

All-Electric Ordinance

Planning Board

April 26, 2021

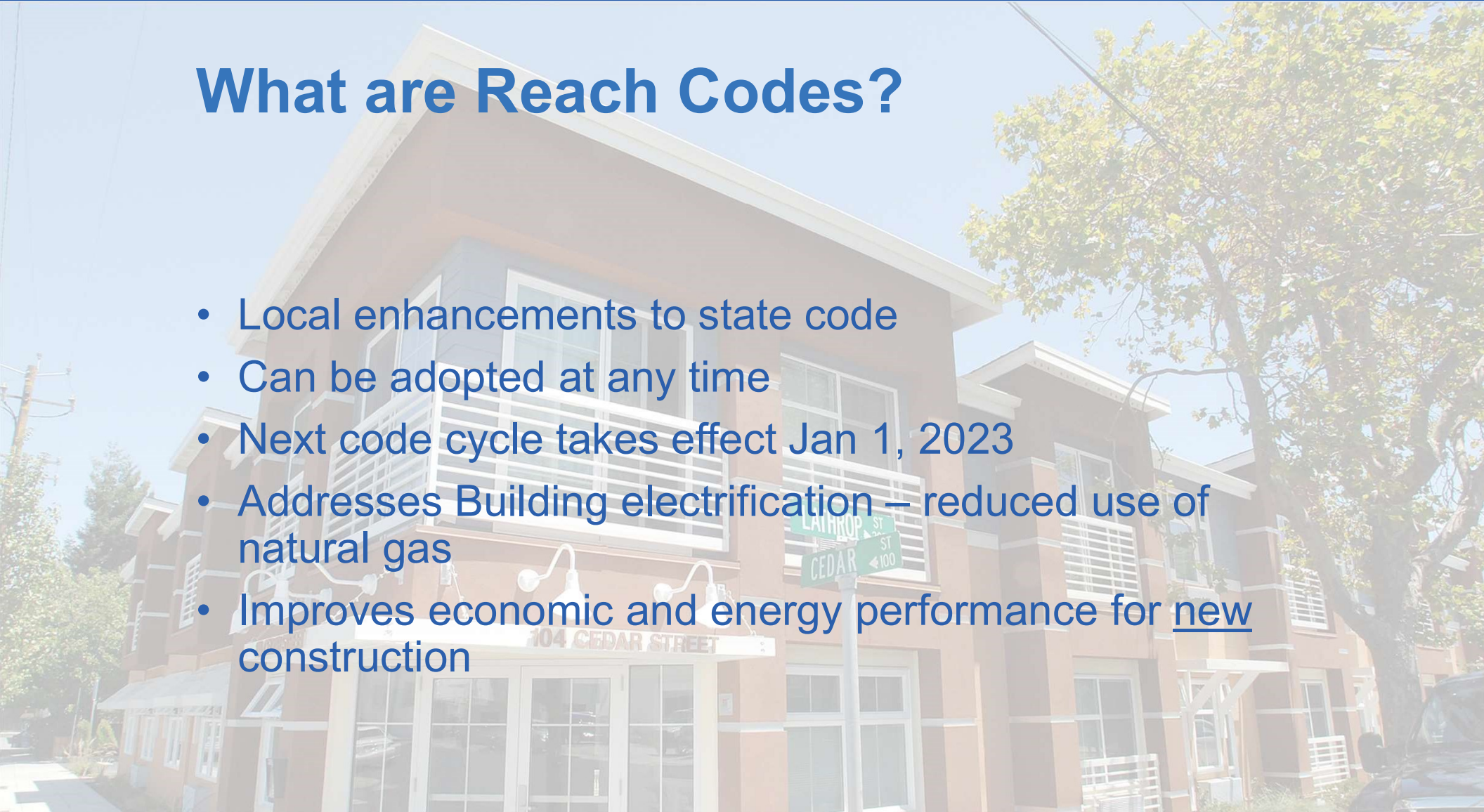


Building Reach Codes

Advancing safer, healthier and more affordable buildings

What are Reach Codes?

- Local enhancements to state code
- Can be adopted at any time
- Next code cycle takes effect Jan 1, 2023
- Addresses Building electrification – reduced use of natural gas
- Improves economic and energy performance for new construction



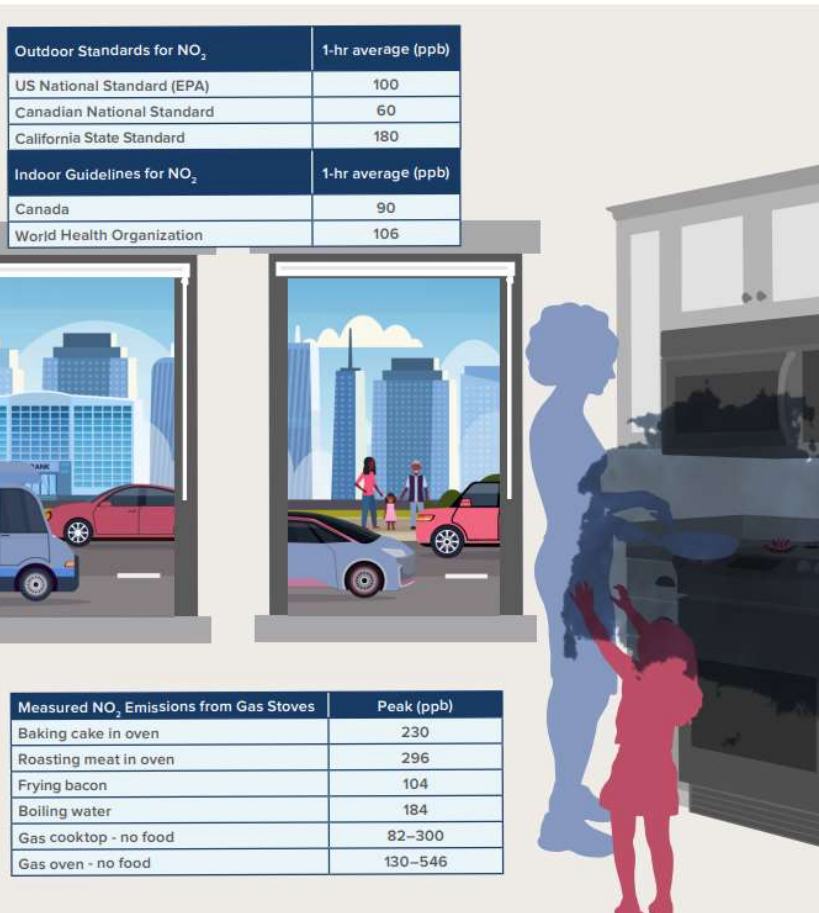
Summary of Benefits

- Economic value for residents
- Safer and healthier homes
- Advance climate goals
- Align with state decarbonization goals

1-2 tons CO₂
*avoided per year for
every home*

**This Reach Code effort applies only
to NEW construction**

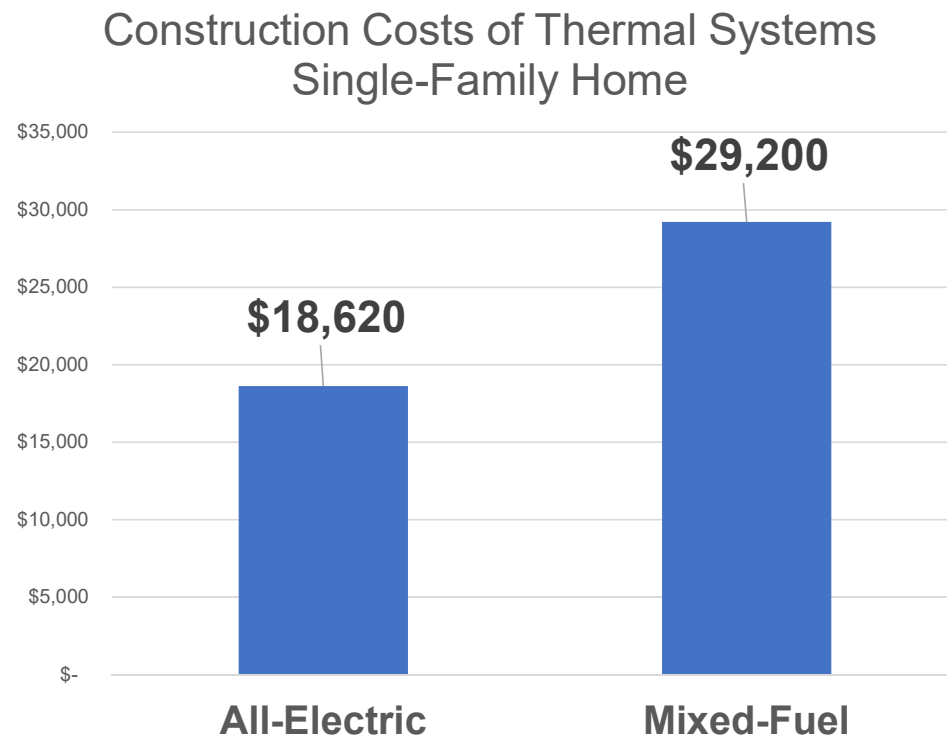
Health Benefits



- Gas stoves in homes increase children’s asthma risk by 42%
- Total electric living eliminates risk of carbon monoxide poisoning
- Induction ranges automatically turn off when not in-use, eliminating a leading cause of house fires

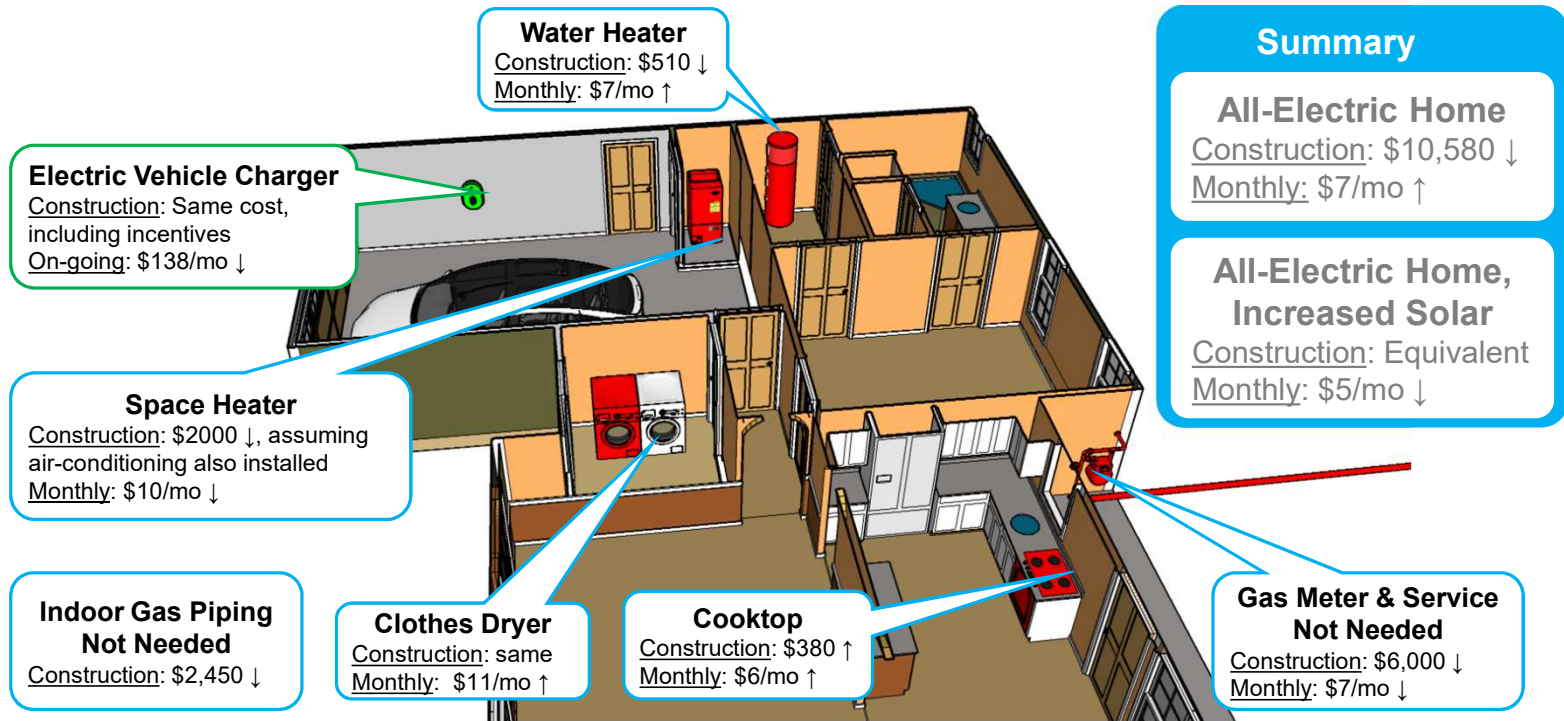
Gas Stoves Can Emit Elevated Indoor Nitrogen Dioxide (NO₂) Levels Often Exceeding Indoor Guidelines and Outdoor Standards. *Source: Health Effects from Gas Stove Pollution, Rocky Mountain Institute, 2020, <https://rmi.org/insight/gasstoves-pollution-health>.*

All-Electric New Construction Costs Less Than With Gas



- All-electric homes are less expensive to build
- Natural gas plumbing, metering and venting is not required
- Multiple independent analysis including California Energy Commission and University of California
- University of California commits to all-electric construction for all new buildings

Electrifying New Single Family Homes in the Bay Area – The Cost Story

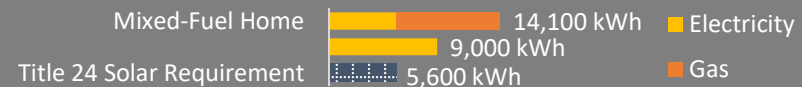


Capital Cost of Thermal Systems



\$191 Net Lifecycle Cost Savings per year for an all-electric home versus the mixed-fuel equivalent

Annual Energy Use & Generation



3 MT CO₂e Carbon Emissions Savings per home, per year based on 2030 grid mix

Construction and monthly energy costs of thermal systems are based on Residential Building Electrification in California by E3 (April 2019); electricity costs specific to PCE/SVCE territory. All-Electric Home, Increased Solar bill impacts are based on Low-Rise Residential New Construction 2019 Cost Effectiveness Study by Frontier Energy (August 2019) Version 8 10/21/2019

All-Electric New Construction is Cost Effective

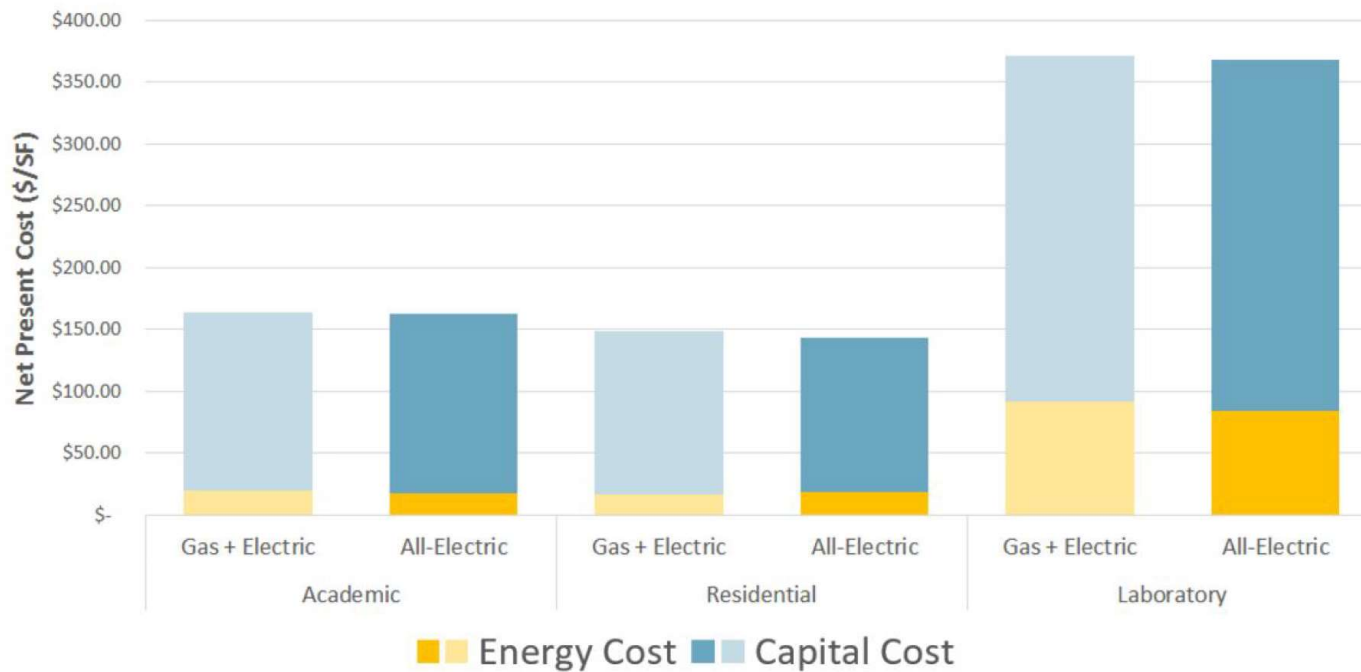


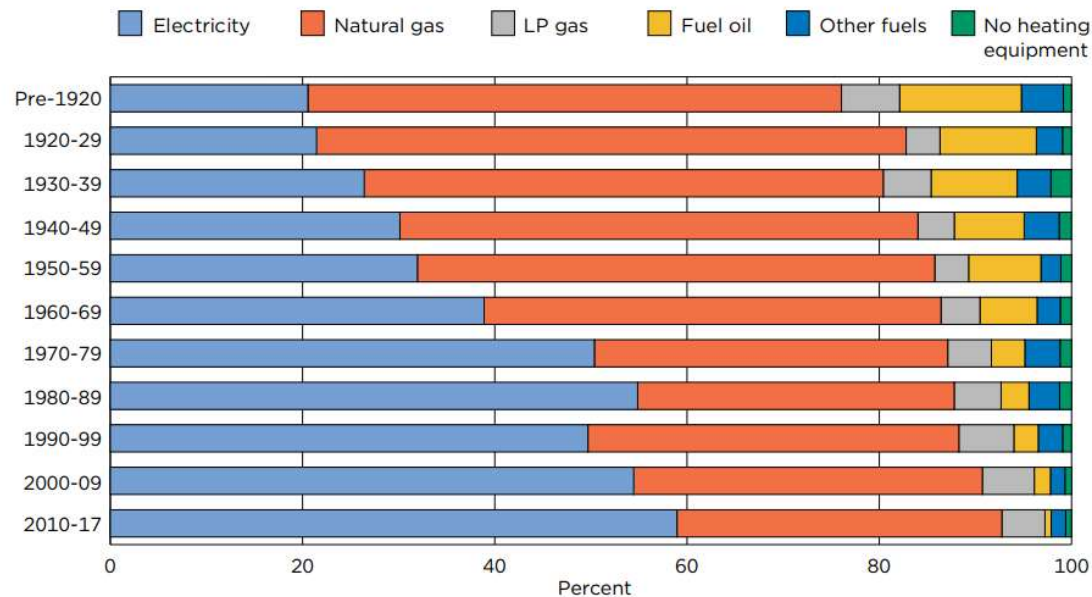
Figure 1. UC Average Total Net Present Costs across All Campuses

Source: UC Berkeley Carbon Neutral Buildings study:

<https://www.ucop.edu/sustainability/files/Carbon%20Neutral%20New%20Building%20Cost%20Study%20FinalReport.pdf>

New All-Electric Homes Are the Majority

Figure 3.
Home Heating Fuel by Decade Home Was Built



Note: Data include primary heating systems for both occupied and vacant homes, secondary systems are not included. Other fuels include fuel oil, wood, kerosene, and any other fuel.
Source: U.S. Census Bureau, 2017 American Housing Survey.

Of national new construction homes:¹

60% use electric space heating (40% of which are heat pumps²)

55% use electric water heating

62% use electric cooking

75% use electric clothes drying

Sources:

1 - [2017 American Community Survey](#)

2 - [2017 IEA Heat Pump Conference Proceedings](#)

Stoves: Consumer Reports Prefers Induction

6 of top 8 Ranges for 2020 were electric, top 2 were Induction

| Fuel | Model | Consumer Reports Rating | Cost |
|-----------|-------------------------------|-------------------------|---------|
| Induction | GE Profile PHS930SLSS | 86 | \$2,432 |
| Induction | Kenmore Elite 95073 | 84 | \$1,525 |
| Gas | LG Signature LUTD4919SN | 84 | \$3,000 |
| Induction | LG LSE4617ST | 82 | \$2,500 |
| Induction | LG LSE4616ST | 82 | \$1,700 |
| Smoothtop | Whirlpool WGE745c0FS | 82 | \$1,000 |
| Gas | Samsung NY58J9850WS | 81 | \$2,725 |
| Induction | Frigidaire Gallery FGIF3036TF | 81 | \$1,035 |

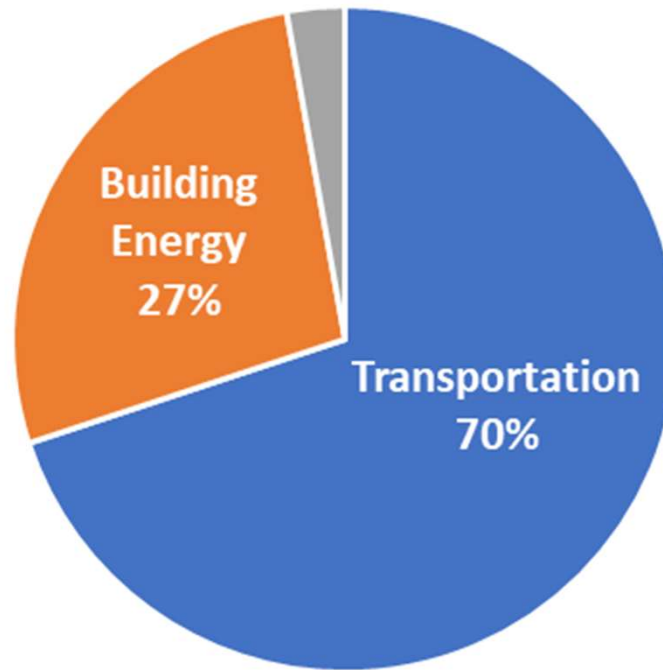


Alameda's Electrification Efforts to Date

- Alameda's Climate Action and Resilience Plan (CARP) calls for the City to require all new residential construction to be 100% electric-powered with no gas hookups
- In 2019, Council passed an ordinance limiting natural gas infrastructure in residential projects on city-owned land
- In 2020, AMP began providing 100% clean energy to all customers



Alameda's Emissions



All-Electric New Buildings Ordinance

- Extend the all-electric requirement on city property to all of Alameda
- All newly constructed residential and non-residential buildings would be required to be built all-electric, with certain exceptions.
- Requires solar PV on new high-rise residential and non-residential buildings covering 15 percent of the roof area, with exceptions allowed for shading or overgeneration
 - Already required for residential 3 stories and below
- Designed to improve indoor air quality and safety, disaster resilience, and reduce construction costs
- 40+ jurisdictions across California have enacted similar requirements



Proposed Exceptions

- Commercial kitchen cooking appliances.
- Space and water heating process equipment for laboratories, manufacturing, or R&D
- New detached ADUs.
- Multi-family residential projects with a valid planning entitlement exempt from installing all-electric water heating systems.
- Projects with a valid development agreement.
- Projects unable to achieve the Energy Code's performance compliance pathway using commercially available technology and an approved calculation method

*Excepted buildings must prepare for future electrification



Public Outreach

- Alameda Youth Collaborative meeting
- CASA monthly meeting
- Alameda Chamber of Commerce Government Relations Economic Development Committee meeting
- League of Women Voters/CASA workshop on Electrifying Alameda's Homes
- Handout and two info sessions for builders and developers



Next steps



Contact me!

Danielle Mieler

dmieler@alamedaca.gov

510-747-4713

