



# RICAPS

Regionally Integrated Climate Action Planning Suite

Multi-city Working Group  
May 24, 2022

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# Agenda

- Welcome and Introductions
- Compost Broker Program Update
- Next Steps on RICAPS Feedback
- Existing Building Electrification Module
- Equity and Outreach Best Practices
- Wrap-up

# Next Steps on RICAPS Feedback

## Municipal Building Electrification

- **What We Heard**
  - City staff need help (planning and costs)
  - Every city and building has specific needs
- **What We're Planning**
  - Municipal Building Electrification Guidebook
    - Equipment Inventory Tool
    - Guidance for energy auditing
    - One-stop resources for funding and implementation



# Next Steps on RICAPS Feedback

## Removing Exceptions in Electrification Reach Codes

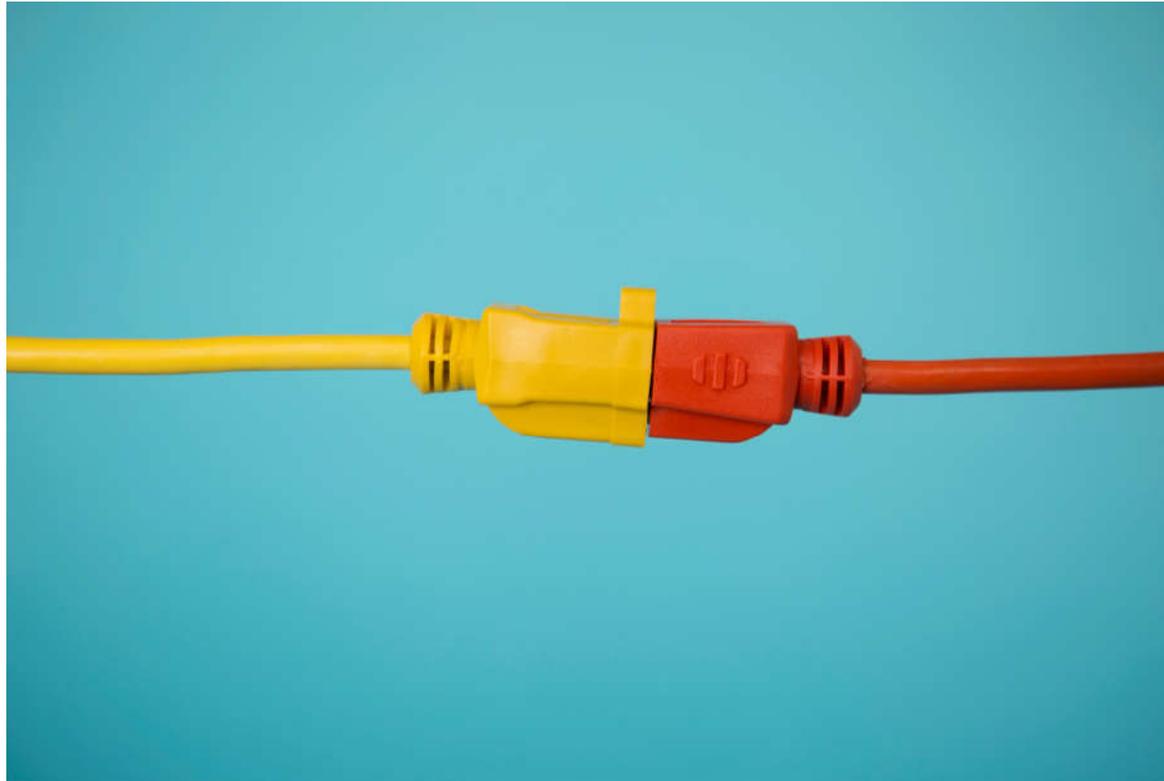
- **What We Heard**
  - City staff need a case study resource for excepted building types
- **What We're Planning**
  - All-electric Building Case Studies Resources
    - Brief summaries of 1-2 case studies for each excepted building type in SMC
    - Lessons learned from reach code implementation
    - To be shared on RICAPS website or Teams channel



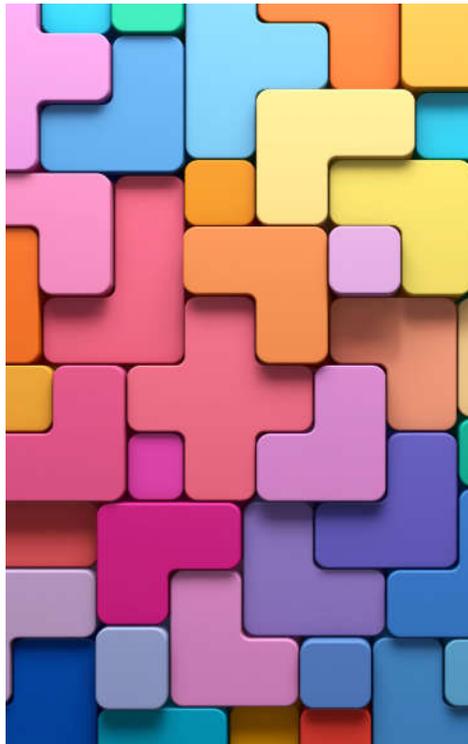


Will these new resources be useful?  
How can we make them more useful?

# Existing Building Electrification



# Existing Building Electrification Module



- **This Month:** Equity and Community Engagement Best Practices
- **Next Month:** Detailed Costs and Short-term Solutions
  - Res. building electrification costs in SMC (PCE case study results)
  - Full-service partnerships (e.g. BlocPower)
  - Short term policies/programs
- **July:** Long-term Solutions
  - Mandatory requirements
  - Microgrids
  - Gas pruning
- **August:** Commercial Buildings
  - Cost considerations
  - Commercial electrification technologies
  - Building performance standards programs



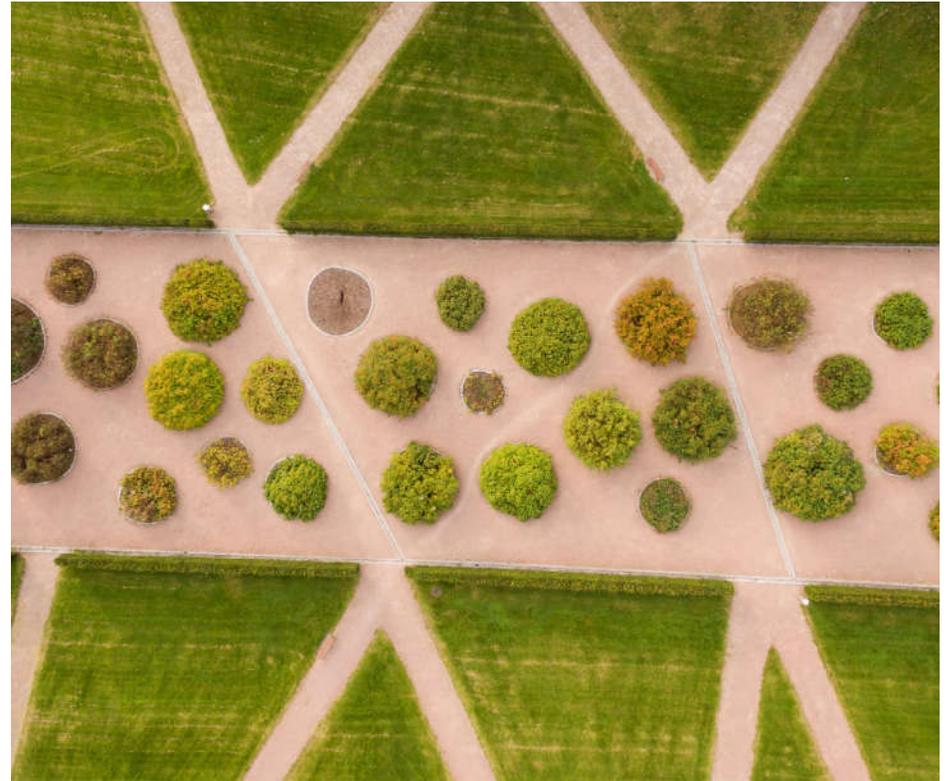
**Quick Survey: Are there other topics you'd like us to address?**

# Current City-Level Electrification Programs

City	Program
Berkeley	Existing Building Electrification Strategy
San Jose	Framework for Existing Building Electrification Centered on Community Priorities
Ithaca	Energy Efficiency Retrofit and Thermal Load Electrification Program
Piedmont	Building Electrification Ordinance – Residential electrification at time of renovation
Half Moon Bay	Building Electrification Ordinance – End of flow
Burbank	Greenhouse Gas Reduction Plan - Residential electrification at time of renovation
Boulder	Comfort 365 Program - Tariffed on-bill financing program for heat pumps
Denver	Building Electrification Ordinance – Building performance standards
Boston	Building Electrification Ordinance – Building performance standards
New York City	Climate Mobilization Act - Building performance standards

# Policy Types

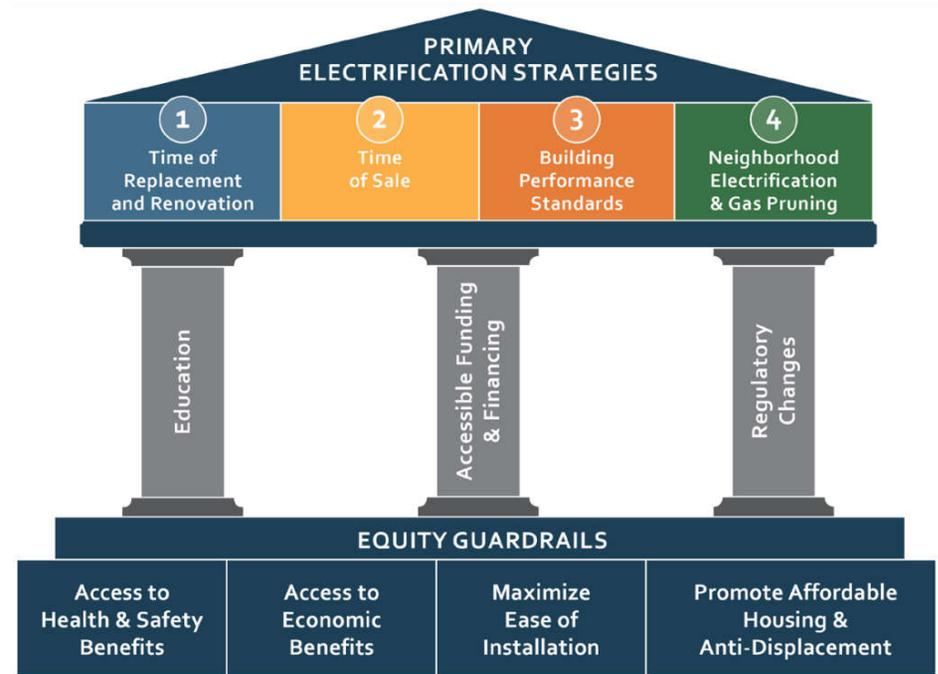
- Electrification at time of burnout
- Electrification at time of renovation
- Electrification at time of sale or new lease
- Building performance standards program (mostly commercial)
- Appliance emissions standards program
- Gas pruning
- End of flow policy



# Berkeley

## Existing Building Electrification Strategy

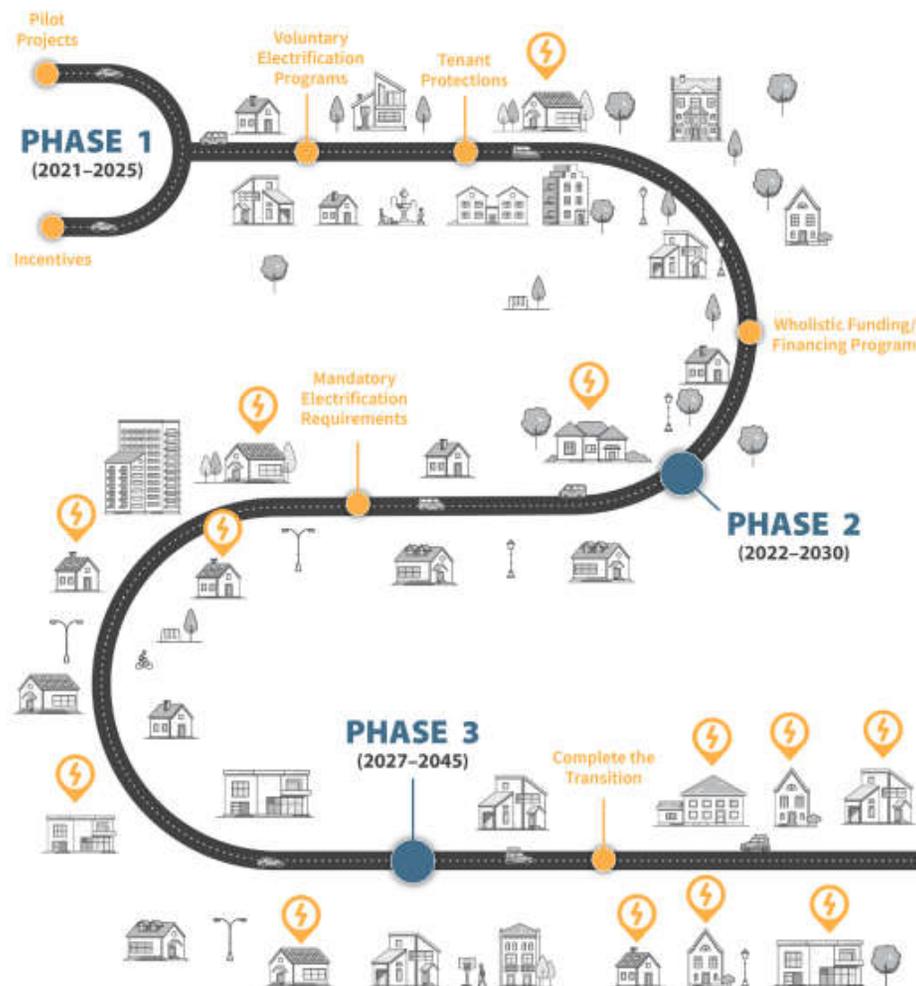
- Focus on equity
- Locally-specific cost analysis
- “yes and” approach
- Policies planned for adoption:
  - Time of replacement/renovation
  - Time of sale
  - Building performance standards
  - Gas pruning
- Additional programs
  - Community education
  - Accessible funding and financing
  - Advocacy for regulatory change



# Berkeley Existing Building Electrification Strategy

Funding and Financing Program Details:

- Tariffed on-bill financing
- Utility and City incentives
- Gas equipment fees (with equity exceptions)
- Prioritized funding for marginalized communities
- Financing options through mortgage and refinancing processes



# Ithaca

## Energy Efficiency Retrofit and Thermal Load Electrification Program

- Buildings energy assessment
- EE + Electrification of all buildings citywide in two phases
- Private equity procurement
- Design low-cost loans to be paid back with on-bill savings
- Partner with BlocPower

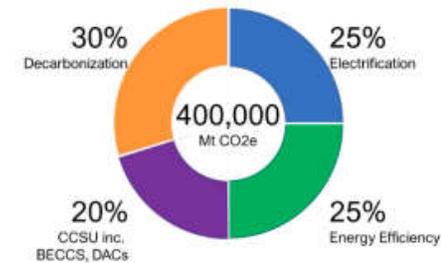


Figure 2. Emissions Reduction Strategy by Program

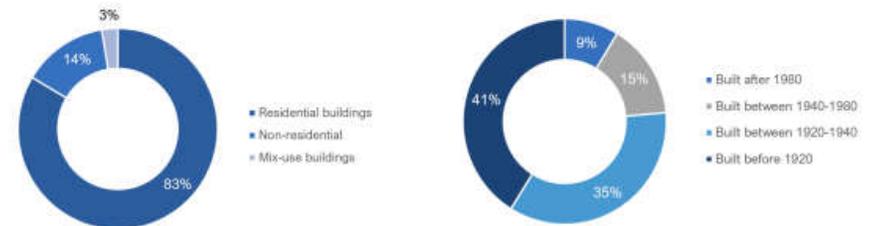


Figure 3. City of Ithaca's Building Stock

# Piedmont

## Residential Electrification Ordinance

- Requires renovations >\$25k to select one energy efficiency measure
- Home sales are required to provide a Home Energy Score/Audit
- Additional panel upgrade and outlet requirements

### **Piedmont Reach Code Checklist for new and existing residential buildings**

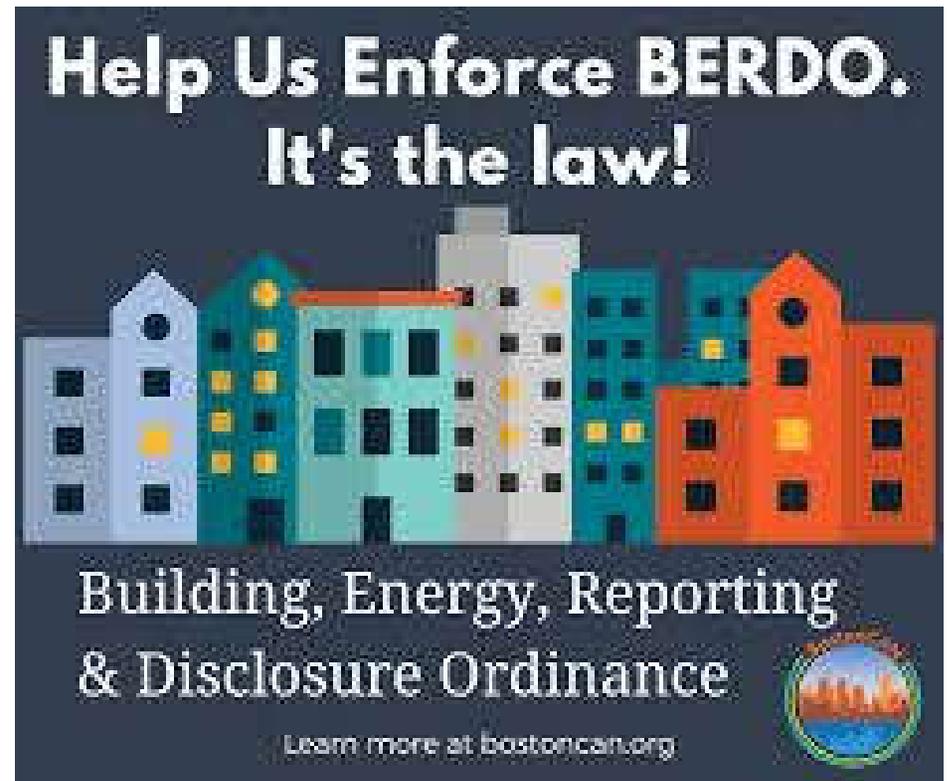
#### **Energy Efficient Measures:**

1. Install R-38 attic insulation, and apply air sealing practices in all accessible areas of the building. Seal ducts to meet the requirements of Section 150.2(b)1E of the 2019 California Energy Code.
2. Install R-19 insulation at raised floor assemblies meeting standards of 2019 California Energy Code Section 150.0(d).
3. Install R-3 insulation on all accessible hot water piping. Install low flow water fixtures meeting standards set forth in the 2019 Green Building Standards Code, Section 403.3.
4. Replace all screw in incandescent and CFL lamps with screw in LED lamps in all light fixtures. Install manual on vacancy sensors in all locations per 2019 California Energy Code Section 110.9(b)4.
5. Replace Fuel Gas furnace with an electric heat pump system meeting the Requirements of the 2019 California Energy Code Section 150.2(b)C or with other high efficiency electric space heating system per approval of the Building Official.
6. Replace Fuel gas water heater with a heat pump water heater meeting the requirements of 2019 California Energy Code Section 150.2Hiii(b) or 150.2Hii(c), or with other high efficiency electric water heating system per approval of the Building Official.
7. Implement one or more recommendations specified in a Home Energy Score or Home Energy Audit report that has been completed within five years and that is submitted with the application for a building permit, with the approval of such recommendation by the Building Official.

# Boston

## Building Energy Reporting and Decarbonization Ordinance

- Requires commercial and multi-family residential buildings to report carbon intensity
- Large buildings must reduce carbon intensity



# Residential Electrification Cost Parameters

## Up-front costs

1. Electric appliance costs
  - Heat pumps
  - HPWH
  - Induction stoves
  - HP dryers, electric panels
2. Adding new 220V wiring from panel to equipment
  - Wiring costs are going up
3. Local labor costs
4. Size of electric panel
  - Pre-1980 → 100-amp panel → panel upgrade
  - Post-1990 → 200-amp panel → no panel upgrade
  - Note: panel capacity requirements could be dropped by “retrofit ready” or watt diet products
  - Note: underground wiring to 100-amp panel makes panel upgrade prohibitively costly
5. Panel versus equipment location and house orientation
  - Farther apart and limited space/access makes project more expensive
6. Extent of weatherization needed
  - Contractors generally will not recommend electrification in badly insulated houses
7. Available rebates

# Residential Electrification Cost Parameters

## On-bill Savings

1. Local electricity versus gas rates
  - Including discounted rates for some residents
2. Equipment time-of-use throughout the year
  - Partially dependent on climate zone
3. Installed equipment efficiency
4. Weatherization/efficiency

# Moonshot

Existing Building Electrification



End of flow by 2045 or earlier

All cities adopt an end of flow ordinance by 2023



# Benefits of an End of Flow Moonshot

- Sends a market signal
- Helps PG&E dial back investment in gas infrastructure
- Politically palatable (action many years out)
  - Leaves room for implementation flexibility
- Sets the stage for the end-goal
- Instigates the planning process to start now

# Pathway to End of Flow

1. Start the conversation with your community
2. Understand technologies/hurdles
3. Understand costs and key cost variables
4. Equity protections
5. Funding and financing solutions
6. Mandatory requirements



We'll talk about  
this today

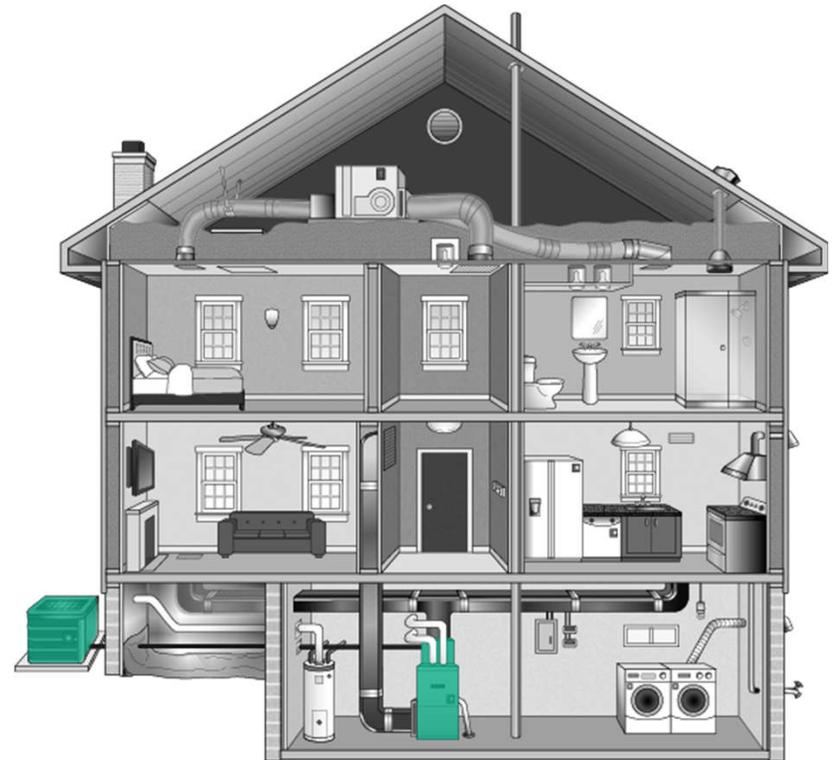
# Starting the Conversation

Lessons Learned from Berkeley  
Existing Building Electrification  
Strategy



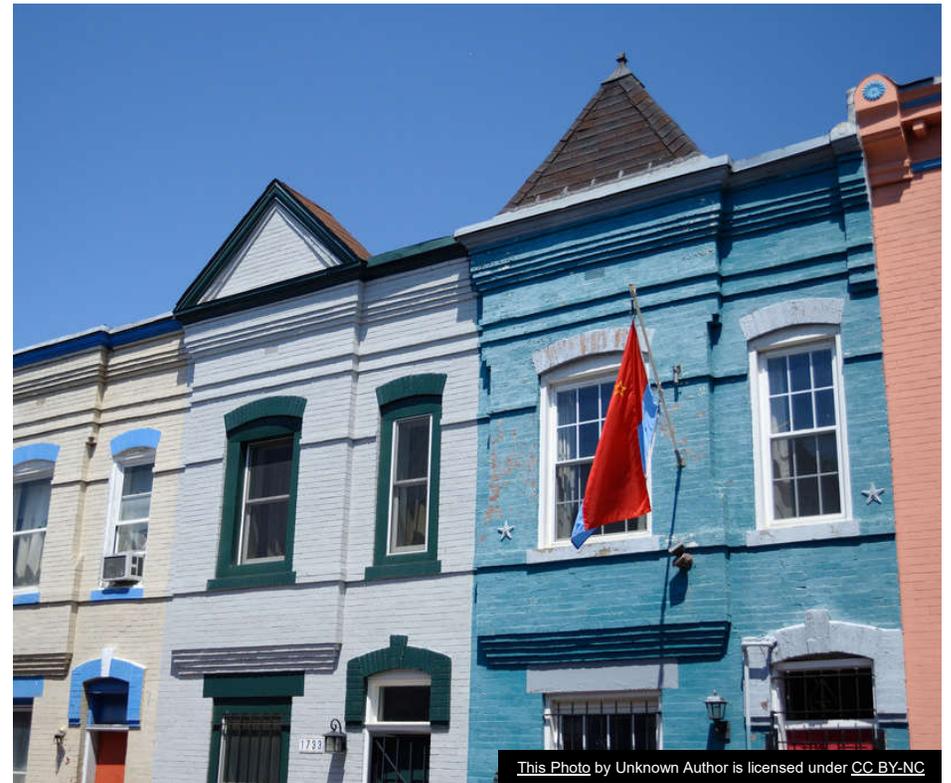
# Electrification is going to add Upfront Costs

- Today, electrification is going to add short term costs in most cases
- Long term cost savings are possible in some but likely not all buildings without incentives
- Process can be complicated
- Benefits are not clearly understood

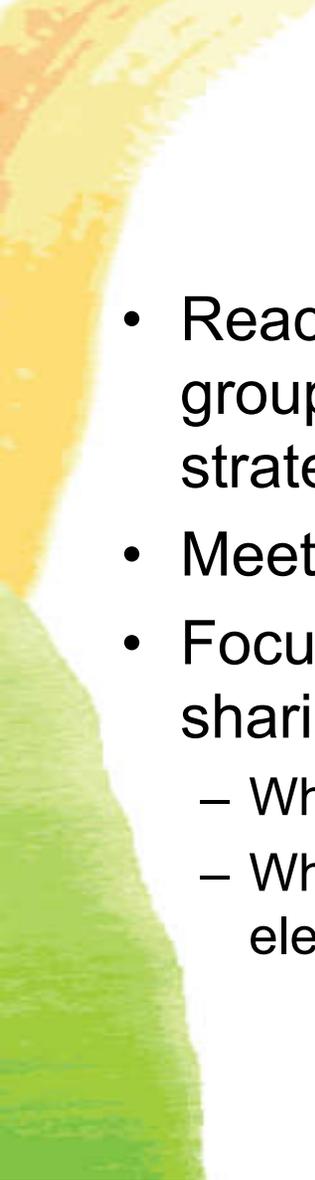


# But Leaving Low Income/Underinvested Communities Behind is not the Answer

- Those last on gas will pay a significant cost
- Those still on gas won't gain the health/safety benefits
- Underinvested communities already have a higher energy burden
  - Less efficient homes and equipment



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# Community Engagement

- Reach out to community groups early and often during strategy development
- Meet people where they are
- Focus on mutual information sharing:
  - What are their concerns?
  - What are the benefits of electrification?

## Types of Groups

- Faith groups/Churches
- Community groups
- Homeowners' associations
- Non-profits
- Environmental Orgs
- Contractors/Installers
- Affordable housing operators
- Businesses/Restaurants

# Feedback

Health, safety, comfort & resilience benefits of electrification should be accessible to all

Upfront and long-term costs are primary concern

Electrification upgrades should be linked with other health/safety upgrades (e.g. lead, asbestos, mold)

Concern of displacement due to housing improvements (increased rent)

Need accessible financing and funding options – no new debt

Need to work with labor for just transition

Work closely with community on solutions

More education needed

Need to build trust in City, electrification

City and companies should be a model in electrification before requiring others

Concern of reliability of electricity supply, especially with PSPS events

# Community Feedback

## Model Results



Having specifics on the process and associated costs is helpful in framing the issues.



## Community Feedback



Costs were a significant hurdle for many community members.

While electrification could provide some real long-term benefits, there are serious equity impacts that must be acknowledged and mitigated.



# Draft Equity Guardrails



## ACCESS TO HEALTH & SAFETY BENEFITS

Ensure equitable access to improved health, safety and comfort benefits from electrification like cleaner air and cooling for hot days. Due to the upfront costs of electrification, many households will need financial support to have access to the benefits of electrification, including long-term cost savings.



## ACCESS TO ECONOMIC BENEFITS

Ensure all community members, especially communities of color and historically disadvantaged groups have equitable access to funding and financing mechanisms, and to high-road job opportunities.



## MAXIMIZE EASE OF INSTALLATION

Ensure that incentives and programs for the community provide meaningful support to renters, owners, and vulnerable community members to minimize the procedural burdens associated with installation of electric equipment.



## PROMOTE HOUSING AFFORDABILITY & ANTI-DISPLACEMENT

Ensure upgrades don't displace renters or over-burden homeowners. Programs should support housing production, housing preservation, and tenant protections. Ensure funds don't get diverted from developing new housing.

# Summary of Take Aways



Start conversations early



Understand costs/savings potentials



Build in policies to address concerns



Center on equity



Partnerships and relationships will be key to implementation

# Air Quality Monitoring Pilot Project

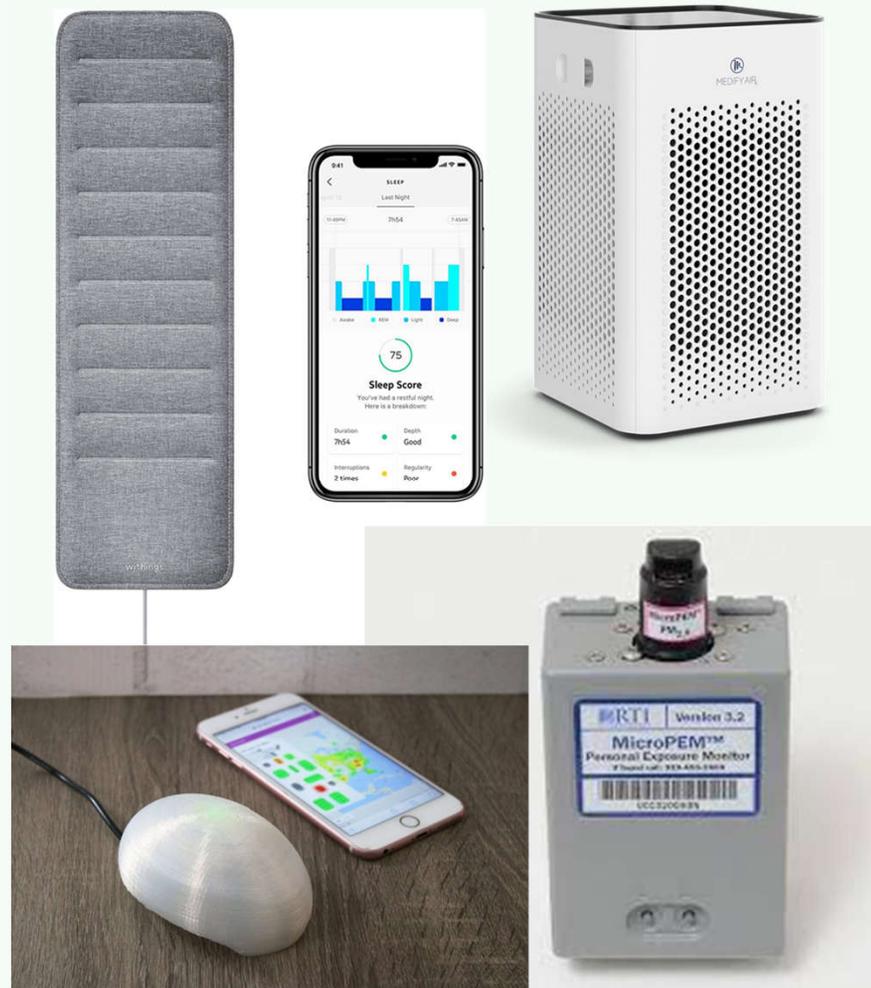
Cade Cannedy – Acterra

Michelle Daher – City of East Palo Alto



# Our Communities Our Bay

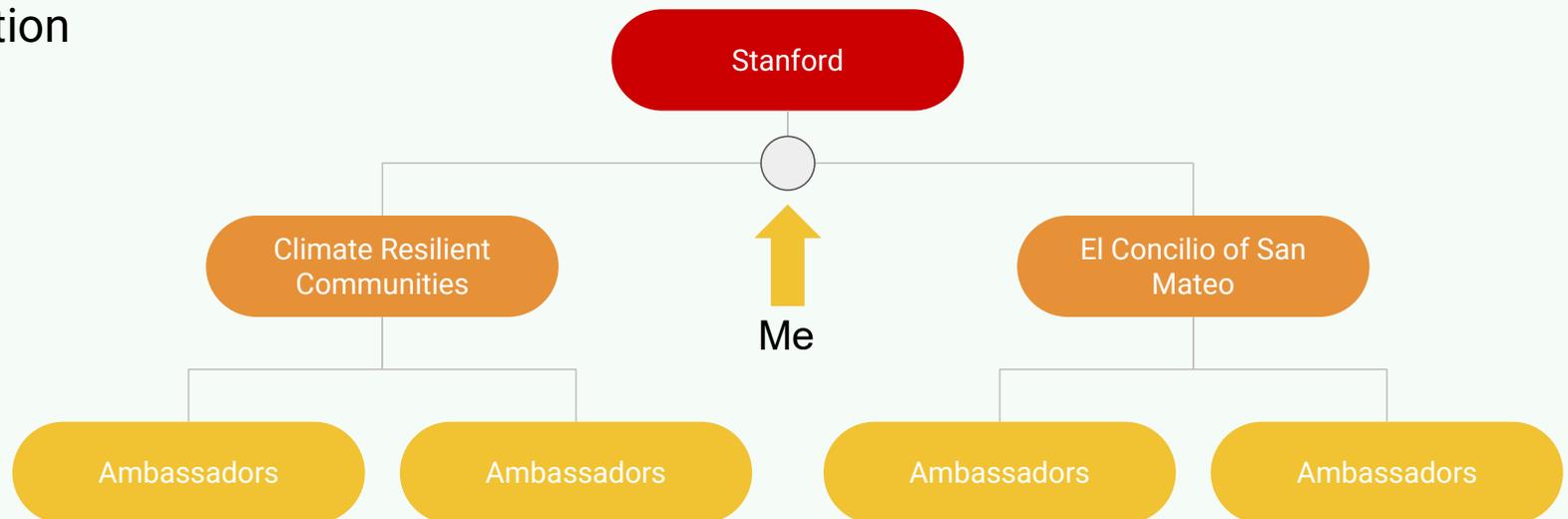
- Collaboration with Stanford Future Bay Initiative and El Concilio
- Meant to study **how people adapt to climate change events in real-time**
- Participants receive an **indoor Purple Air monitor** and a **sleep sensor** to track air quality and health
- Participants take **surveys** about their home and experiences over 3 years.
- Some people will also receive **air purifiers** and/or **personal exposure monitors**
- Will provide community members with more information about their health, air quality, and what they can do to stay safe and healthy



# Our Communities Our Bay

## Recruitment Model:

- Ambassador system
- Composed of local residents
- Helps navigate language and trust barriers
- Requires a lot of training, open communication



# Our Communities Our Bay

## Lessons learned:

- Household
- Successful pilot
- Recommend Ambassador Model for projects requiring a great deal of trust

Questions?

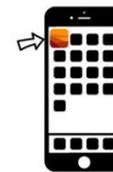


## Participate in a Study on Climate Hazards

Compensation:

\$290 and opportunities to win a free iPad Pro or \$1000

Climate Resilient Communities, El Concilio of San Mateo County, and Stanford researchers want to hear your experiences with wildfire smoke, extreme heat, and/or flooding.



Air quality sensor



Participants will download a smartphone app and answer surveys about their home and experiences for the next **three years**. You will also get to keep an air sensor after the study is over, which is valued at \$199.

Interested to learn more? Please contact:



Climate Resilient Communities  
(650) 931-6019  
or Lesley Lopez at (650) 621-0043



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[www.OurCommunitiesOurBay.org](http://www.OurCommunitiesOurBay.org)