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An Analytical Framework for Targeted Electrification and Strategic Gas Decommissioning

Identifying Potential Pilot Sites in Northern California's East Bay Region

Final Public Webinar
2/28/2024

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Objectives & Agenda

+ Objectives

- Review project overview
- Share key findings from core project tasks
- Share recommendations for regulators and policymakers
- Describe next steps
- Answer questions from the public regarding this project

+ Relevant Links

- Gridworks Webpage
- Ava Webpage
- E3 Webpage

+ 9:30 AM Welcome & Housekeeping

+ 9:40 AM Draft Final Report Presentation

- Project Background and Overview
- Key Findings From Four Project Tasks
- Summary of Recommendations

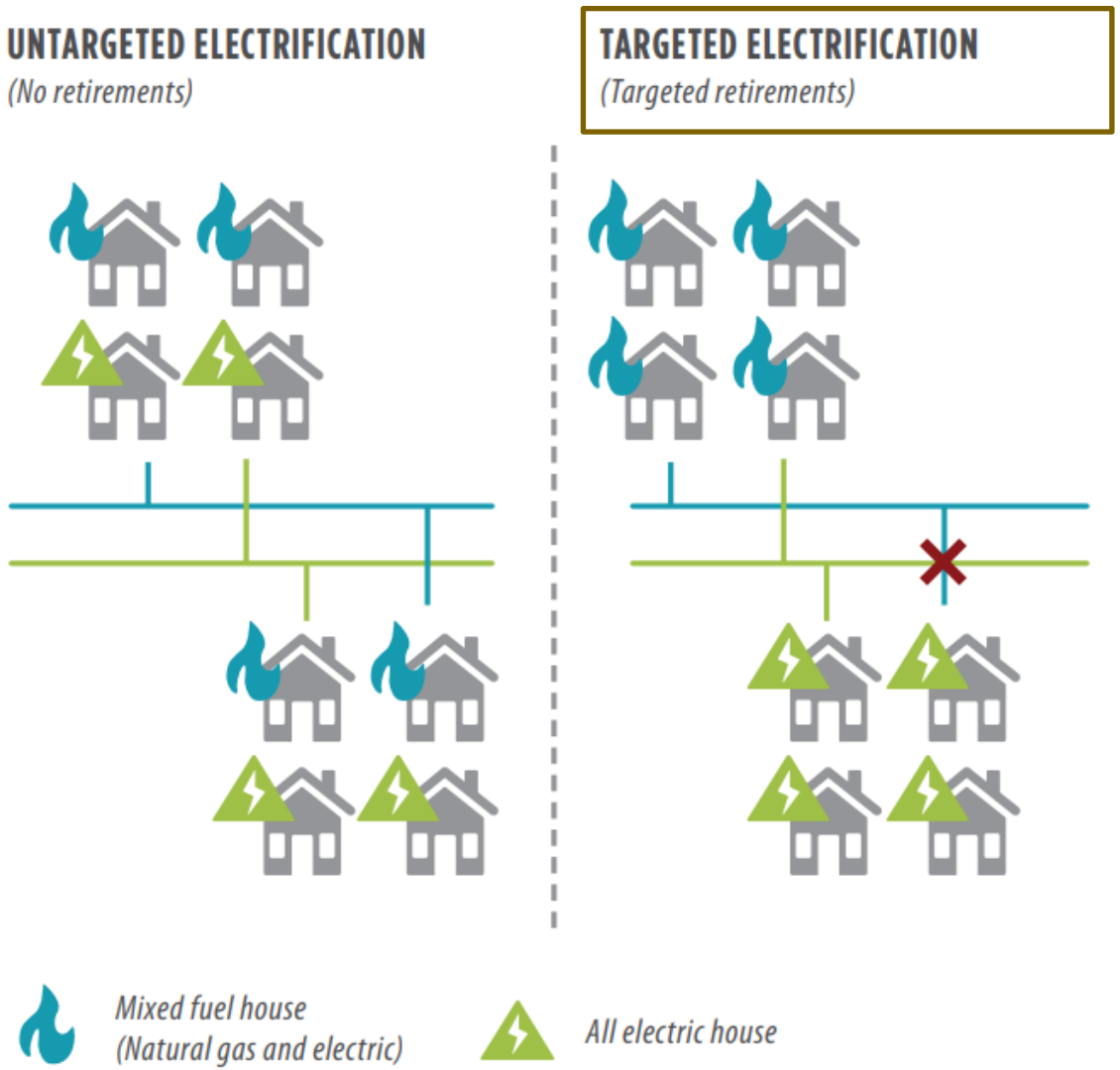
+ 10:25 PM Audience Q&A

+ 10:55 AM Wrap Up

+ 11:00 AM Adjourn

Project Background

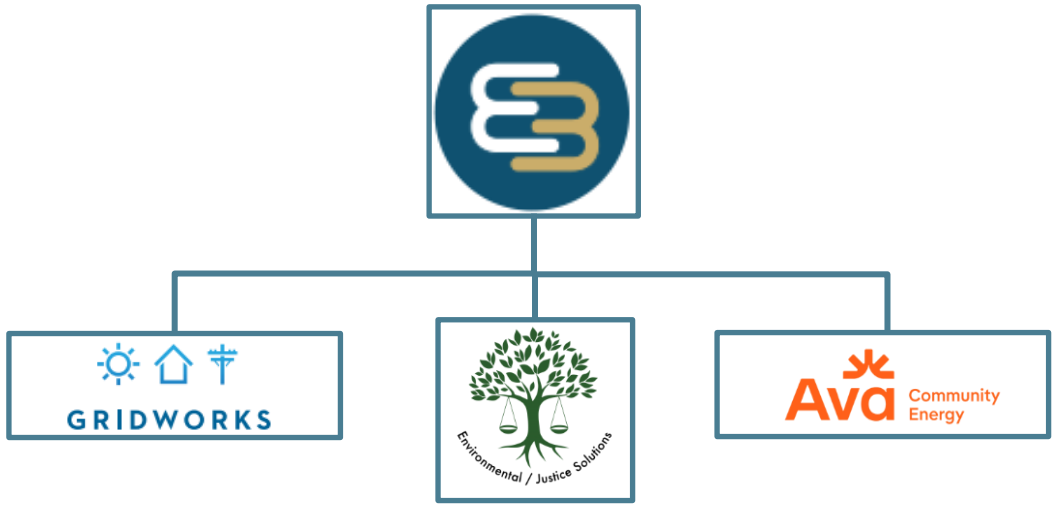
- **As building electrification advances, gas system costs will be spread across fewer customers and a lower volume of gas sales.**
  - As a result, remaining customers could face large increases in their gas rates.
  - Low-income homeowners, who cannot afford electric alternatives, and renters, who cannot elect these alternatives, will be most vulnerable to these gas rate increases.
- **One strategy that may help mitigate gas system cost impacts is targeted building electrification coupled with strategic gas system decommissioning.**
  - This approach could be part of a "managed transition" to reduce gas system spending and manage gas rates.



Project Overview: CEC Grant PIR-20-009

Key Question: How can targeted building electrification paired with tactical gas decommissioning provide net gas system savings while promoting equity and meeting the needs of local communities?

Project Team



Project Partner:
PG&E

Four Key Project Tasks
1. Develop a **Site Selection Framework** to identify candidate sites for targeted electrification and gas decommissioning. Use the framework to identify 3 pilot sites within Ava's service territory.
2. Perform a site-specific **Benefit-Cost Analysis** of targeted electrification and gas decommissioning, considering different perspectives including participants, ratepayers, and society.
3. Engage local communities through **Outreach and Education** to better understand their perspectives and priorities related to targeted electrification and gas decommissioning.
4. Produce a **Deployment Plan** for how projects could be implemented at the pilot sites, considering feedback received through community and stakeholder engagement.

Executive Summary

- Overall, we find that targeted electrification and gas decommissioning is a **promising strategy** but **not a silver bullet** to solve the long-term gas cost challenge.
- These projects could generate **significant gas system cost savings** if successfully implemented. However, they face **serious challenges** regarding **customer preferences, high upfront costs, and the current policy and regulatory environment**.
- We estimate that approximately **5-10% of gas distribution main miles** may be eligible to capture savings from strategic gas decommissioning over the next two decades. Nonetheless, these projects reflect an important **opportunity to avoid a large share of the capital costs that would otherwise be incurred** on the gas system.
- Key recommendations for near-term pilots include providing significant **outreach and education, upfront funding,** and potentially **bill guarantees**, as well as **starting community engagement efforts as early as possible**.
- This project considered two important but distinct equity goals: **promoting electrification in disadvantaged communities** and **maximizing gas system cost savings**. We believe the state may achieve better outcomes by developing and **promoting different programs for these two goals**.

1. Site Selection Framework

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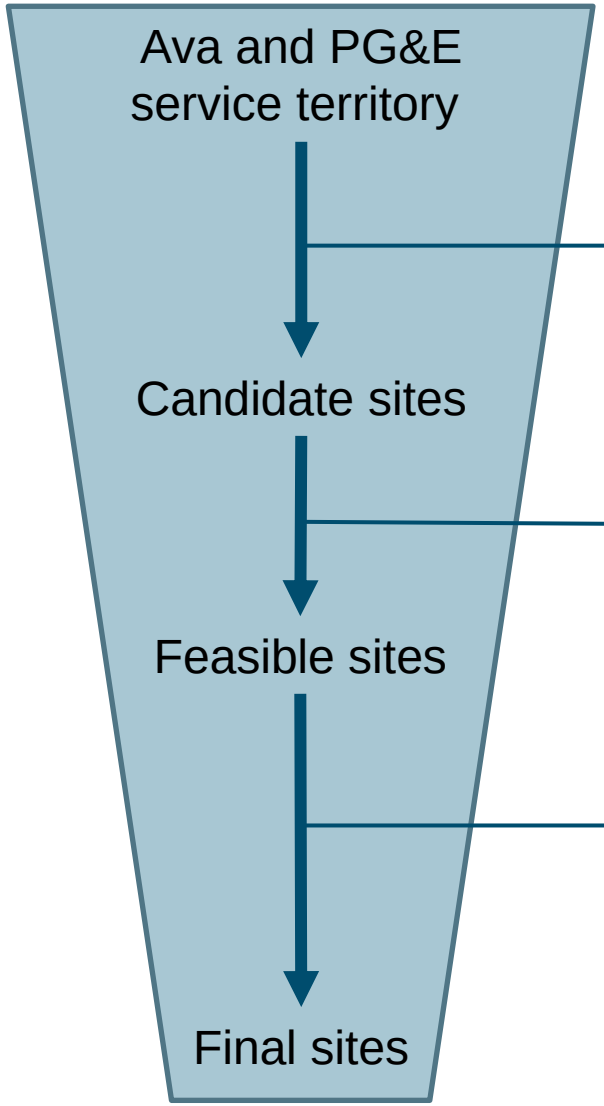
Proposed site selection framework



1. Candidate screen: Use Gas Asset Analysis Tool to filter candidate sites
   - Initial screening for hydraulic feasibility
   - High risk score (distribution integrity management program, DIMP)
   - Lead time: not identified for a pipeline replacement project in 2022-2024

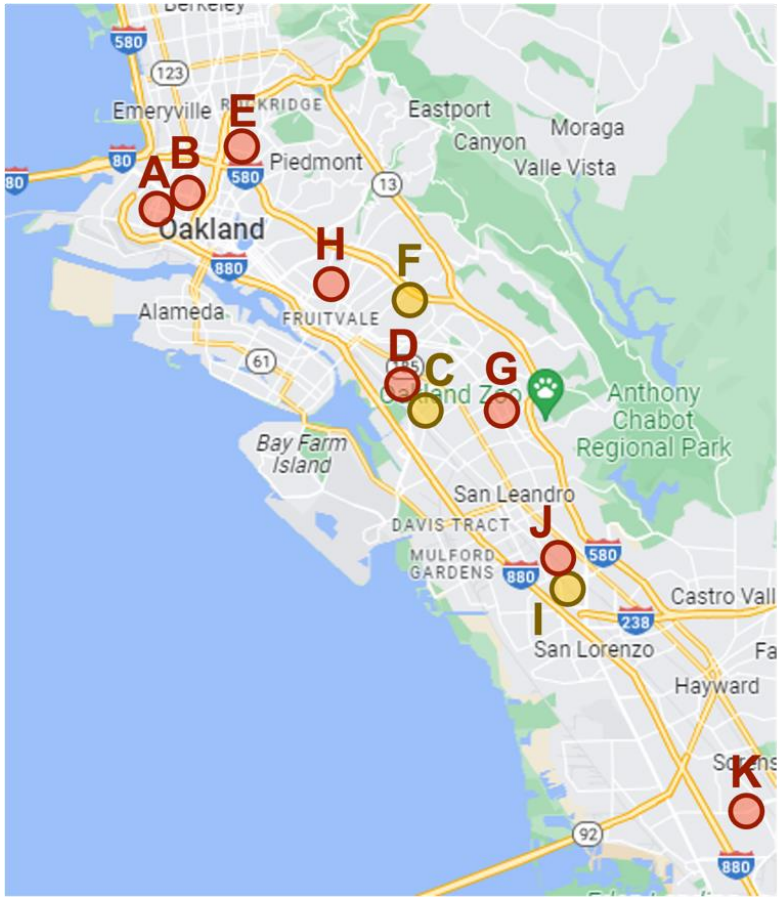
2. Engineering review: Use hydraulic model to confirm hydraulic feasibility
   - Delete pipeline(s) in hydraulic model and check for infeasibility or capacity issues
   - If issues arise, consider changes in scope or other mitigation options

3. Site prioritization: prioritize final sites using site-specific information
   - Benefit / cost criteria
   - Building diversity criteria
   - Equity criteria
   - Community criteria

Weighting of criteria may vary depending on case. *E.g.,* this research project may weigh criteria differently from large-scale program design

This framework was used to identify 11 feasible candidate sites and 3 final proposed pilot sites.

Key findings from site selection process



11 candidate sites, including 3 proposed pilot sites in yellow

1. A **longer-term project planning process** is needed to support the identification of sites for gas decommissioning with enough lead time to implement electrification or other alternatives
2. There is a need for **better data and planning tools** to support the identification of candidate sites for targeted electrification and gas decommissioning.
3. The **timing and scale for these projects will be limited** by the pipeline replacement schedule and by hydraulic feasibility for decommissioning.
   - We estimate that approximately **5-10% of gas distribution main miles** may be eligible to capture savings from strategic gas decommissioning over the next two decades.
   - Nonetheless, these projects reflect an important **opportunity to avoid a large share of the capital costs that would otherwise be incurred** on the gas system over the next two decades

For more information, see our Interim Report

2. Benefit-Cost Analysis

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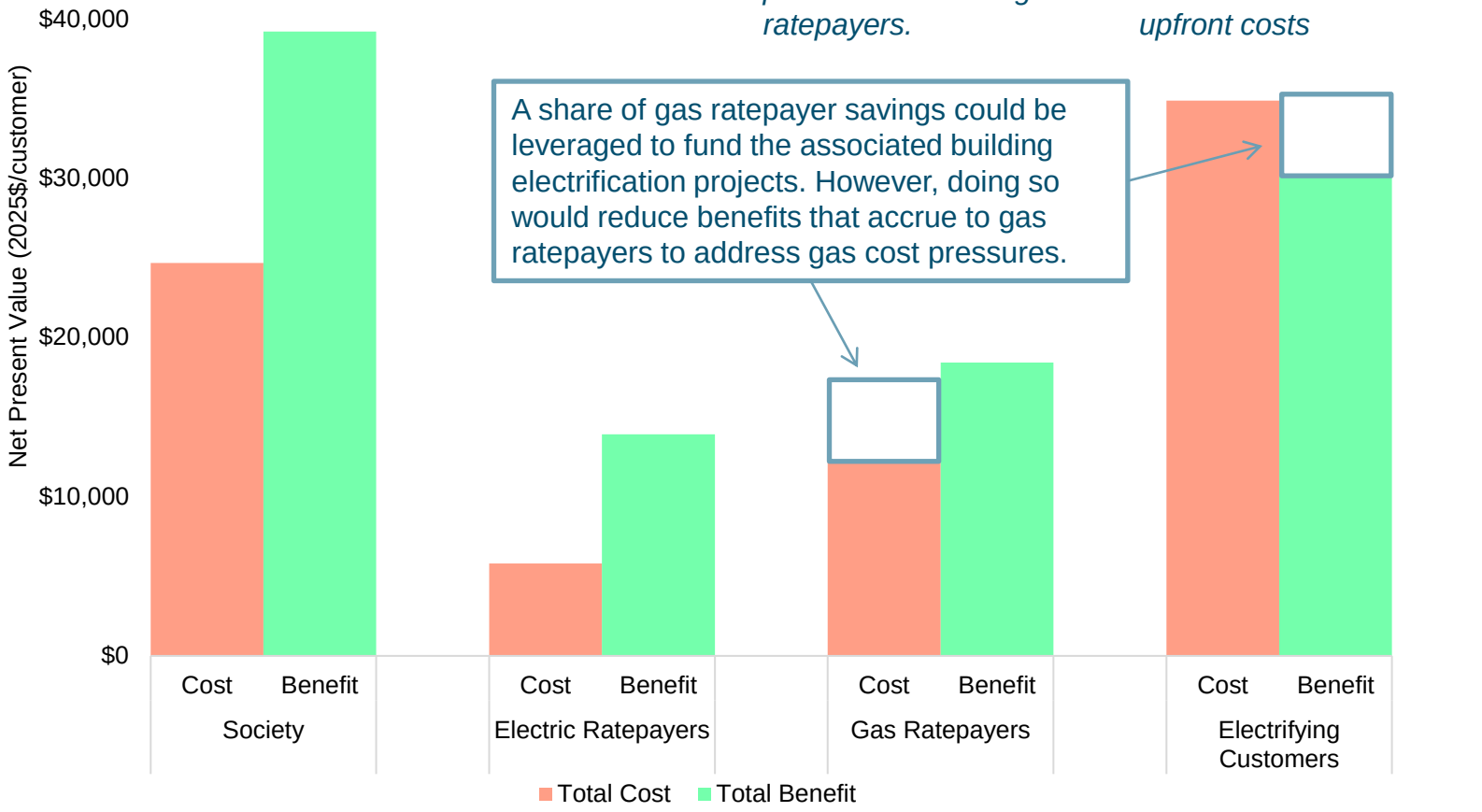
Net benefits for society and for ratepayers, but "missing money" for electrifying customers

Total Cost Perspective: Net Benefits	Electric Ratepayers: Net Benefits	Gas Ratepayers: Net Benefits	Electrifying Customers: Net Costs
TRC demonstrates overall net benefits	*Electric ratepayers benefit due to increase in electric loads.*	*Avoided gas pipeline replacement costs provide benefits to gas ratepayers.*	*Participant net costs due to "missing money" for electrification upfront costs*



Key Findings:

1. Targeted electrification and gas decommissioning **can provide net benefits** to the state, electric ratepayers, and gas ratepayers.
2. There is a **significant funding gap** for the upfront costs of electrifying buildings, **even after accounting for existing incentives**.
3. One option is to **repurpose savings to fund the associated building electrification**. However, this approach **reduces long-term savings to gas ratepayers**.
4. High program **administration costs** would have a significant **negative impact on cost-effectiveness**.

Density is likely to be a key driver of cost-effectiveness

	Less Dense Community	More Dense Community
Financial Costs (Behind-the-meter Electrification) Costs scale as $/customer	($$)	($$$$)
Financial Benefits (Avoided Pipeline Replacement) Benefits scale as $/mile	$$$	$$$
Financial Impact Financial Costs vs. Financial Benefits	Net Benefits	Net Costs

The Benefit-Cost Analysis considers many other cost and benefit components, although these are the largest.

For more information, see our Benefit-Cost Analysis Report

Region	Density (Gas Customers per Mile of Main)
11 Candidate Pilot Sites	133-343
Ava Community Energy Territory	124 (average)
PG&E Gas Service Territory	105 (average)

+ **The 11 candidate sites are much denser than PG&E on average (gas customers per mile of main)**
  - Thus, projects in other parts of the service territory may be more cost-effective
+ **Based on federal data, PG&E, SoCalGas, and SDG&E have some of the densest gas service territories among U.S. gas utilities**

3. Community Outreach and Education

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Community Outreach Approach

+ Strategy #1: Partner with local CBO

Issued an RFP for CBO partner(s) for up to $120,000 total

- + 0 responses received; CBOs had limited bandwidth or resources to support.

+ Strategy #2: Partner with existing electrification efforts

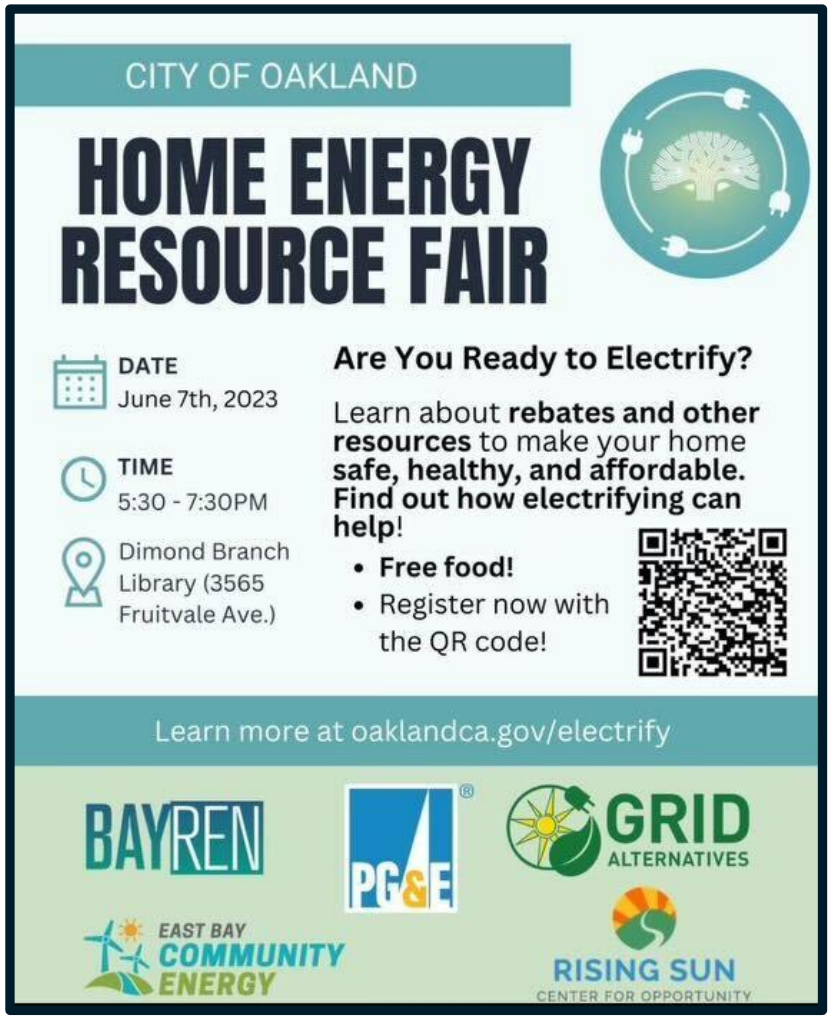
Partnered with City of Oakland to host local home energy resource fairs

- + Low attendance, may not be the best avenue for informing or getting feedback on electrification.

+ Strategy #3: Host facilitated focus groups

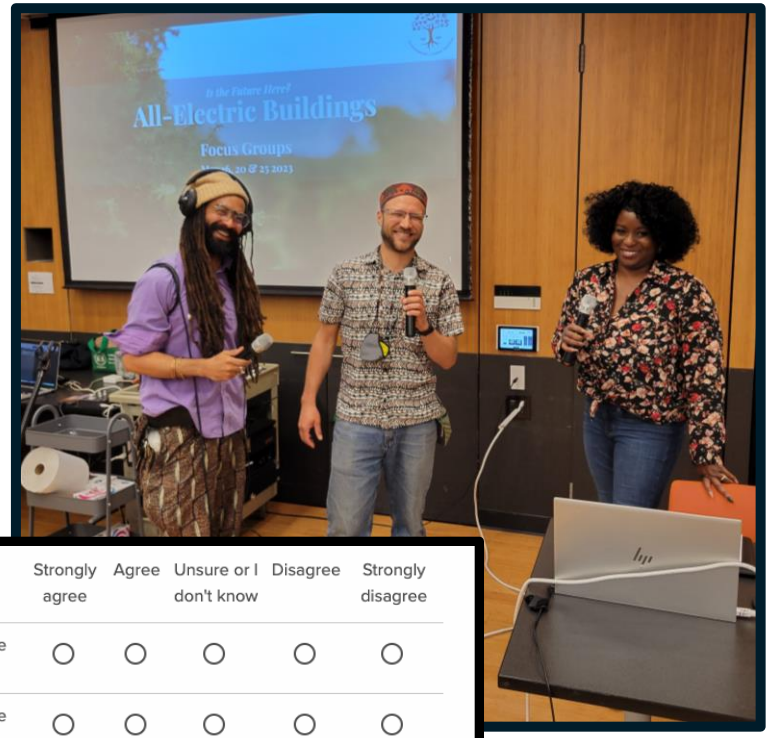
Partnered with Environmental / Justice Solutions to facilitate 3 paid focus groups for residents in the proposed pilot sites.

- + Attendance = 44 out of 90



Community Outreach Findings

- Top concerns: upfront cost, lack of familiarity with electric equipment, and the potential increases to electricity bills.
  - Other concerns: grid reliability, renter challenges
- Community prioritizes health-related issues, mold, lead, and/or asbestos, affordability (no upfront costs) and improved health and indoor air quality remediation before electrification
- Most effective messaging:
  - Need for easy to understand, multilingual, digital and printed resources
  - Want proof that this concept has worked in other communities before buying in



	Strongly agree	Agree	Unsure or I don't know	Disagree	Strongly disagree
I think living in an all-electric home would be safe and comfortable.	○	○	○	○	○
I think living in an all-electric home would benefit me.	○	○	○	○	○
I have concerns about home electrification.	○	○	○	○	○
I have a good understanding of what electrification is.	○	○	○	○	○
I am concerned about the impacts of climate change.	○	○	○	○	○
I am concerned about indoor air quality in my home.	○	○	○	○	○

4. Deployment Plan

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Feedback that Informed Deployment Plan

Deployment Plan

Tactical document *describing how to implement selected pilot projects with the end goal of decommissioning gas systems. Includes: feasible near-term milestones, long-term milestones, and strategies to engage and motivate customers*

+ Sources of feedback

- Local CBOs
- Self Help Enterprise (SJV DAC Pilot)
- Various Program Administrators
- Oakland Home Energy Resource Fairs
- Facilitated Focus Groups
- Surveys
- TAC meetings

+ Community

- Communities move at the speed of trust

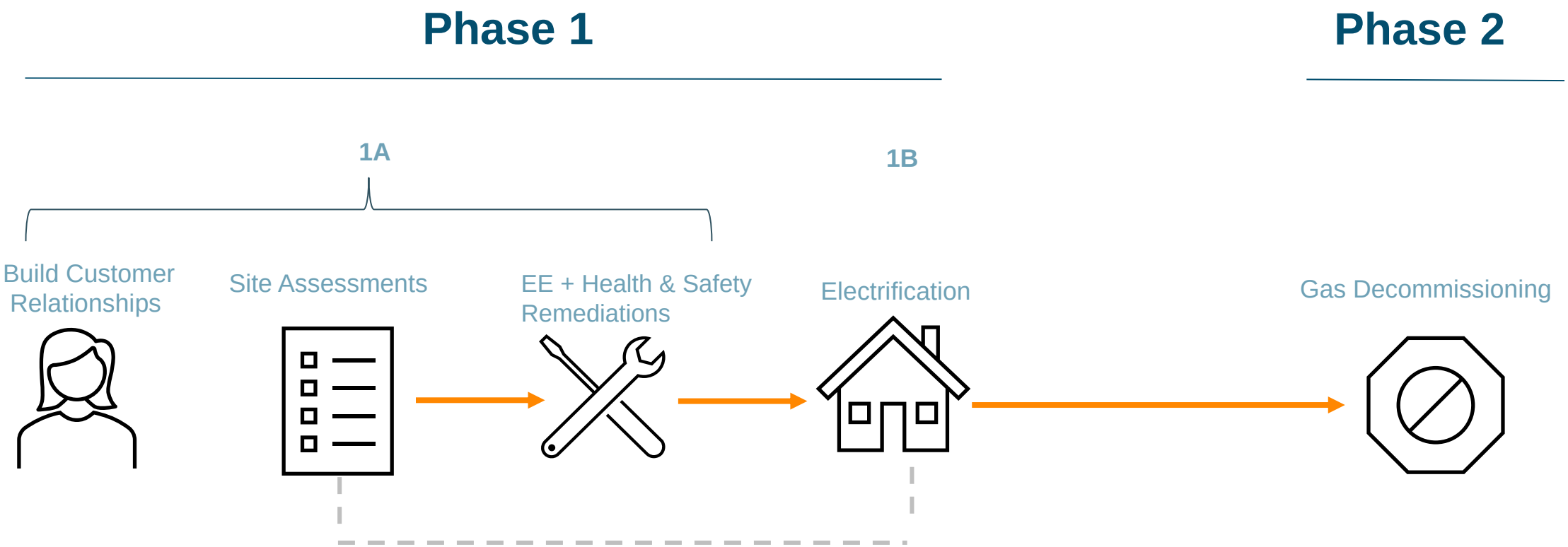
+ Building

- Housing stock requires attention to energy efficiency upgrades + health & safety remediations

+ Customer

- Various levels of familiarity with electrification equipment
- Need for customer-friendly education about benefits of electrification
- Cost is the largest concern for most customers considering electrification

Deployment Plan Structure



Assumed pipeline replacement schedule: 10 years

Deployment Plan Findings

- **Phased approach for sites with large number of customers:** Implementing gas decommissioning projects with a large volume of customers requires a phased approach to build trust. Traditional approach of seeking individual customer consent is not feasible, thus highlighting the need for no-regrets investment.
- **Timeline challenges:** Community buy-in takes time and is critical to successful implementation, which conflict with short funding timeline.
- **Significant administrative funds:** Total project costs may exceed equipment and installation costs. True administrative costs are unknown, though expected to be substantial and need to be budgeted for to ensure effective implementation.
- **Importance of energy efficiency and health and safety remediations:** Prioritizing funding for EE and health and safety remediations as pre-electrification investments is critical to ensure positive electrification implementation.

Summary of Recommendations

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Key recommendations for policymakers and regulators

1. **Regulatory and policy changes are needed for targeted electrification and gas decommissioning to achieve significant scale, including:**
   A. Longer-term capital project planning process
   B. Better data and planning tools for site selection
   C. Reforms to the obligation to serve
   D. Significant additional funding to address the upfront cost gap for building electrification
2. **The state and/or utilities should develop a long-term plan for gas customers and gas infrastructure that is aligned with the state's climate goals.**
   A. The CPUC's Long-Term Gas Planning proceeding is entering a new phase focused on long-term planning for gas system decarbonization
   B. Clear plans and targets could provide key regulatory support for alternatives to gas pipeline replacement
   C. Long-term planning should consider the role of targeted electrification and gas decommissioning as part of a portfolio of measures to reduce gas system investments and mitigate long-term cost pressures

Key recommendations for future pilots and programs

1. **Significant outreach and education, along with upfront funding and potentially bill guarantees, will be key to project success.**
   A. Our community outreach found that electrification may not be a high priority for many residents
   B. We also found that residents have concerns with home electrification including upfront costs, increases in electric bills, and lack of familiarity with electric equipment
2. **We recommend building community engagement efforts into project timeline, scope of work, and budget, and starting engagement efforts as early as possible.**
3. **The state may achieve better outcomes by developing and promoting distinct programs for two different equity objectives:**
   A. Promoting electrification in disadvantaged communities
   B. Maximizing gas system cost savings and implementation feasibility

Audience Q&A

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*Please **raise your hand***

or type your question in

*the **Q&A box***

Thank You

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Catch up on Blog Posts

gridworks.org/category/gas-decommissioning/

Appendix

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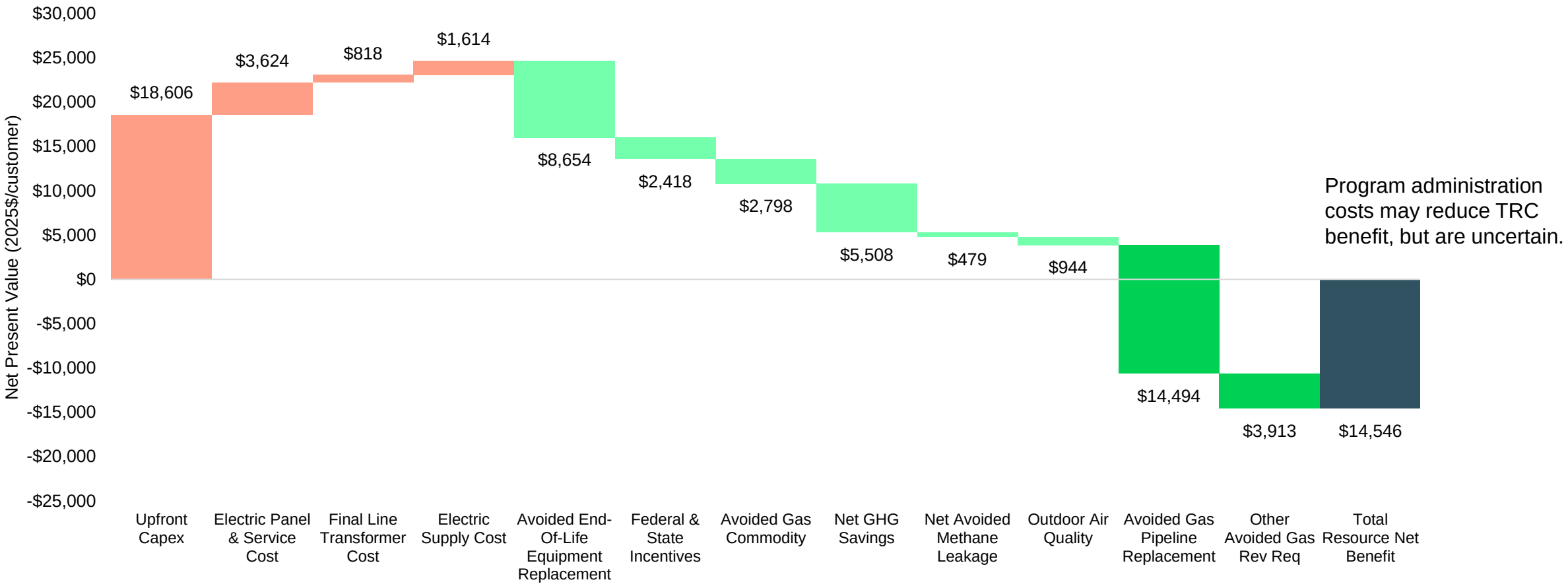
Benefit-cost analysis: costs & benefits

Total Resource Cost test (TRC)

Average Lifecycle Costs and Benefits Per Customer Across 11 Candidate Sites (1,500 Customers)



Program administration costs may reduce TRC benefit, but are uncertain.

Importance of rate design for promoting bill savings

+ **PG&E Rate Options**
  - Default rate: E-TOU-C
    - TOU rate; 2 monthly usage tiers; no customer charge
  - Electrification rate: E-ELEC
    - TOU rate; no tiers; $15/mo customer charge
+ **Results:**
  - On the default electric rate, 58% of customers see a net bill increase
  - With the option of shifting to the electrification rate, only 25% of customers see a bill increase
+ **Note that ongoing CPUC residential rate reform may result in changes to these bill impacts**
  - Open proceeding intends to implement income-graduated fixed charges and reduce the volumetric component of rates

Bill impacts modeled for 1500 customers