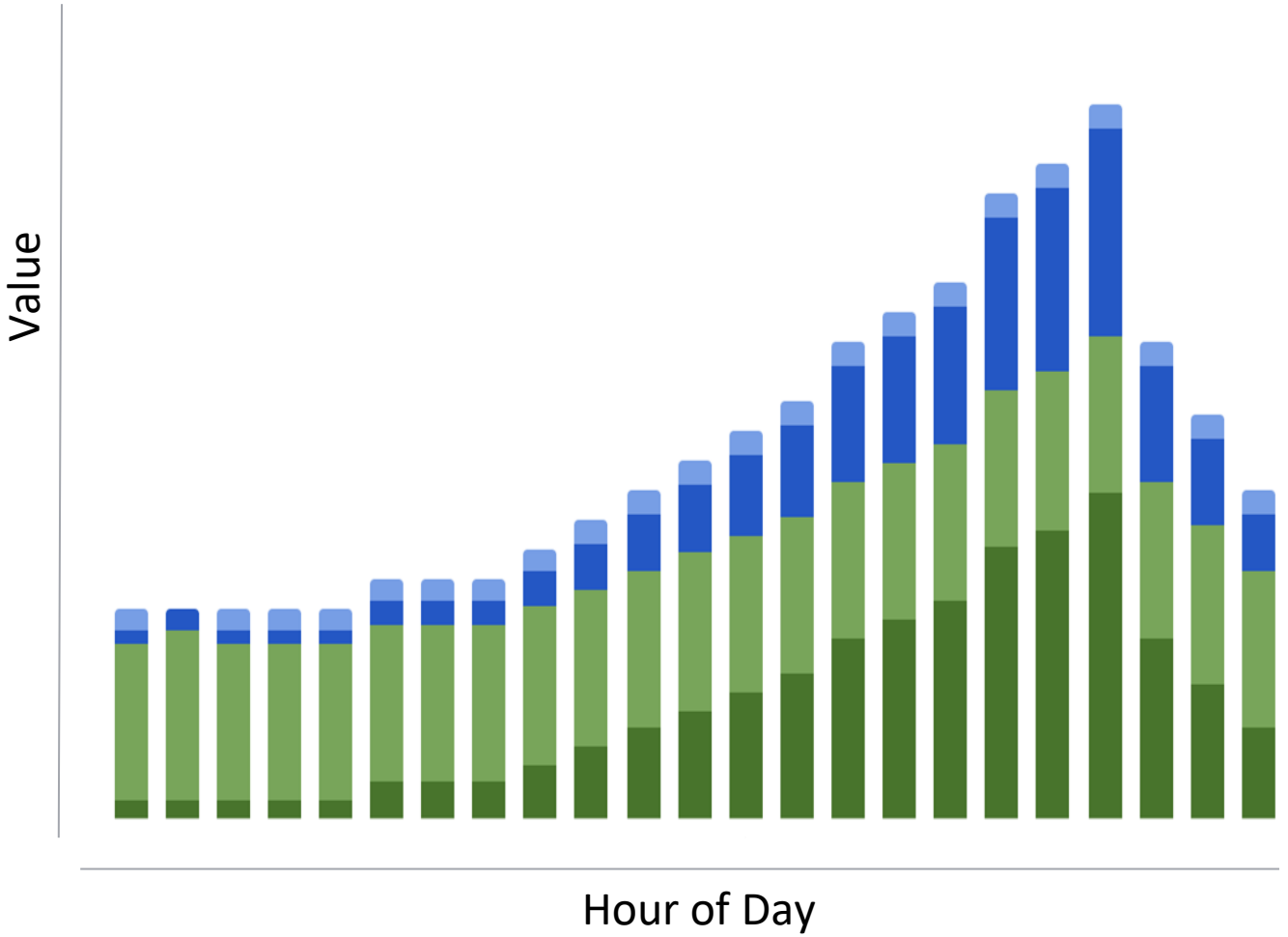
- CEC has statewide implementation authority for other programs
- A statewide P4P model would provide access to the whole state
- Data infrastructure is available
- Reporting simplicity, value stacking not as clear

Synergize Multiple Goals with Value Stacking

Quantify Value

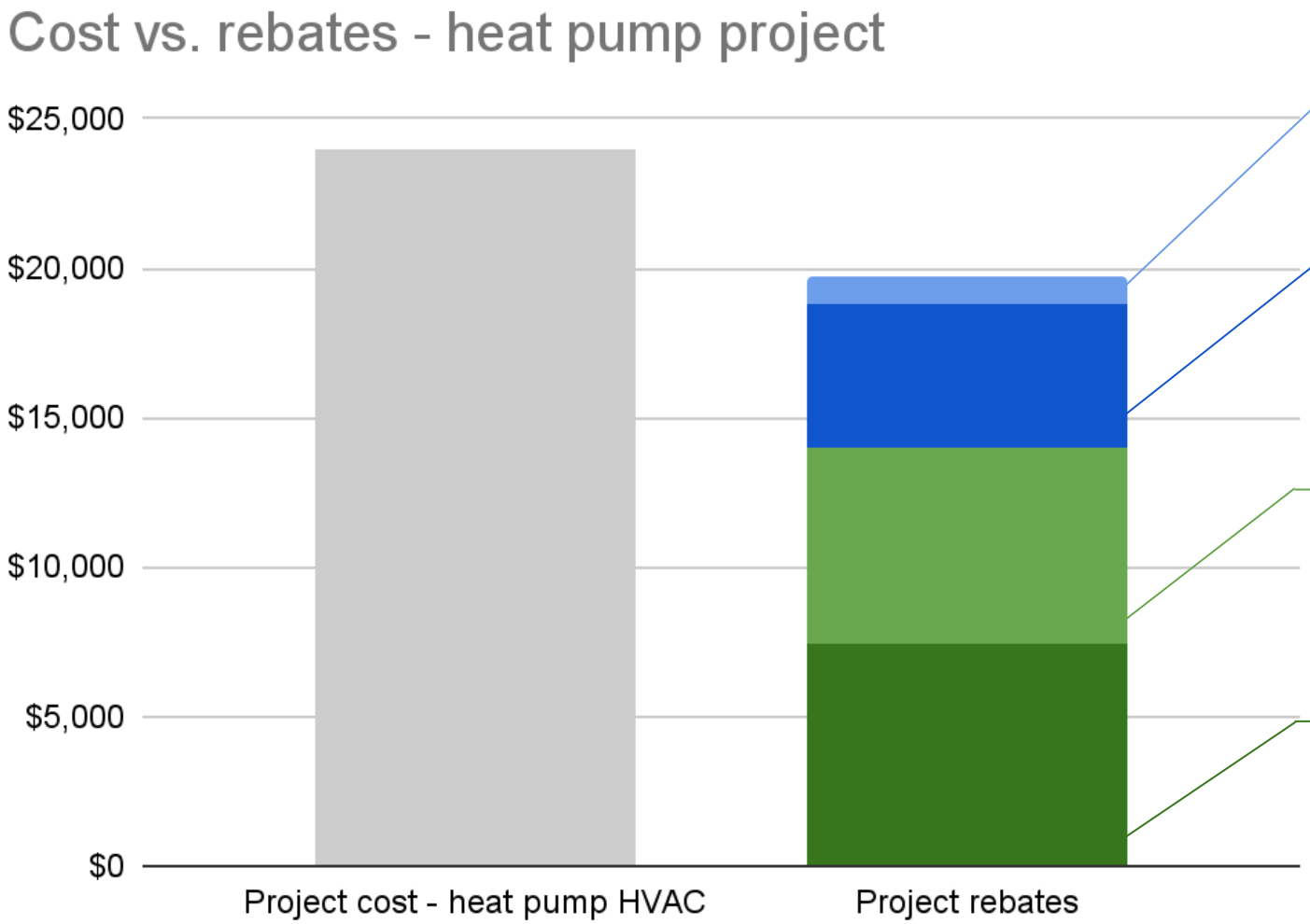
- Technology Access
- Avoided Energy & Capacity Costs
- Infrastructure
- Climate

Time-variable Price Signal



Quality Delivery Aligned with Policy Goals

Synergize Multiple Goals with Value Stacking



TECH Clean CA
*$1,000 for **access** to heat pump HVAC*

3C-REN
*~$4,800 for **performance** of heat pump HVAC - **grid value**, LMI - **equity focus***

IRA HEAR
*$6,500 for wiring upgrades and electric panel upgrade - **infrastructure** barrier*

IRA HOMES
*~$7,400 for LMI CA home on heat pump - **equity barrier, climate***

Average project cost based on historical data for heat pump projects in 3C-REN plus amount for wiring and electric panel upgrades covered by HEAR. IRA HOMES rebate of $7,400 based on Sealed modeling here for CA LMI home switching from natural gas in measured pathway, using 150% of average home energy use in baseline. $6,500 HEAR rebate is for amount coverable for auxiliary upgrades. 3C-REN rebate shown is the 50% that goes to homeowner for a hard-to-reach customer based on historicals tracked by Sealed. TECH Clean CA is a flat rebate amount for HVAC.

Discussion / Public Comment

Questions for Stakeholders

Administration and Implementation

1. What are the tradeoffs between a statewide and locally-administered HOMES program(s)?
2. What does layering of incentives look like with multiple P4P funding streams?
3. Which entities are best poised to fill the various HOMES requirements that are not currently part of Market Access Programs?
4. What are the best options to minimize and allocate financing costs during the 9 to 12-month M&V period prior to when the HOMES rebate can be paid?

Public Comment

Instruction

- 3 minutes or less per person
- 1 representative per organization

Zoom App/Online

- Click “raise hand”

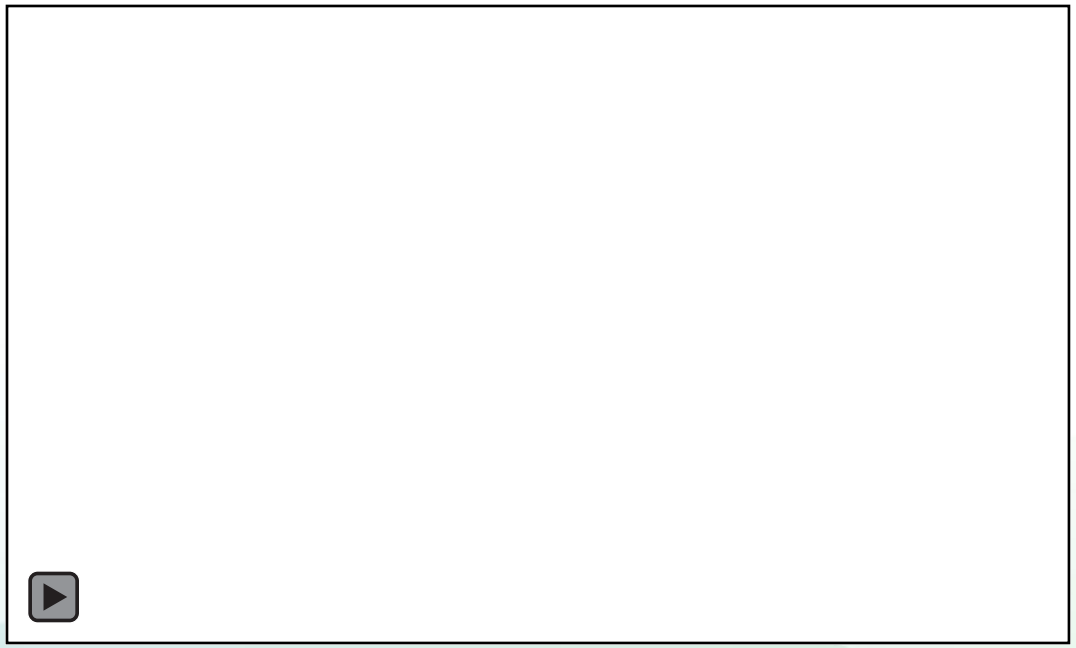
Telephone

- Press *9 to raise hand
- Press *6 to (un)mute

When called upon

- Public Advisor will open your line
- Unmute, spell name, state affiliation, if any

3-MINUTE TIMER



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Open Public Comment Period

Public Comment

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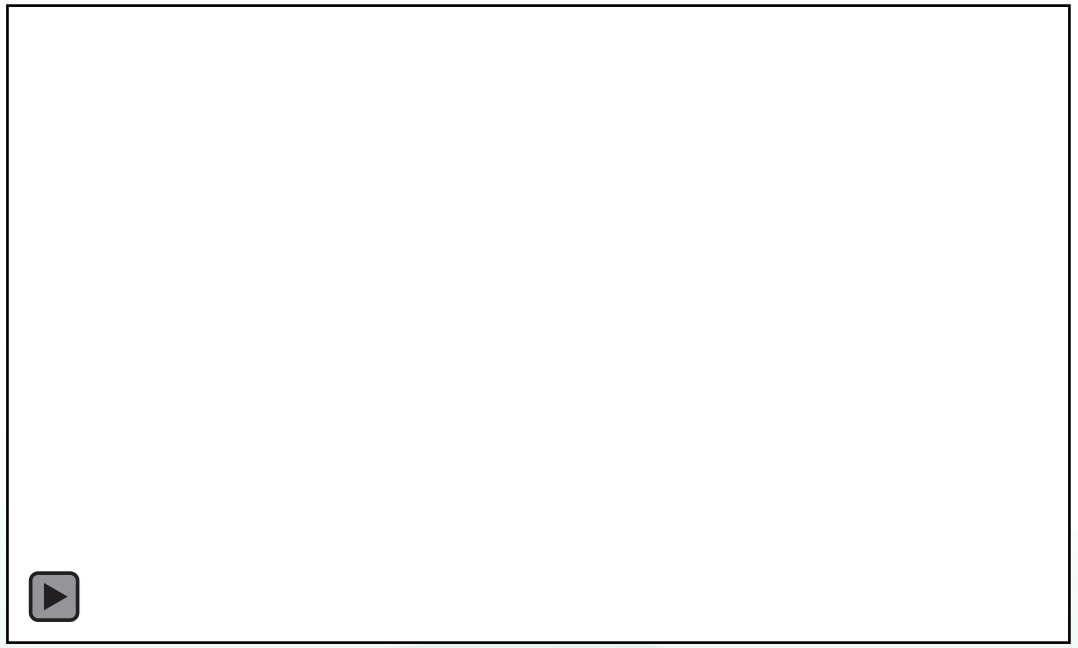

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Next Steps

Questions for Stakeholders

Scale and market transformation

1. Residential P4P programs in CA have been small. How can a P4P approach scale to move tens of millions of dollars in residential decarbonization incentives quickly?
2. Can existing residential P4P programs adjust to incorporate HOMES requirements?
3. How can the unique needs of multifamily properties be addressed through a residential P4P program?

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Comments Due by April 5, 2024

Written comments may be submitted to the Docket Unit by 5:00 p.m. on **April 5, 2024**

Please see the notice for further information:

https://efiling.energy.ca.gov/GetDocument.aspx?tn=254790

Program and Staff Contacts

Program Webpage:

https://www.energy.ca.gov/programs-and-topics/programs/inflation-reduction-act-residential-energy-rebate-programs

Subscription Channel: Decarbonization Topics

Docket: **23-DECARB-01**

Staff Contact for Technical Information:

miriam.joffe-block@energy.ca.gov

Adjourn

Public Comment

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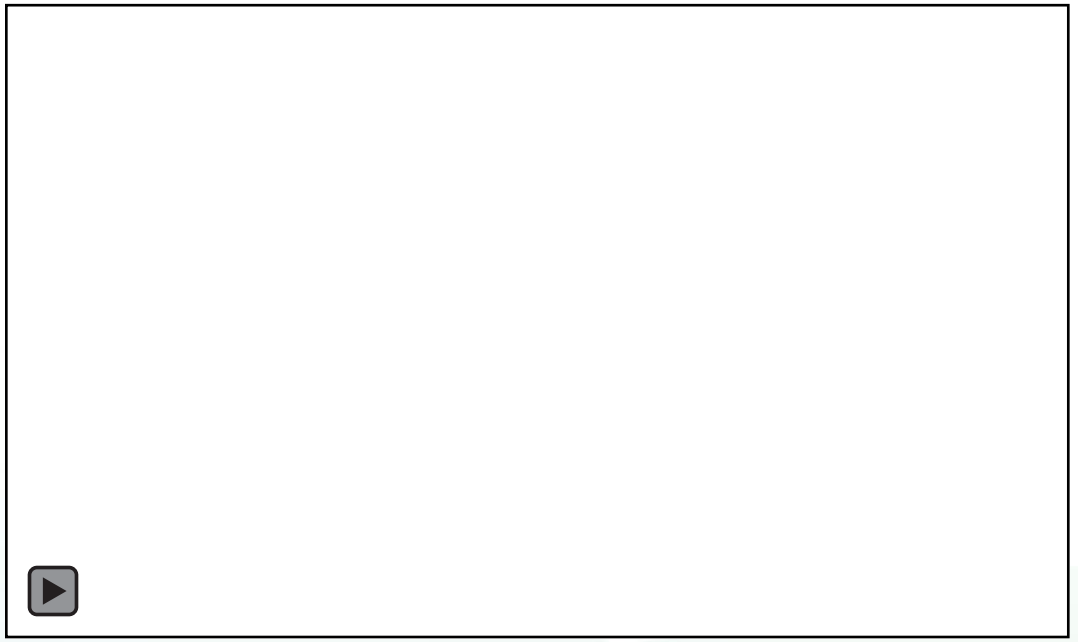

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