CLIMATE SMART SAN JOSE: REPLACE ON BURNOUT POLICY DISCUSSION

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Delivering world-class utility services and programs to improve health, environment, and economy.

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CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY
Environmental Services

OVERVIEW FOR TODAY

- Background
- Introduction to the Replace-on-Burnout policy
- Policy analysis findings
- Comments and questions

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THE REALITY OF CLIMATE CHANGE

"Every extra bit of warming matters, especially since warming of 1.5℃ or higher increases the risk associated with long-lasting or irreversible changes"

Summary for Policymakers.IPCC. 2022.

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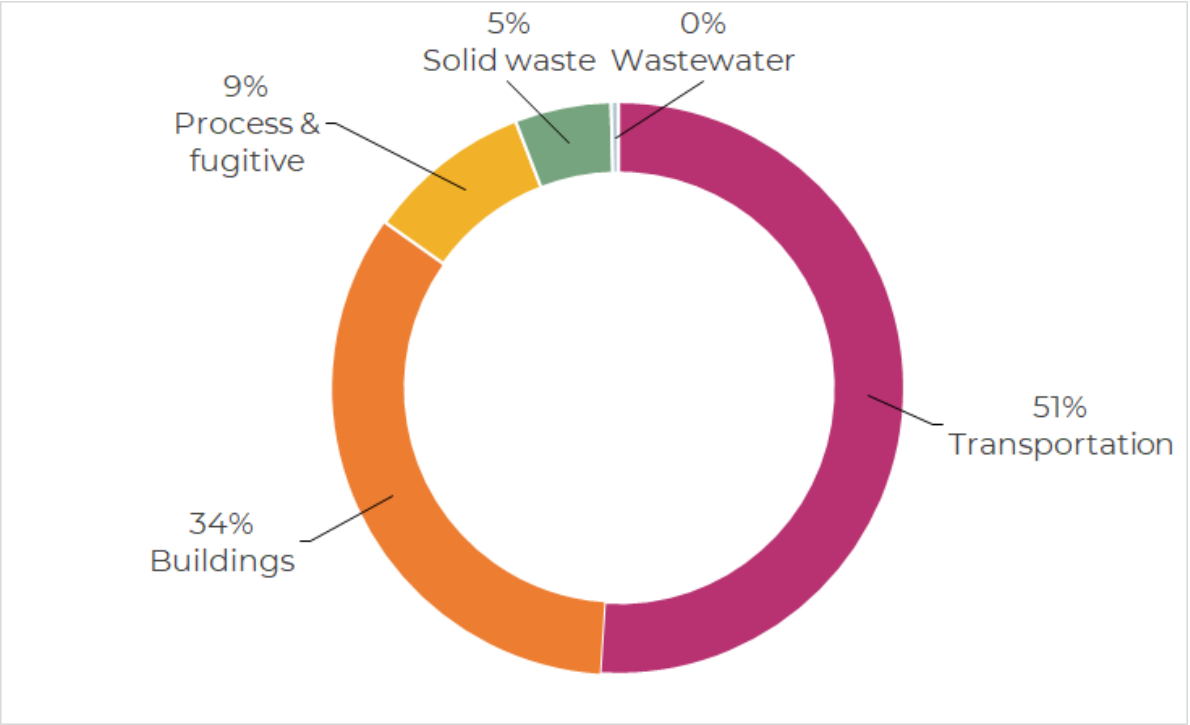
BACKGROUND

All-Electric New Development

- Building Reach Code (2019) EV infrastructure requirements for new buildings
- Solar ready required for all new buildings (except ADUs)
- Natural Gas Infrastructure Prohibition Ordinance (2019, 2020) Prohibits natural gas infrastructure in all new buildings (with limited exemptions)

All-Electric Existing Buildings

- Carbon Neutrality by 2020 Resolution (2021)
- Framework for Existing Building Electrification (2022)
- Pathway to Carbon Neutrality by 2030 (2022)



Energy use in buildings makes up about 1/3 of city-wide greenhouse gas emissions

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COUNCIL DIRECTION

Council Direction: In an effort to accelerate decarbonization of our existing buildings, conduct research and stakeholder engagement, including with mobile home parks, on the prospect of including a "Replace-on-Burnout Ordinance" in the current reach code update, with the accompanying provision of rebates and other incentives to support supplanting gas with electric appliances. Return in the fall with findings.

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STAKEHOLDER ENGAGEMENT TIMELINE

Group 1	Group 2	Group 3	Group 4
Contractors, developers and labor orgs	Residents	Landlords, HOAs, Property Managers	CBOs and labor orgs
October 3rd 6-7pm	October 4th 12-1pm 6-7pm	October 5th 6-7pm	October 6th 6-7pm

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POLICY OPTIONS THAT ADDRESS EXISTING BUILDING ELECTRIFICATION

Existing Building Electrification Framework

Type of Policy Requirement	Description
Building Performance Standards	Establish targets for buildings to electrify, reduce GHG emissions, or improve other metrics by a specific date.
Minimum Efficiency Standards for Rentals	Requires property owners to meet a minimum efficiency standard for their building or unit before they can receive and/or renew their rental licenses
Requirements at Time of Major Renovation	Requires electric building systems at the time of renovating a building or home.
Requirements at the time of System Replacement (burnout)	Requires the installation of appliances powered by electricity instead of gas at the time of system replacement.

WHAT IS A REPLACEMENT AT BURNOUT POLICY

Policy Requirements

Regulates which systems are allowable to install at the time of system replacement – such as the installation of appliances powered by electricity instead of gas – and would be enforced through permitting.

Policy Goals

To begin the transition away from energy-intensive and GHG-intensive appliances and introduce new energy-efficient and carbon-neutral technologies into buildings and homes.

Compliance Process

City permitting process

- Heat pump water heaters
- Heat pump heating, ventilation, and cooling (HVAC)

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APPLIANCES COVERED IN THIS POLICY

Focus: water heating and space heating/cooling.

Furnace/ central gas AC → Heat Pump Air Conditioning

Gas Water Heater → Heat Pump Water Heater

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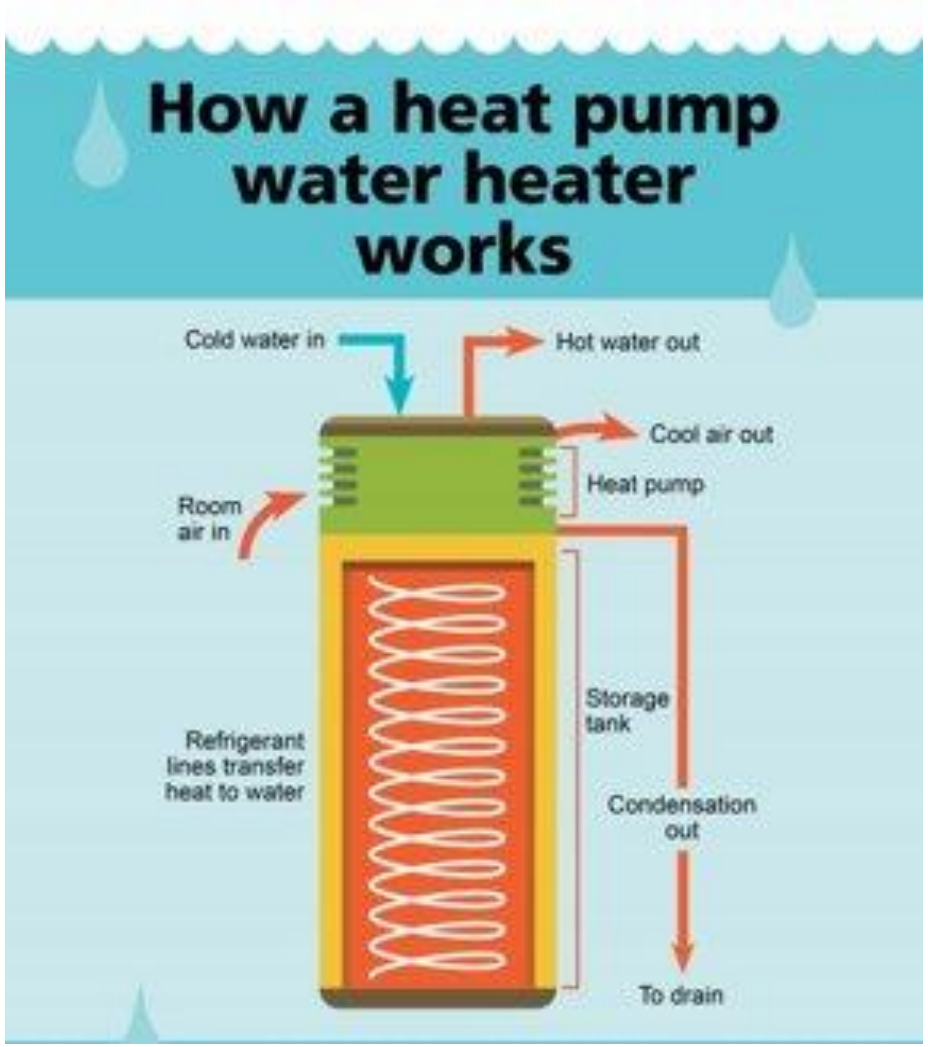
HEAT PUMP WATER HEATER (HPWH)

Heat pump water heaters are the energy-efficient replacement of gas water heaters.

- HPWHs use electricity to move heat from their surrounding air and transfer it at a higher temperature to their storage tank.



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HEAT PUMP AIR CONDITIONING

Heat pump HVAC systems are the energy-efficient replacement of central AC systems and furnaces that run on gas.

- Heat pump HVAC systems use electricity to redistribute air for cooling and heating needs

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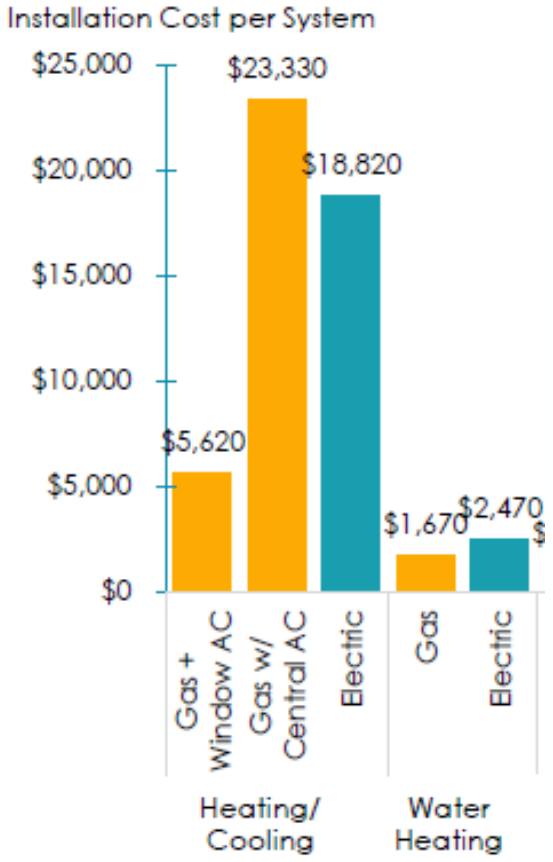
Costs, Funding Assistance & Co-Benefits to Consider

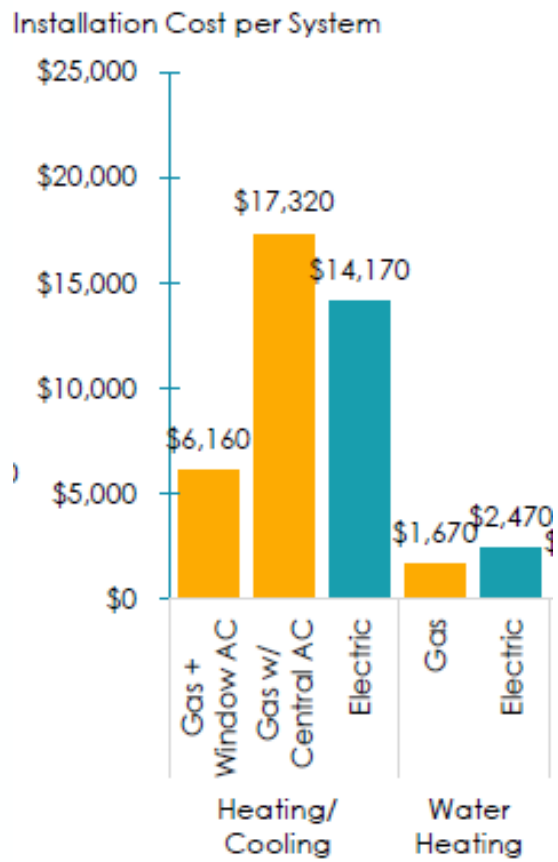
COSTS TO CONSIDER – SINGLE FAMILY HOMES

- **Heat pump air conditioning** is less expensive than installing a new gas-powered central A/C system in a single-family home
- **HPWHs** may be more expensive than the gas alternate but provide additional health benefits (discussed in the next slide)
- **Electric Panel Upgrade i**nstallation costs an average $4,300
- Operational, maintenance, and repair costs vary and can depend on electricity rates and behavior usage.

Installation costs include equipment costs and labor costs.



Single-family homes built before 1990



Single-family homes built after 1990

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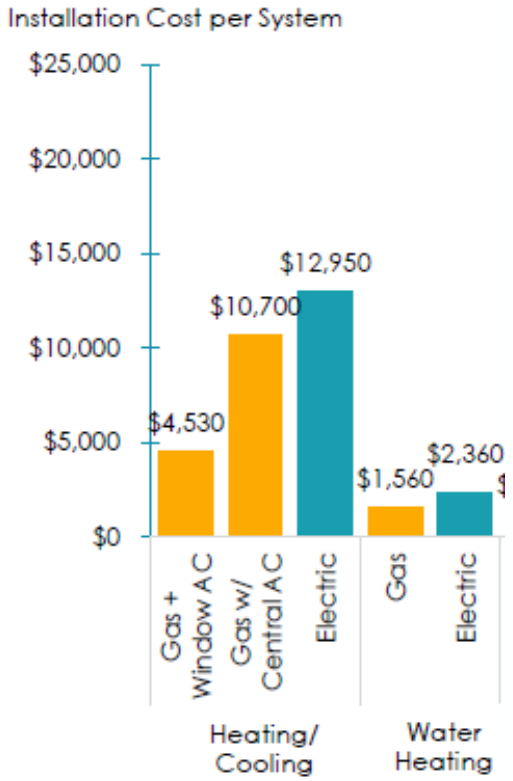
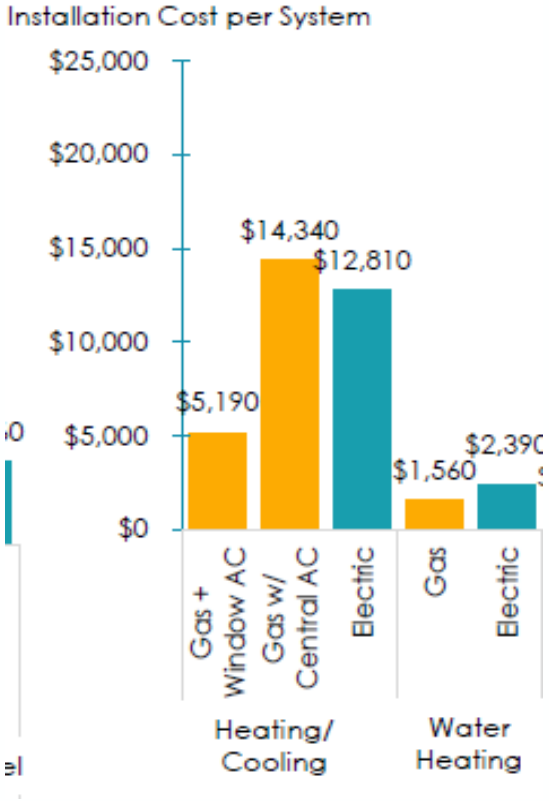
COSTS TO CONSIDER – MULTI-FAMILY HOUSING

- **HPWH** installation is more expensive than gas water heater installations in homes built before and after 1990
- **Heat pump HVAC** is less expensive to install in multi-family homes built after 1990
- For many multi-family buildings, a panel upgrade will be necessary to electrify a water heater and HVAC system

Installation costs include equipment costs and labor costs ***per unit.***



Multi-family homes built before 1990



Multi-family homes built after 1990

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DIRECT AND INDIRECT CO-BENEFITS

Healthier and Safer Homes

- HPWHs and HVAC systems **reduce energy costs** for customers
- By replacing gas-powered appliances, HPWHs and HVAC systems **reduce the potential risk of a dangerous event**, such as a gas leak
- Heat pump HVAC systems, by design, can help to improve indoor air quality

Grid Resiliency & Job Growth

- Increasing **energy efficiency measures help to reduce the stress on our power grid, resulting in fewer power outages**. This is especially important during peak demand and extreme weather events such as the September 2022 heat wave.
- Increases demand for electrification jobs and over time, as more existing contractors learn and train to complete electrification upgrades, and new individuals come into this job market, the overall price of electrification decreases.

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LOCAL AND FEDERAL FUNDING RESOURCES

BayREN

- Heat pump water heater incentives $1,000
- Heat pump HVAC $1,000
- Multi-family program $750/unit

PG&E

- $300 rebate on HPWH

California Low-Income Weatherization Program

- Helps to finance electrification upgrades

Inflation Reduction Act (IRA) (2022)

- How much money will you qualify for? Visit: https://www.rewiringamerica.org/app/ira-calculator

TECH Clean California

- Offers incentives for HPWH and HP-HVAC installations in single-family and multifamily homes

BayREN Business Microloans

- Provides rebates for small and medium business owners for heat pump water heaters, HVAC, and more

THE SWITCH IS ON

BAYREN
Local Governments Empowering Our Communities

TECH
CLEAN CALIFORNIA

IRA Appliance	IRA Potential Rebate
Heat pump water heater	$1,750
Heat pump air conditioner	$8,000 cap
Electric panel	$4,000

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Policy Analysis Findings

PERMIT TRENDS & POTENTIAL EMISSIONS REDUCTIONS

City of San Jose issued permits for water heater and furnace replacements.

- This table assumes permits remain constant and HP and HPWH upgrades are completed
- How many replacements do we need to see a year to get closer to reaching our carbon neutrality by 2030 goal?
  - Furnace – 7,516
  - Gas water heater – 13,852

Appliance	2019 – 2021 Average # of Issued Permits	Potential annual GHG emissions reductions (metric tons)
Furnace	461	2,139.38
Gas Water Heater	908	5,680.43
Total	1,126	7,820 [equivalent to 1,508 cars]

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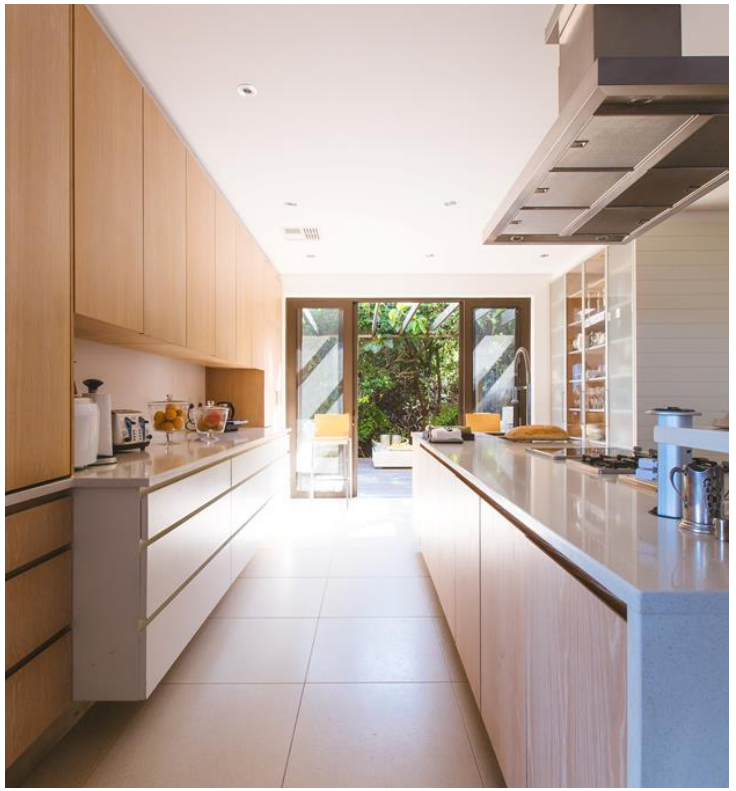
WHAT ARE OTHER CITIES DOING

City of San Mateo

Replacement at Renovation

- Requires single-family residential and duplexes to install heat pump air conditioning when new air conditioning is installed or replaced in conjunction with furnace replacement
- Requires heat pump water heater installation during single-family residential projects that include water heater replacement



City of Half Moon Bay

Replacement at Burnout

- Requiring residential and commercial buildings to replace an existing gas appliance with an electric alternative when it stopped working.
- The ordinance also was going to prohibit owners of existing residential buildings from adding gas lines.

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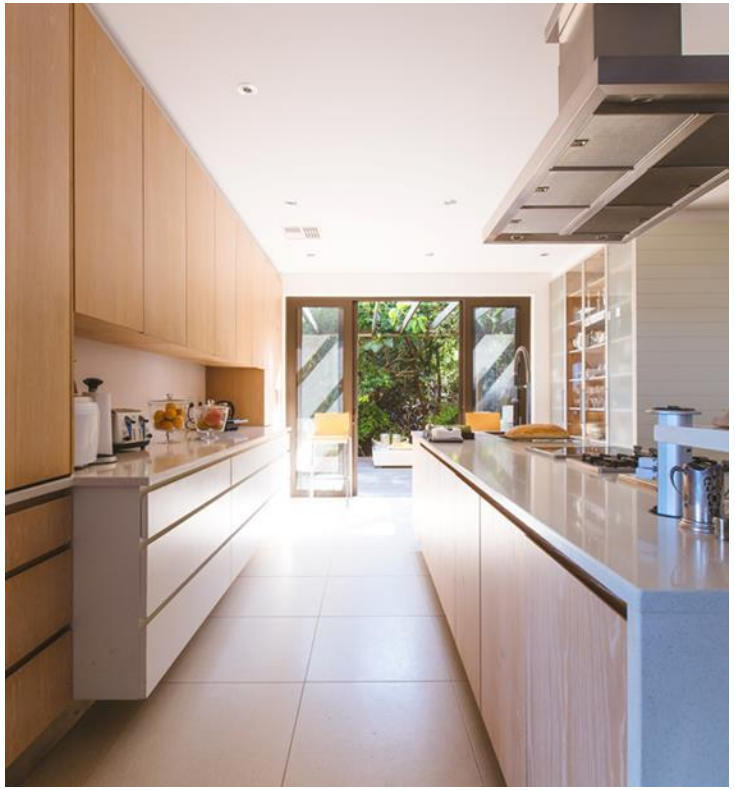
WHAT ARE OTHER CITIES DOING

City of Palo Alto

Replacement at Renovation

- Proposed new code requirements is requiring heat pump water heaters when water heaters are replaced as part of a residential addition and/or alteration project. This would not apply to burnout/standalone water heater replacements.



City of Berkeley

Replacement at Renovation and Burnout

- Phases to implementation. Phase 1(2021-2025): community engagement and education, development of incentive programs, collaboration with labor and workforce organizations. Phase 2 (2022-2030): policy enaction. Phase 3 (2027-2045): prohibiting the installation of gas equipment in all buildings.

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BARRIERS AND SOLUTIONS

1. **Upfront costs:** While appliances like HP-HVAC and HPWHs offer long-term savings and benefits like healthier air and built-in AC, higher upfront costs could be a significant hurdle for middle and low-income communities. Solution: provide incentives when a permit is pulled, provide workforce development training for contractors and develop a contractor list to help decrease installation costs.
2. **General lack of awareness** related to newer electric appliance options, such as heat pumps. Solution: Provide education around the cost, health, and resiliency benefits of electrifying appliances. Workforce development education to equip them with the skills they need to do these jobs.
3. **Permitting:** The complexity of and time required for permitting can deter adoption. Solution: Simplify the permitting process by, for example, providing 3-in-1 permits for HPWHs. This could enhance the permitting compliance rate and incentivize more electrification projects.
4. **Point of Sale:** transition in ownership and costs associated with a near-term potential replacement. Solution: Require that a home energy audit be prepared for the buyer and city during sale.

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BARRIERS AND SOLUTIONS

- For multifamily housing specifically, additional barriers exist around the split incentive – where property owners are not motivated to make upgrades to their buildings if they will not realize the resulting operational cost savings.
- Mobile homes are unique in that they are not subject to local building codes and could not be required to comply with a replace-on-burnout policy unless instructed to through the Manufactured Home Construction and Safety Standards.

COMMENTS AND QUESTIONS

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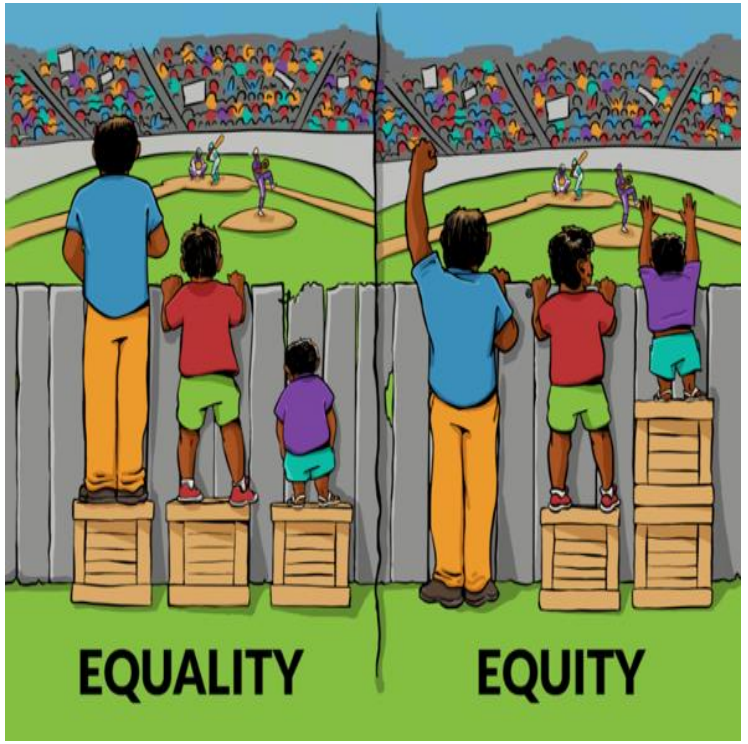
COMMENTS AND QUESTIONS

Q1: If a Replace-on-Burnout policy was presented as a policy option for existing building electrification in the City of San Jose, what support/resources would you need in the next year?

Q2: What questions, comments, and/or concerns (if any) do you have about the Replace-on-Burnout policy at this time?

You may also email us questions at climatesmart@sanjoseca.gov



EQUALITY VS. EQUITY
Not one size fits all

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THANK YOU