Agenda

- 2035 Decarbonization Analysis
- Building Electrification v2
- Home Upgrade Program Status
- Home Upgrade v2
- RHA Contract Amendment
2035 Decarbonization Analysis

Results Refresher
2035: PCE Scope

• Primary Scope
  o Transportation
    o private passenger, local gov & small commercial fleets,
    o ride-hailing, alternative mobility
  o Buildings
    o residential (single family & small multifamily),
    o Office (incl. local gov.), small commercial

• Not in scope, or limited* (others lead)
  o Transportation: heavy-duty vehicles, off-road
  o Buildings: industrial, large commercial*, large multifamily*
  o Non-energy: land-use, compost, stationary sources, landfills
  o Out of territory: SF airport
  o Embedded carbon, Climate Adaptation, Sequestration/restoration
2035: Buildings Electrification

1. Flexible Incentives
   - All measures, incl. prewiring and panels
   - Broader building segments
   - Integrated load shaping & solar+storage options

2. High touch support
   - Advanced “right-sizing” design
   - One-stop shop, hotline assist, turnkey option
   - Procurement aggregation to lower costs
   - Greater contractor support

3. Links to Finance
   - Specific linkages by customer segment
Building Electrification v2

Goals and Architecture
What we have

All-electric homes
Learn about the benefits and next steps to power your home with clean electricity

Zero interest loans
Get a loan of up to $10,000, with no interest, no credit check, and no fees

Heat pump water heater rebates
Find out about heat pump water heaters and the available rebates

Heat pump heating, ventilation and air-conditioning (HVAC)
Find out about heat pump HVAC and the available rebates

Home Upgrade Program
This program provides income-qualified homeowners with home repairs and energy efficiency upgrades at no cost
Needs for Building Electrification 2.0 ("BE v2")

• Current program provides incentives but minimal guidance/support
• Updated program needs to address barriers customers face
  o Especially important to ensure city councils are comfortable adopting existing buildings reach codes
• Customer challenges include:
  o Lack of clear information
  o Difficulty selecting contractors and equipment
  o Technically complicated installations
  o Emergency replacements
  o Limited time and money
Types of Residential Customers - Profiles

• "I want to choose“/DIY
  o We need to take action on climate
  o I’m interested in technology
  o I like sorting it out myself

• “Just get it done”
  o I’m busy (single parent)
  o My water heater went out and I need one immediately

• "I cannot afford this"
  o I’ve been without heating the last two years. My home has lots of problems.
  o I don’t have the time or funds
Residential Programs – BE v2

Retail Partners
- Brick & mortar presence
- Dev supply chain
- Bulk buy

One-Stop Website
- Appliance marketplace
- Contractor network
- Info & education
- Why, how, rebates, etc.
- Energy calculator

Hotline
- Program navigation
- Project planning
- Technical guidance

Turnkey install option
- Appliance install
- Emergency loaner
- Whole home pre-wiring

Finance Options
- Bulk buy
- Workforce development
- Pilot tech

Load Shaping

PV + Storage

Rebates
- CPUC Flex market
- PCE rebates
- BayREN rebates
- IRA rebates
- CEC rebates
First Priorities: Turnkey, Hotline, One-Stop-Shop Website

**Turnkey install**
- Direct install electrician and contractor
- Gas WH loaner unit
  - Supports emergency replacements
  - Essential for deeper existing building reach codes
- Point of sale finance option (OBF &/or 3rd pty)

**Hotline**
- Customer call support for
  - basic program participation
  - navigating PCE & other support
  - basic project process
  - technical support
- Whole home electrification planning

**One-stop-shop website v1**
- Info & education: why, how, rebates
Leveraging Home Upgrade

Dedicated workforce can support turnkey projects for non-low-income customers

Equipment discounts available to all customers

Advanced designs inform program improvements

Home Upgrade Program Components

- Dedicated workforce
  - Specifically trained
  - Whole home experience
  - Dedicated contractors

- Equipment discounts
  - Bulk buy discounts

- Advanced designs
  - Pilot new tech
  - Virtual Power Plant (VPP)
  - Advanced designs
Home Upgrade

Program Status
Home Upgrade Overview & Objectives

Current Program Overview

• Goal to serve up to 200 homes with home repairs & electrification over 2 years
• $2M total budget, contract through November 2023
• Plays a large role in DEAI focus, including PCE’s goal of 20% program expenditure on low-income communities

Objectives

• Provide tangible benefits to low-income customers while driving GHG reductions and net energy savings
• Leverage local/state incentives to maximize impact
• Develop guidelines, strategies, and learnings on home electrification
## Results & Metrics

### Metrics

<table>
<thead>
<tr>
<th>Metrics</th>
<th>Count</th>
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<tbody>
<tr>
<td>Homes complete</td>
<td>115</td>
</tr>
<tr>
<td>Homes in progress (installations underway or soon to be scheduled)</td>
<td>62</td>
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### Electrification Upgrade

<table>
<thead>
<tr>
<th>Electrification Upgrade</th>
<th>Count</th>
</tr>
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<tbody>
<tr>
<td>Heat pump water heater</td>
<td>43</td>
</tr>
<tr>
<td>Electric dryer</td>
<td>27</td>
</tr>
<tr>
<td>Induction stove/range</td>
<td>28</td>
</tr>
<tr>
<td>Central ducted heat pump</td>
<td>1</td>
</tr>
<tr>
<td>Ductless mini split heat pump</td>
<td>2</td>
</tr>
<tr>
<td>Window mounted heat pump</td>
<td>11</td>
</tr>
<tr>
<td>Portable heat pump</td>
<td>26</td>
</tr>
<tr>
<td>Electrical panel upgrade</td>
<td>8</td>
</tr>
<tr>
<td>Electrical subpanel</td>
<td>4</td>
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Testimonials

“This is a phenomenal program. It helped my family at the perfect time. Our water heater broke, and the program stepped in and helped... The program's crew and workers were professional, friendly, and quick.” – Mrs. Marquez

“Regarding the new water heater pump that was installed over the weekend... Thank you so much. It's working great. Everyone was very friendly and super-fast...now we are able to have hot water! Thank you so much. ” - Maribel
RHA Contract Status

- Contract to expire November 2023

- All installations expected to be completed by May/June but program is currently oversubscribed – no more outreach & enrollments

- RHA performance: good
Vision for Home Upgrade v2

- Scale to Whole Home
- Increase Homes Impacted per Year
- Capture Federal & State Incentives
- Integrate with Turnkey Offering
- Develop VPP
Whole homes & more of them

Scale to Whole Home

Increase Homes Impacted per Year

<table>
<thead>
<tr>
<th>Electrification Cost</th>
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<tbody>
<tr>
<td>Water Heating (includes 240V circuit)</td>
<td>$6,100</td>
</tr>
<tr>
<td>Space Heating</td>
<td>$20,700</td>
</tr>
<tr>
<td>Cooking</td>
<td>$1,098</td>
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<tr>
<td>Clothes Drying</td>
<td>$925</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$28,823</strong></td>
</tr>
<tr>
<td>Panel, if required</td>
<td>$3,700</td>
</tr>
<tr>
<td><strong>Total non-optimized cost</strong></td>
<td><strong>$32,523</strong></td>
</tr>
<tr>
<td>Minor home repair</td>
<td>$1,500</td>
</tr>
<tr>
<td><strong>Estimated Average for Home Upgrade</strong></td>
<td><strong>$31,500</strong></td>
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250 homes per year

Minimum to enable dedicated workforce

Aligns with 2035 analysis
Planning ahead to Capture Fed/State Incentives

Planning to integrate with CPUC FLEXmarket
  - $2,500 per home

CEC building decarb funding being planned currently
  - $600m fund

Inflation Reduction Act funds should come online in late 2023/early 2024
  - $10,000 per home
Prospective Budget Leveraging Fed/State Funds

Prospective 3-Year Budget for Turnkey Install & Hotline*

*Most of the cost would be for the expanded Home Upgrade program to fully electrify 650 low-income homes. Non-low-income turnkey and hotline services is estimated at $900,000-$1,300,000 but will depend on services and volume. More detailed budget estimates will be developed based on proposals received in a competitive procurement process.
Approximate Timeline and Plan

- **2023**
  - First RHA Contract (Fully subscribed)
  - RFP Process

- **2024**
  - RHA Contract Amendment
  - Turnkey install and hotline program (including Home Upgrade v2)

- **2025**
  - Building Electrification 2.0

- **2026**
  - Inflation Reduction Act Incentives
  - State incentives
RHA Contract Amendment
Contract Amendment as Bridge

Existing Home Upgrade Contract
Currently fully subscribed

RHA Contract Amendment

Home Upgrade v2
Starts Jan 2024
Proposed Contract Amendment Details

Overview
• $1.5M budget for 1 year
• Serve ~100 homes total

Scope of work
• Continue Home Upgrade program in its current form
  a) Continue minor home repair & 1 electrification upgrade per home
  b) Serve current waitlist first, then continue limited and targeted outreach
• Pilot 120v heat pump water heaters
  a) Pilot this new "plug and play" equipment in 5-10 homes
  b) Lower installation costs than traditional 240v HPWH
• Pilot whole home electrification upgrades
  a) Fully electrify 4-6 homes
  b) Learn and inform next phase of program
Summary of Request to the Board

Program: Building Electrification Strategy and Home Upgrade Program

Request

1. Approval of building electrification strategy, including implementation of a multi-year turnkey residential install program and customer support hotline

2. Delegate authority to CEO to execute a contract amendment with Richard Heath and Associates (RHA) to continue implementing the Home Upgrade program for one year as a bridge to the turnkey residential install program