

Healthy New Buildings: Zero NOx Reach Code

Health, Life Enrichment, Equity & Community Policy Committee

July 29, 2024



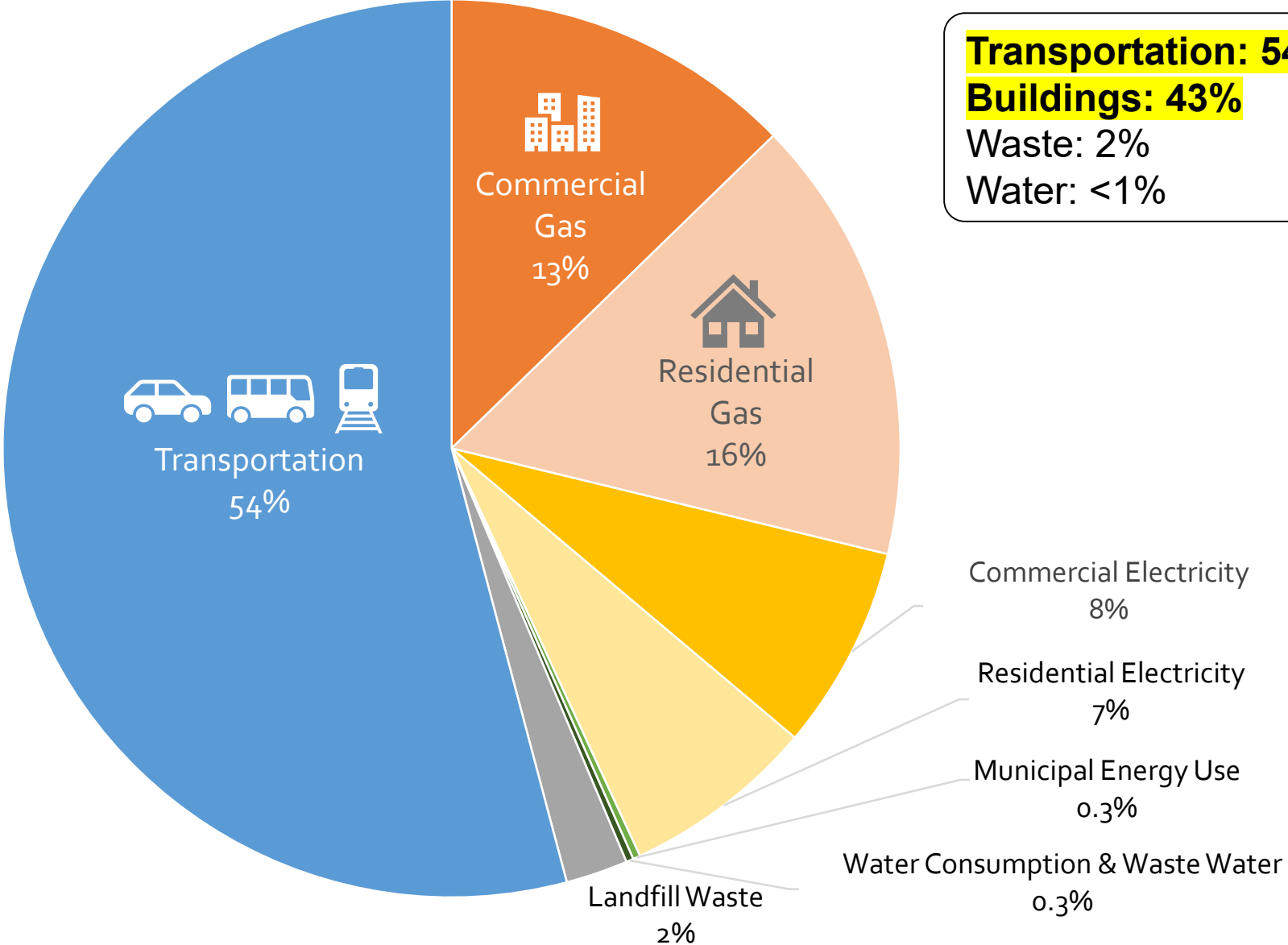
Berkeley Climate Leadership



- Climate Action Plan
- Berkeley Resilience Strategy
- Fossil Fuel Free City
- Climate Emergency Declaration
- 100% Renewable Electricity by 2035
- Net Zero Carbon Emissions by 2045



Greenhouse Gas Inventory



Transportation: 54%

Buildings: 43%

Waste: 2%

Water: <1%

Existing Building Decarbonization



Bay Area Air Quality Management District Zero NOx Emission Appliance Rules *Time of Replacement*

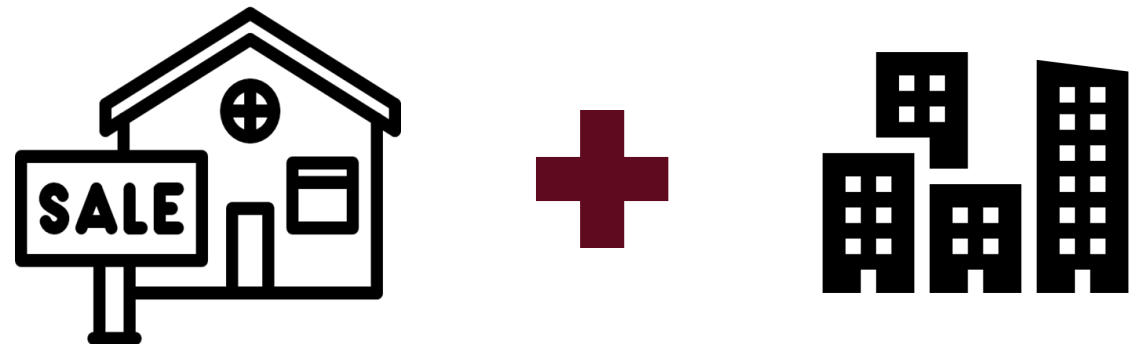
Starting 2027: Prohibit the sale and installation of new NOx emitting water heaters and furnaces



BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT

Berkeley Building Emissions Saving Ordinance (BESO) *Time of Sale & Building Performance Standards*

Proposed: Require upgrades at time of sale and building performance standards for larger buildings



Current Status for New Construction

Prohibition on Gas in New Buildings

- January 2020-January 2024

2022 Energy Code: New Construction

- Encourages heat pumps, electric-ready requirements for new homes, expands solar PV and battery storage standards

Mid-Cycle Code Amendments

- Readopted existing local amendments including increased EV charging requirements
- Zero NOx under consideration



Photo: Emilie Raguso

Current Reach Code Options for New Construction



1. Zero NOx CALGreen Reach Code
2. Zero NOx with commercial kitchen exception
3. Single Margin Energy Reach Code
4. Other

Zero NOx CALGreen Reach Code



An air emission standard that requires all indoor appliances to be Zero NOx in new buildings:

- space heating, ventilation, and cooling (HVAC)
- water heating
- cooking
- clothes drying
- lighting

All appliances must remain Zero NOx during future additions and alterations

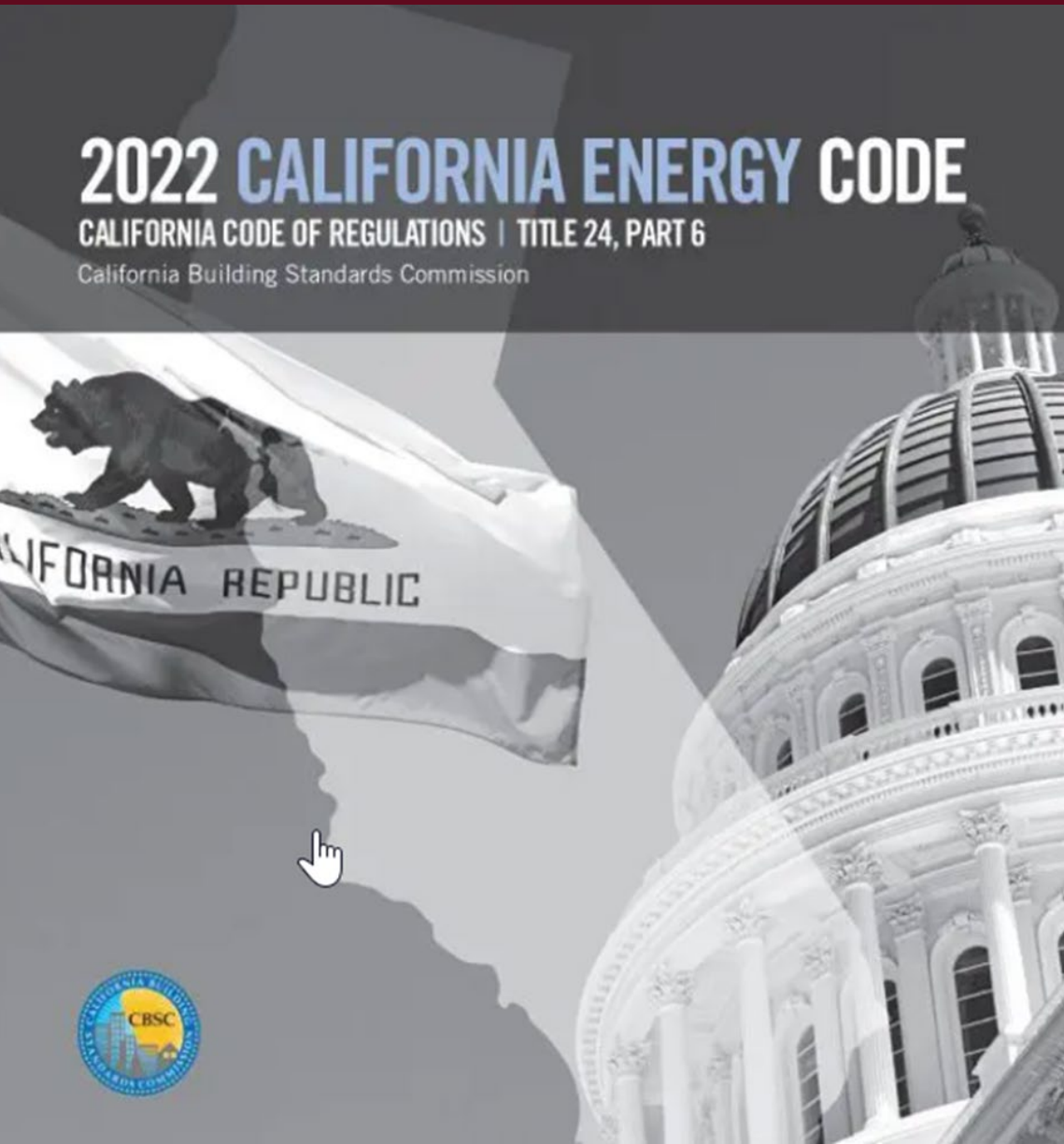
Exception for Industrial/Manufacturing

Zero NOx - Commercial Kitchen Exemption

- All indoor appliances must be Zero NOx except commercial kitchen appliances
 - Negative health impacts remain for kitchen workers
 - 85% capture is the highest cited vent hood efficiency in CA Energy Code



Single Margin Energy Code



- All new buildings must be designed to satisfy a higher performance margin
 - Heat pumps have performance advantages over fuel appliances
 - Mixed-fuel designs require energy storage systems or advanced envelope measures
- Energy Code amendment
 - Must demonstrate cost effectiveness
 - CEC approval required

Other Options



- Combination: Zero NOx + Single Margin EDR
- 2025 Code cycle
- No action

Outreach



Environment and Climate
Commission, May 22

- Support for Zero NOx

East Bay Green Home Tour, June 1

- Public in-person/virtual event

Developer/Architect Roundtable,
June 26

- Zero NOx with Commercial
Kitchen Exemption had the most
interest

Grid Capacity and Energization

Capacity and service will be provided, but potential unknowns include:

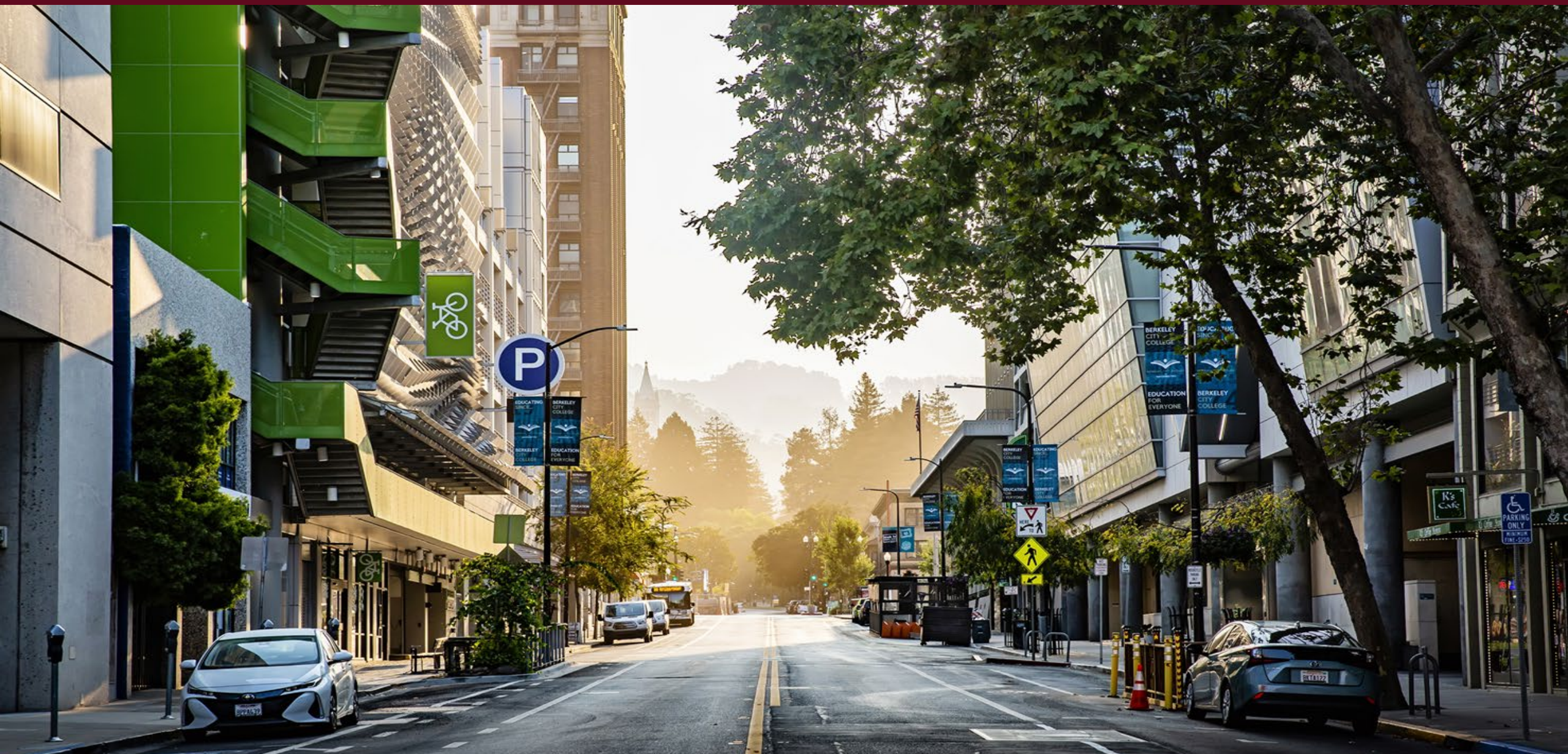
- Timelines
- Equipment supply (transformers)
- Costs

Local Government Sustainable Energy Commission (LGSEC)
IOU Service Capacity Working Group

- CPUC Proceedings



Feedback and Next Steps



Thank You!



Sarah Moore

Manager

Office of Energy and Sustainable Development
smoore@berkeleyca.gov

David Lopez

Chief Building Official

Building and Safety Division
dlopez@berkeleyca.gov

Kurt Hurley

Green Building Program Manager

Building and Safety Division

khurley@berkeleyca.gov

Jeff Jensen

Deputy Building Official

Building and Safety Division

jjensen@berkeleyca.gov

