

Making Metered Energy Savings Programs Work for Your Community



TRI-COUNTY REGIONAL ENERGY NETWORK



June 26, 2024

Agenda

- Introductions
- Overview of Metered Energy Savings Programs
- Four Program Examples
- Discussion

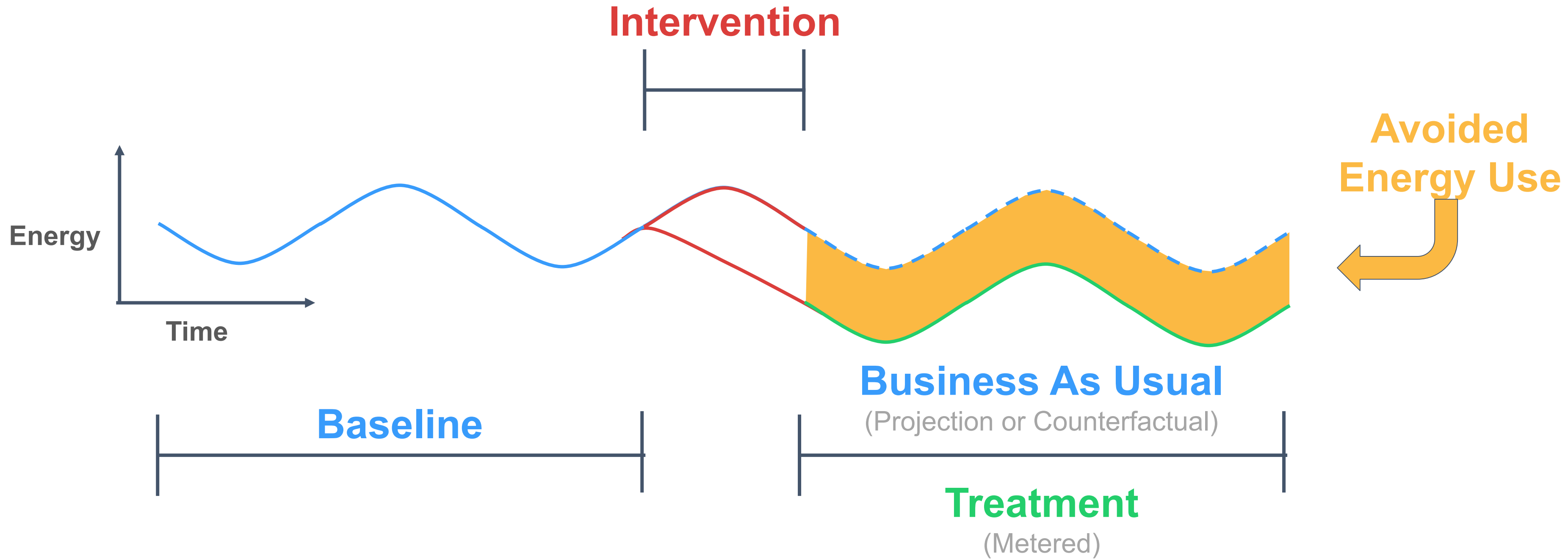


Metered Energy Savings Programs

- Energy efficiency incentive programs that pay based on the metered performance of upgrades.
- Instead of an implementer getting paid based on how many widgets (bulbs, etc.) they install, or how much energy is estimated to be saved, they are paid based on the actual kWh and therm savings they generate in the first 12 months after installation.
- Usually not based on a list of eligible measures- all based on energy savings.



Avoided Energy Use Calculations



How Are Incentives Calculated?

- Incentives are based on the customer's measured energy savings at the meter for 12 months after installation.
- All monitoring is performed using the building's existing utility meter.
- Payments are made to the contractor/aggregator quarterly over a one-year period.
- Better performance = higher payment to contractor/aggregator.



Time Element to Incentive Value

- Incentive payments are time dependent because they are based on the CPUC's Avoided Cost Curve.
- The Avoided Cost Curve: Every hour of the year has a value associated with energy savings: savings during peak hours are worth more.

Translation: Projects that achieve peak hour savings (that benefit the grid more) have higher incentive payments.



Role of the Aggregator

- Estimates energy savings associated with project
- Submits projects
- Receives incentive payments
- May be a contractor doing the work or may be a third party



Metered Energy Savings Programs: Terms

- **Pay for Performance (P4P):** Incentives depend on performance.
- **Population NMEC (Normalized Metered Energy Consumption):** Terminology used in California for a type of metered energy savings program. The metered energy data is normalized (based on weather) to measure savings.
- **Market Access Program:** Specific CPUC-defined funding set and program design that ran from June 2022 to March 2024 as an emergency response to the grid shortages that CA experienced in 2021, and that were forecasted for 2022.





MCE

A local, not-for-profit
electricity provider



MCE SERVICE AREA

4 Bay Area Counties

585,000 Accounts

1.5 million + Customers



MCE's NMEC-Based Programs



Peak Flex

Demand response

HVAC, BESS, EV



Commercial

Energy efficiency

Lighting, HVAC, etc.



Residential

Energy efficiency

HVAC, building shell,
whole home

Peak Flex Details

How does it work?

- MCE or aggregator enrolls customer site
- Flex Alert event trigger
- Energy reduction strategies deployed
- Event usage compared to baseline
- Net seasonal performance payment

2022 Results

- 11 events
- 2,227 customer sites
- 39,500 kWh total peak reduction (net)
- 3MW reduction was greatest impact



“Aside from bill savings and grid benefits, participating in MCE’s Peak FLEXmarket program will compensate us — at a rate 4–5 times greater than retail value — for the electricity we would have otherwise used.”

– Municipal Energy Manager

Commercial Details

How does it work?

- Aggregator develops project and estimates value
- Engineering review and incentive reservation
- Project installed and monitored for 12 months
- Upfront payment and quarterly thereafter

2021-2023 Program Results

- 97 projects
- 7.3 Million kWh
- 2022 realization rate- 115%



Residential Details

How does it work?

- Market rate designed program
- Aggregator develops and installs project
- Monitored for 12 months
- Upfront payment and quarterly thereafter

2022-2023 Program Results

- Cohort of smart thermostats- poor results
- Contractor outreach and survey
- Deemed programs out competed



Key strategies for Residential

- Encourage whole home projects
- Establish easy enrollment process
- Include electrification kicker

Summary



Why are meter-based programs preferred?

- Easier and cheaper to administer
- Streamlined regulatory process
- Reflect actual grid value of projects

What to expect?

- Measurement and verification methodology will improve
- Aggregators will optimize projects
- State and federal funding alignment
- Load shifting programs

Questions?



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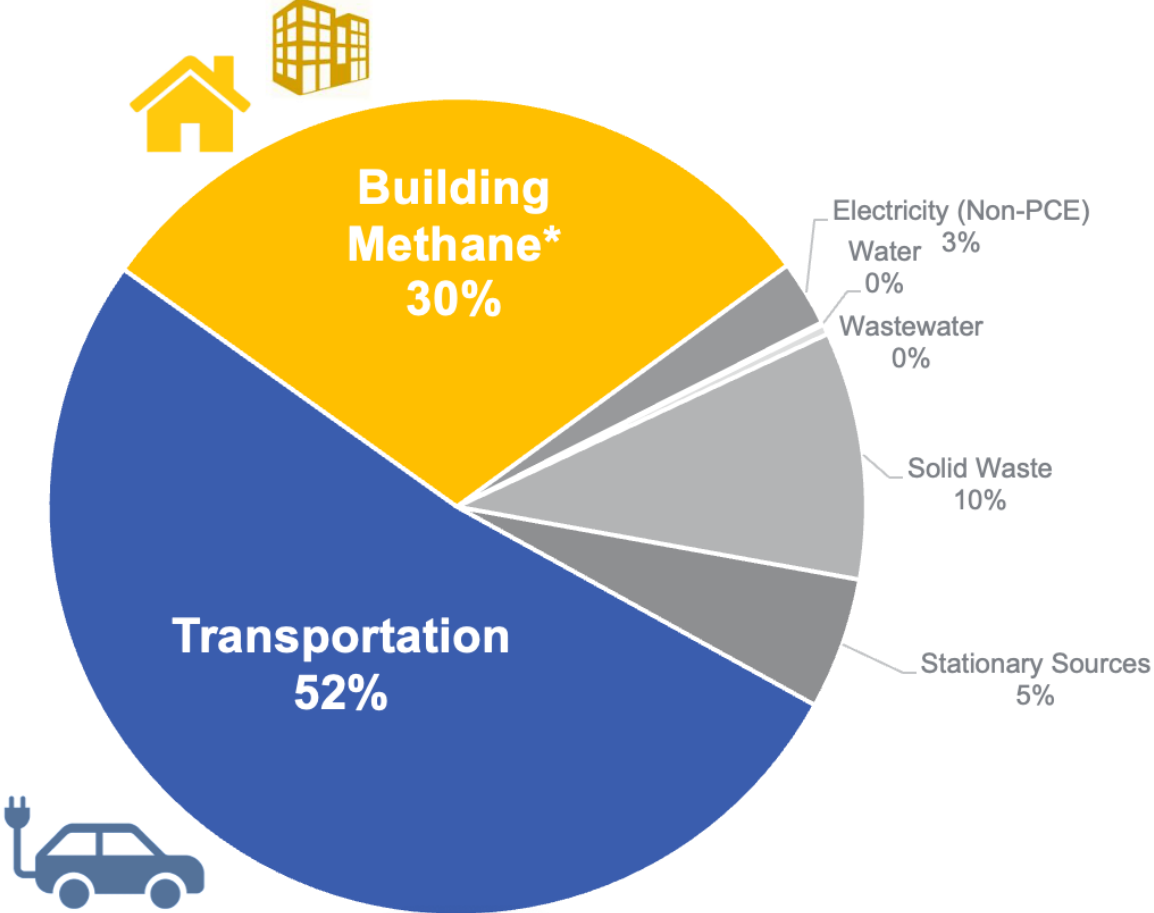
Peninsula Clean Energy: FLEXmarket & Fuel Switching

June 26, 2024



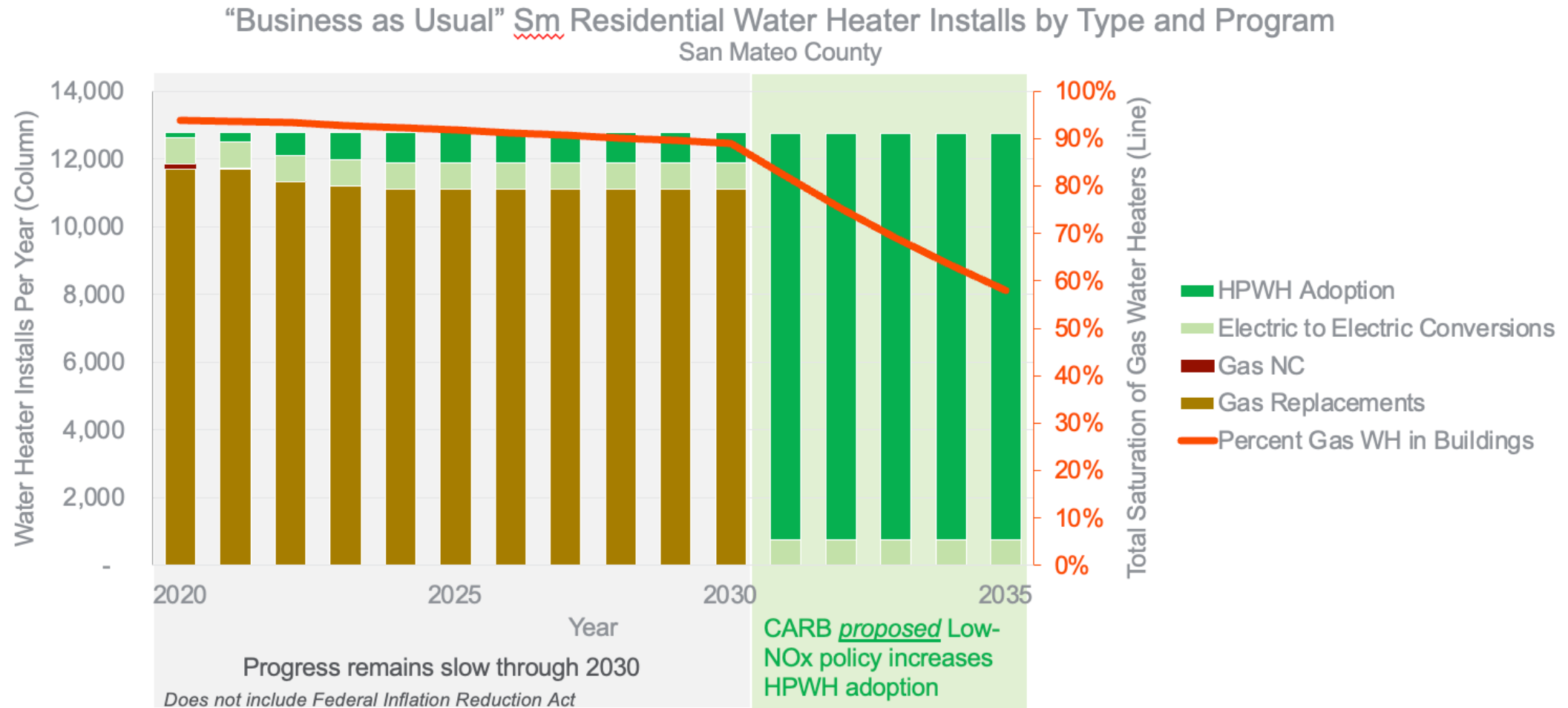
San Mateo County Emissions Profile

San Mateo Countywide Greenhouse Gas Emissions, 2021



**Methane estimate excludes fugitive emissions and near-term warming potential*

Adoption Curve – Electric Water Heaters



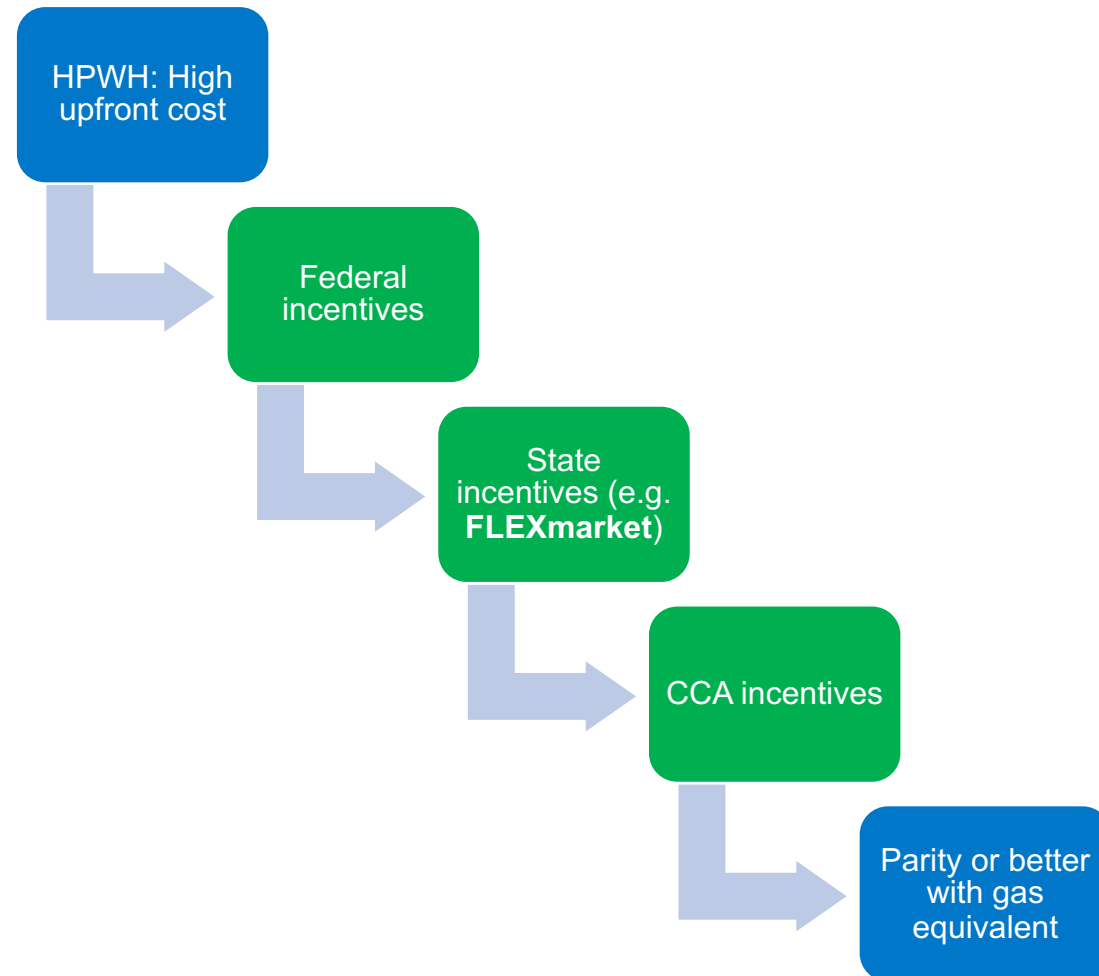
Customer barriers to fuel switching

1) Higher upfront costs

2) Higher ongoing costs

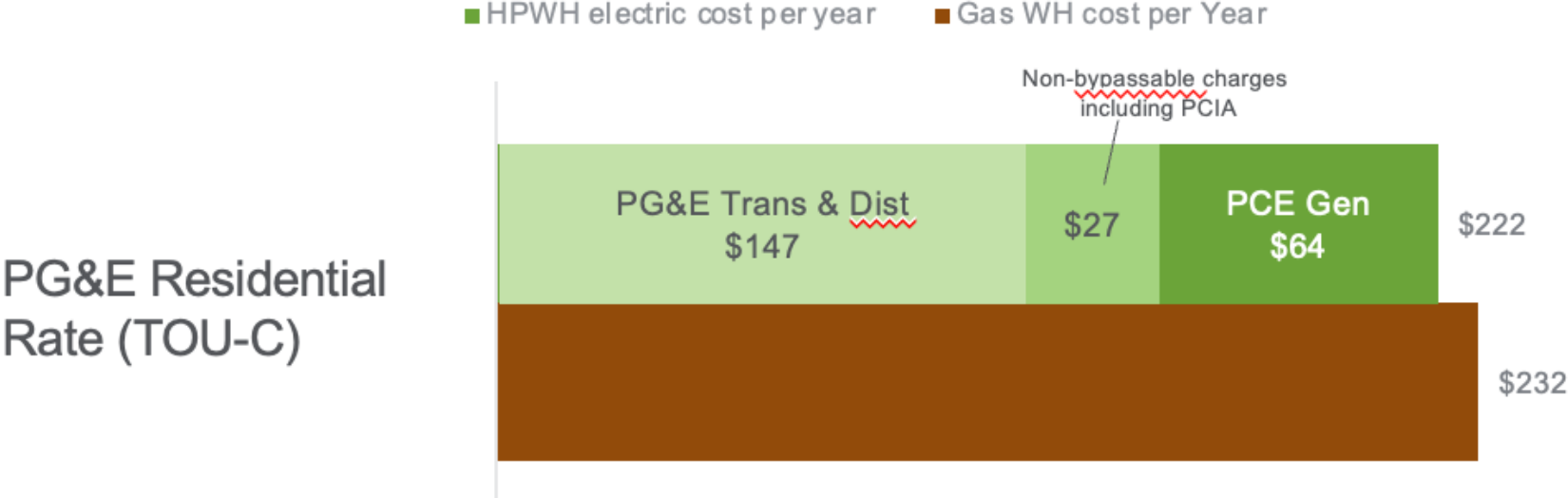
3) Capital outlay

Concern #1: Higher upfront cost to fuel switch



Concern #2: Higher operational costs

Annual Water Heating Operating Cost by Utility and Rate (2022 rates)



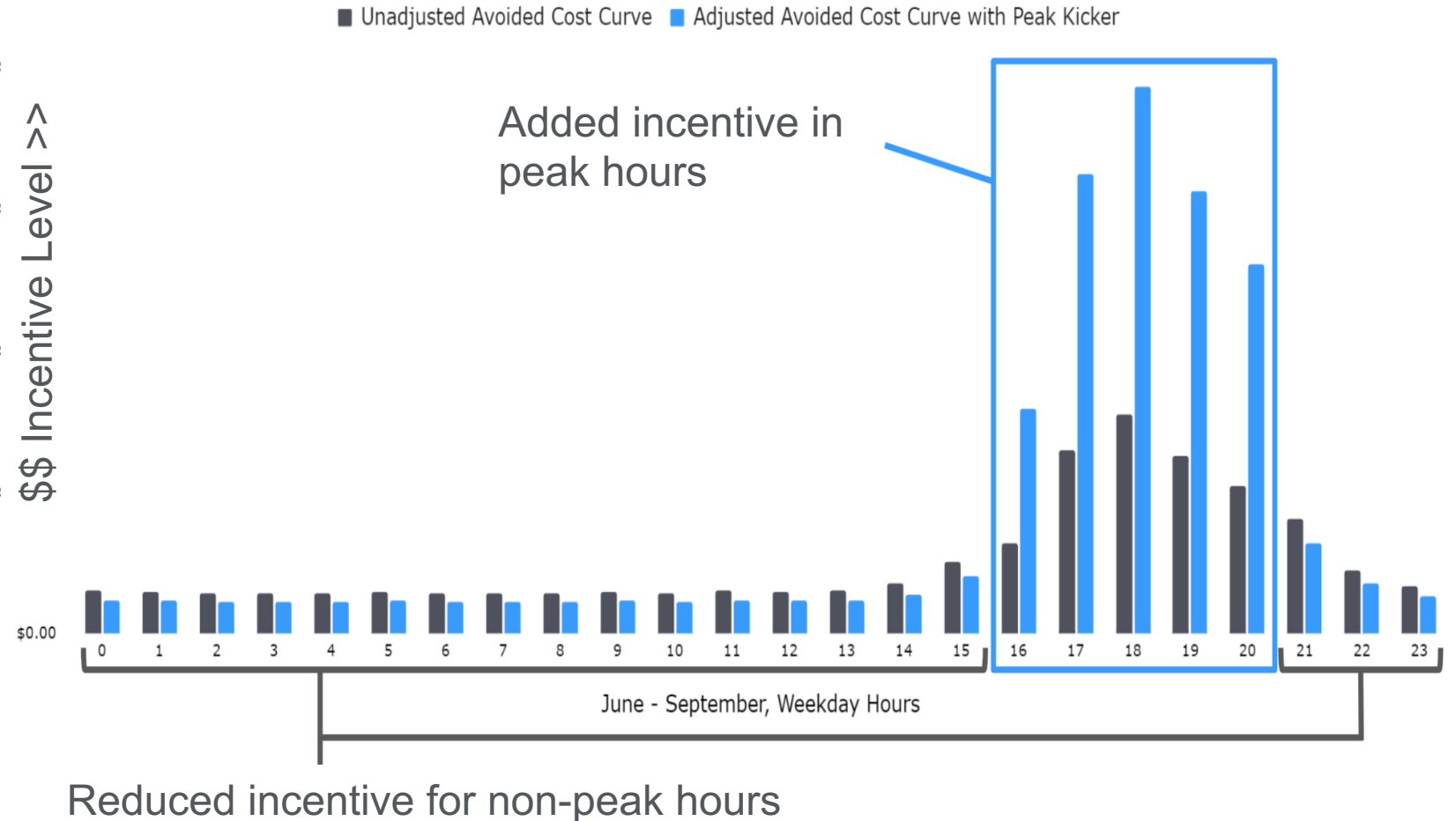
Concern #2: Higher operational costs

- Incentive programs that align with the ACC help with customer bills too
- The ACC & customer TOU charges are both highest-cost in the evening
- PCE doubles-down on this by placing artificial cost within peak hours (next slide), motivating off-peak usage
- High-cost peaks encourage aggregators to install BE equipment with load shifting capabilities



Incentive Structure & Load Shaping

- PCE determines the incentive levels
- Incentives “shaped” for summer peak reductions
- RA value is socialized into peak hours



Concern #3: Capital outlay

PCE Fuel Switching Programs	Customer Segment	Impact to BE Capital	3-year Funding Scale
FLEXmarket	All	Small: reduces capital reqs	\$5M
Appliance Rebates	All	Small: reduces capital reqs	\$10M
On-Bill Finance	Residential	Big: no-interest loans, no capital outlay	\$10M
Home Upgrade Program	Low income residential	Biggest: PCE pays for whole-home electrification	\$24M
Revolving Loan Fund	Govt agencies	Big: no-interest loans, no capital outlay	\$6M

Customer barriers to fuel switching





Local Governments Empowering Our Communities

BayREN Business

Making Metered Energy Savings Programs Work for Your Community

Cara Bautista-Rao | June 26, 2024

Agenda

- Intro to BayREN
- **BayREN Business Overview**
- Successes
- Challenges
- Future Plans



Photo Credit: Microsoft 365

A group of people is walking away from the camera on a dirt path through a field of tall grass and bushes. The scene is overlaid with a semi-transparent blue filter. The text "Introduction to BayREN" is centered in white. The people are dressed in casual outdoor attire, including jackets, backpacks, and hats. The background shows a clear blue sky and a distant horizon line.

Introduction to BayREN

BAYREN:

Bay Area Regional Energy Network

Coalition of the Bay Area's 9 counties + ABAG

Fill gaps in utility energy efficiency programs

Run programs for Hard-to-Reach markets

Pilot new, innovative approaches that can scale



A group of people is walking away from the camera on a dirt path through a field of tall, dry grass. The sky is clear and blue. The people are dressed in casual outdoor attire. The overall scene is bright and sunny.

BayREN Business Overview



Photo Credit: SFE Staff

BayREN Business Overview

- **BayREN Business** is a pay-for-performance efficiency program
- Helps hard-to-reach businesses save energy and money
- Covers the entire Bay Area
- \$3 million annual incentives budget

Focus on small businesses

We serve businesses that are **hard-to-reach** – underserved, if at all, by past efficiency programs.

Typically, they are

- in disadvantaged communities
- have low # of employees, leased spaces, language needs
- have low annual energy usages



Photo Credit: Microsoft 365

Project examples



Photo Credit: Microsoft 365

**Retail Stores:
Lighting**



Photo Credit: Microsoft 365

**Grocery Stores: Lighting
& refrigeration**



Photo Credit: Microsoft 365

**Restaurants: Lighting
& refrigeration**

Essential elements



Photo Credit: BayREN

- Right-sized incentives
- Strong contractor support
- Low barriers to participation
- Support from partners

A group of people is walking away from the camera on a dirt path through a field of tall, dry grass. The sky is clear and blue. The people are dressed in casual outdoor attire, including jackets, backpacks, and hats. The overall scene is bright and open, suggesting a hike or a walk in a natural setting.

Successes

> 150

**Project
applications**

44

**Projects
installed**

**2024
Achievements**

995,000

kWh saved

\$2.2

**million
incentives
reserved**

Pay-for-Performance Works



- Pay-for-Performance typically used in commercial and industrial sectors
- **BayREN Business** demonstrates it works for hard-to-reach markets, businesses



Challenges

Few projects in North Bay

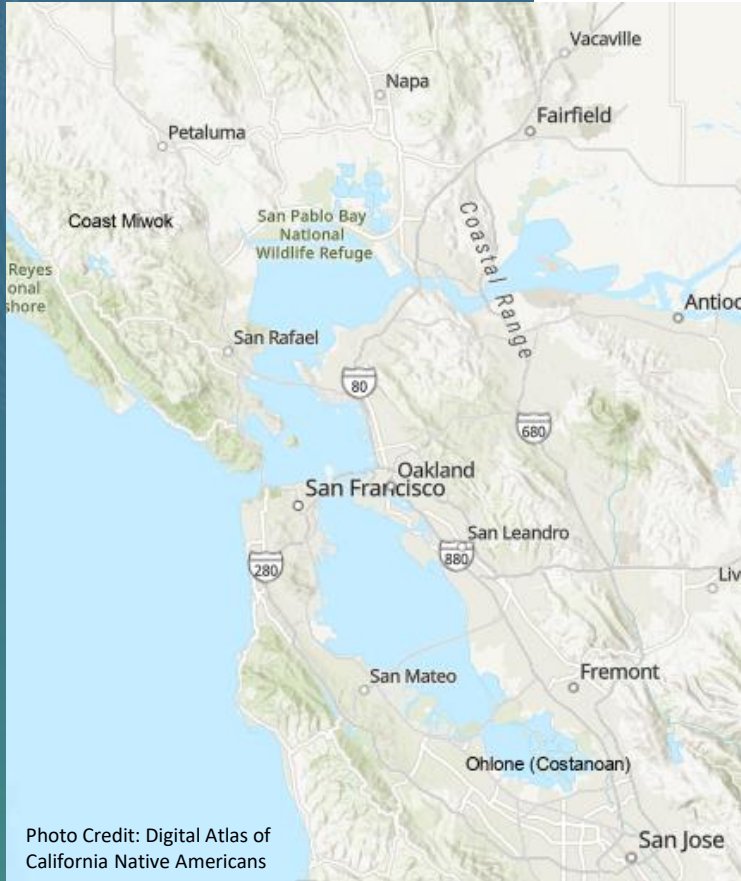
- Difficult to identify HTR customers outside of Disadvantaged Communities





Future Plans

Future Plans



- Conducting market potential analysis
- Expand HTR customers to serve California Native American tribes
- Targeted North Bay marketing campaign



BAYREN

Local Governments Empowering Our Communities

Cara Bautista-Rao

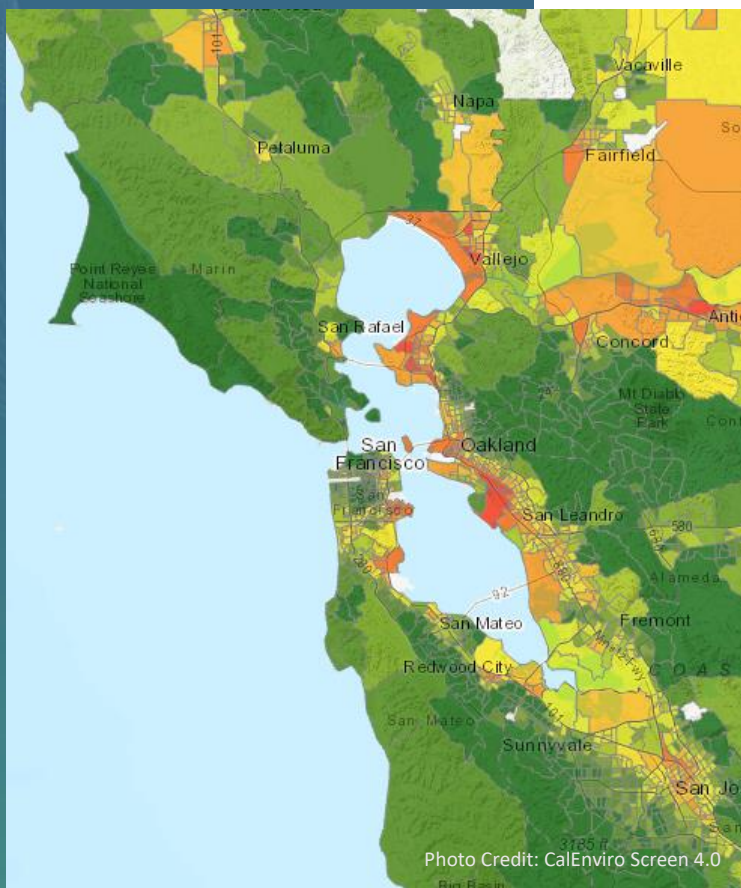
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BayRENBusiness.org



Appendix

Hard-to-Reach: 3 points



Hard-to-Reach Criteria	Description	Point Value
Location	Located in a Disadvantaged Community*	2
Language	Primary language @ business is other than English	1
Business Size	≤25 employees <i>or</i> annual energy use: <20-kW or <10,000 therms	1
Leased, Rented?	Leased or rented facility	1

*Top 25 percentile are Disadvantaged Communities:

<https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40>



3C-REN's NMEC Residential Program

Single Family Home Energy Savings

June 26, 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!





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

 <p>Allstar Heating and Air Conditioning Trustworthy HVAC Service</p> <p>https://www.allstarcomfortair.com/ 805-242-9638</p>	 <p>Bee Right There Un"BEE"table Care For Your Heating & Air</p> <p>www.callthebee.com (805) 864-2276</p>	 <p>Community Action Partnership of SLO Helping low-income homeowners buy efficient energy systems in San Luis Obispo.</p> <p>capslo.org/energy-services 805 541-4122</p>
 <p>Highland Air Furnace + AC service, repair, maintenance & installation</p> <p>www.highland-air.com (805) 210-9771</p>	 <p>Pacific Aire Your premier heating, ventilation and air conditioning company.</p> <p>https://www.pacaire.com/ 800-869-0057</p>	 <p>RR HVAC & Electrical Company Quality electrical services at a competitive rate.</p> <p>https://rrelectrichvac.com/ (805) 954-9359</p>
 <p>Southland Heating & Air Conditioning Heating & Air Conditioning Installation Services</p> <p>https://southlandac.com (805) 422-7754</p>	 <p>Temp Air System High-Efficiency HVAC System provider for homeowners in the Greater LA area.</p> <p>www.tempairsystem.com (626) 333-3409</p>	 <p>TriCounty Services HVAC, Indoor Air, Fireplace & Plumbing in Ventura & Santa Barbara Counties</p> <p>www.tri-county-aire.com (805) 500-2944</p>



3C-REN Eligible Upgrades: Heat Pumps & Beyond



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



Successes

730 Total Projects

370 HVAC Heat Pump Projects

56 Heat Pump Water Heaters

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

~20 active contractors

Stacking:

76 HVAC Heat Pump projects accessed TECH Incentives

40 Heat Pump Water Heater projects accessed TECH Incentives



Challenges

- Data Access!
- 36 HTR projects to date (but rapidly growing)
- Homes with low energy use= lower incentives
- Many projects are single measure
- Currently unable to serve propane customers
- Need to pause program because of rapid growth



Future Plans

- Reserve more budget for HTR customers
- Analyze energy savings and payments following data acquisition
- More partnerships for HTR outreach- Promotores, etc.





Thank you!

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