



Sunnyvale

# **Building Electrification**

## **Climate, Health, and your Home**

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June 4, 2026

# Agenda

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- ▶ Climate and Health Drivers
- ▶ Regulatory Drivers
  - ◆ Air District 9-6 Rule
  - ◆ Sunnyvale Reach Code
- ▶ Sunnyvale's Strategy
  - ◆ Climate Action Playbook
  - ◆ Live Electric Campaign



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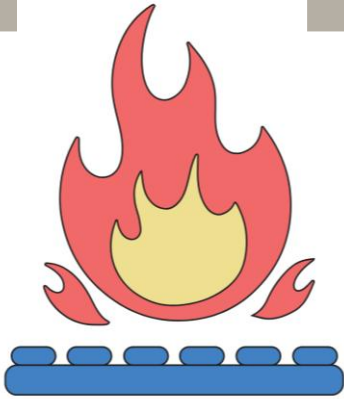
# Climate and Health Drivers

# Air Pollutants

From Natural Gas/Methane Systems



Distribution Systems



In-Home Uses  
(burning of gas)



**PM**

**PAH**

**VOC**

# Pollution Impacts

## Climate Impacts

Methane (CH <sub>4</sub> )	Greenhouse Gas Pollutant 86X more potent than CO <sub>2</sub>
Nitrous Oxide (N <sub>2</sub> O)	Greenhouse Gas Pollutant ~300X more potent than CO <sub>2</sub>
Nitrogen Oxides (NO <sub>x</sub> )	NO and NO <sub>2</sub> Contribute to smog, acid rain, and ozone

## Health Impacts

Nitrogen Dioxide (NO <sub>2</sub> )	Respiratory irritant Increases asthma risk in children Increases asthma attacks
Carbon Monoxide (CO)	Interferes with blood's ability to carry oxygen
Particulate Matter (PM <sub>2.5</sub> )	Aggravates chronic diseases, increases risk of lung cancer and chronic bronchitis, heart attacks, and premature death
Polycyclic aromatic hydrocarbons (PAH) and Volatile Organic Compounds (VOC)	Can cause cancer, birth defects, respiratory issues, etc.



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# Regulatory Drivers

# Regulatory Drivers



## Proposed Rule

- Limiting sale of % of NOx emitting equipment starting 2030
- Favoring a credit system over ban on time of sale or installation



## Adopted Rule (potential for extension and exemptions)

- Zero-NOx emissions standards for water heaters (2027) and furnaces (2029)
- Applies at time of sale or installation







## Adopted Ordinance with Pending Enforcement

- Requires existing single-family residential to install a heat pump when replacing an AC
- “Electric Ready” requires installation of wiring/conduit and panel capacity when electrical work is occurring

# Bay Area Air District Rule 9-6

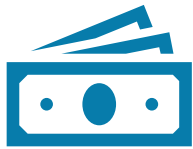
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-  NOT a gas ban
-  Does NOT require whole home electrification
-  Does NOT require you to replace your appliance before it fails
-  Does NOT apply to stovetops, ovens, or dryers

*KnowTheFacts.baaqmd.gov*

# Bay Area Air District Rule 9-6

## Flexibilities being considered by the Air District:



### Low Income Exemptions:

Property owners that are already low-income program participants (250% Federal Poverty Guidelines)

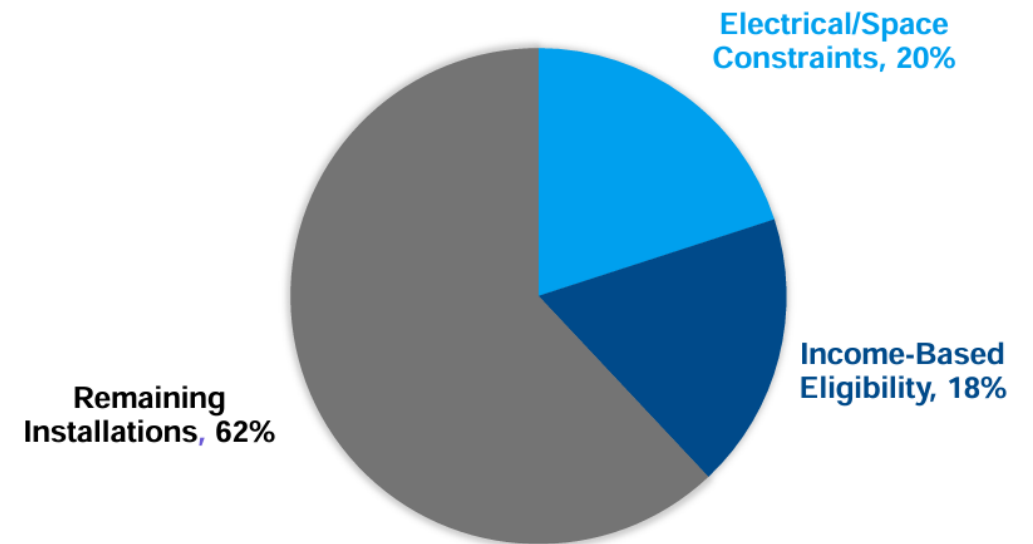
Housing cost burdened (annual mortgage and property taxes is more than 28% of gross income)



### Project Specific Exemptions:

Electrical upgrades required  
Space constraints

ESTIMATED ANNUAL DISTRIBUTION OF EXEMPTION PATHWAYS



# Sunnyvale Reach Codes

Existing Single Family Residential Remodels, Additions or Alterations  
*Adopted 2025, Enforcement starting 2027*

## AC to Heat Pump

- Requires heat-pump when replacing an AC
- 2 general exceptions:
  - If electrical panel capacity is insufficient for addition of heat pump
  - If the heat pump needs to be sized more than 12,000 Btu/hr over the AC that would be installed

## Electric Readiness Upgrades

- Addition of electric outlets near natural gas appliances when electrical permitted work is performed around existing gas equipment



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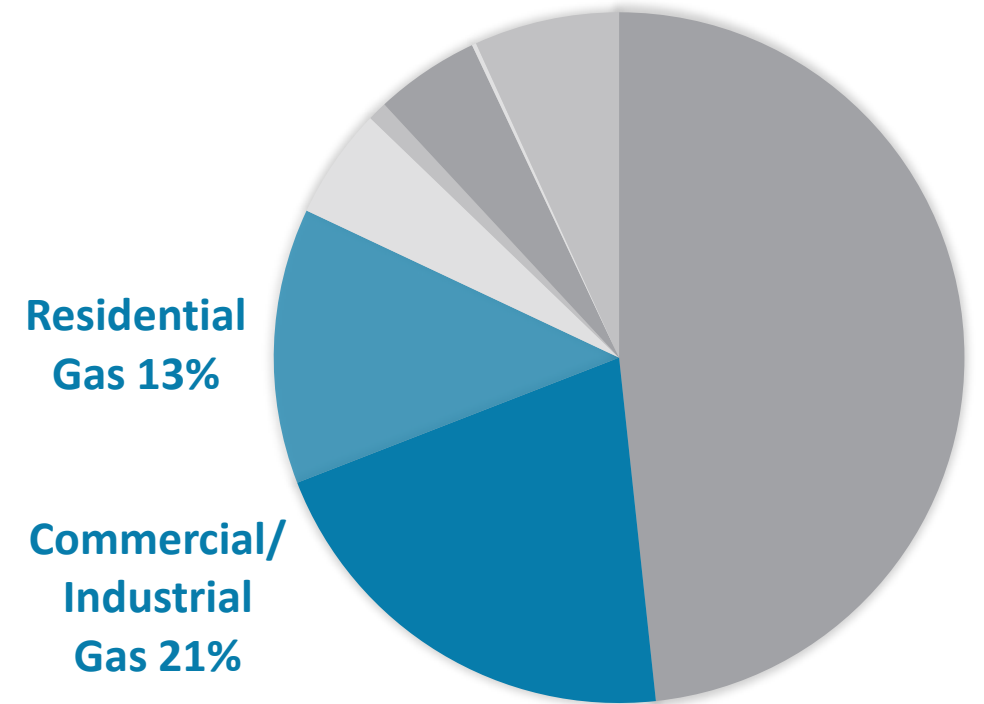
# Why Electrification Matters in Sunnyvale

# Electrification Is a Key Strategy to Reduce GHG Emissions

## Climate Action Plan

- ◆ **Strategy 2:** Decarbonizing Buildings
  - **Play 2.2:** Support electrification of existing buildings
    - ◆ **Move 2.D:** Develop a program to increase the adoption of electric appliances

% Reduction in Natural Gas Use	2030 Target	2045 Target
Residential	44%	92%
Non-residential	38%	86%



Source: City of Sunnyvale, Climate Action Scoreboard (2023).  
<https://sunnyvaleclimateaction.org/scoreboard>

34% of Sunnyvale's GHG emissions come from using natural gas in buildings.

## Move 2.D: Live Electric Campaign



*Helping single-family homeowners transition from gas to electric appliances.*

- **Timeline**

- ◆ 2026: General and Heat Pump HVAC
- ◆ 2027: Heat Pump Water Heater
- ◆ 2028: Induction Cooking

- **Benefits**

- ◆ Improve Health and Safety
- ◆ Save Money
- ◆ Increase Property Value
- ◆ Protect the Environment

# Goal One: Raise Awareness

## Online and In-Person Outreach and Events



# Goal Two: Financial and Hands On Support

## HVAC Rebate and Cool Cooktops



**Stay cool this summer with a heat pump.**

Get up to \$4,500 back when you upgrade.

**CLAIM YOUR REBATE**

	Rebate	Income Qualified Rebate
Silicon Valley Clean Energy	\$2,000	\$3,000
Sunnyvale Topper	\$1,000	\$1,500
<b>Total Amount</b>	<b>\$3,000</b>	<b>\$4,500</b>



# Goal Three: Create Impact



Visit [Sunnyvale.ca.gov](https://www.sunnyvale.ca.gov) and search, "Electrify Your Home."



A screenshot of the Sunnyvale website. The top navigation bar includes "Your Government", "Recreation and Community", "Homes, Streets and Property", "News Center and Events Calendar", "Business and Development", and "City Services". A search bar is located to the right. The "CITY INITIATIVES" menu is open, showing "Sustainability" with sub-items: "Sunnyvale Drive Electric", "Electrify Your Home" (highlighted), "Cool Cooktops", "Rebates", "Take Action", and "Sustainability Speaker Series". Below the menu is a featured article titled "Heat Pump Water Heater" with a photo of a woman pointing at a water heater. Text next to the photo states: "Heats water by pulling heat from the surrounding air. Two to three times more efficient than standard water heaters. Suitable for households of all sizes." Below the article is a breadcrumb trail: "Your Government » City Initiatives » Sustainability »".

## Electrify Your Home

Font Size: [A](#) [A](#) [A](#) [Share & Bookmark](#) [Print](#)

### What is Home Electrification?

Home electrification means switching from gas-powered appliances to all-electric appliances. All-electric appliances are cleaner, reduce energy use and result in long-term savings. If you are a single-family homeowner learn how to get started with your home electrification journey today.

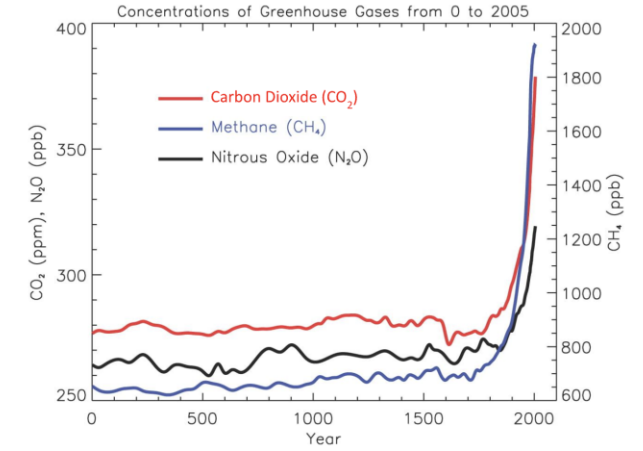
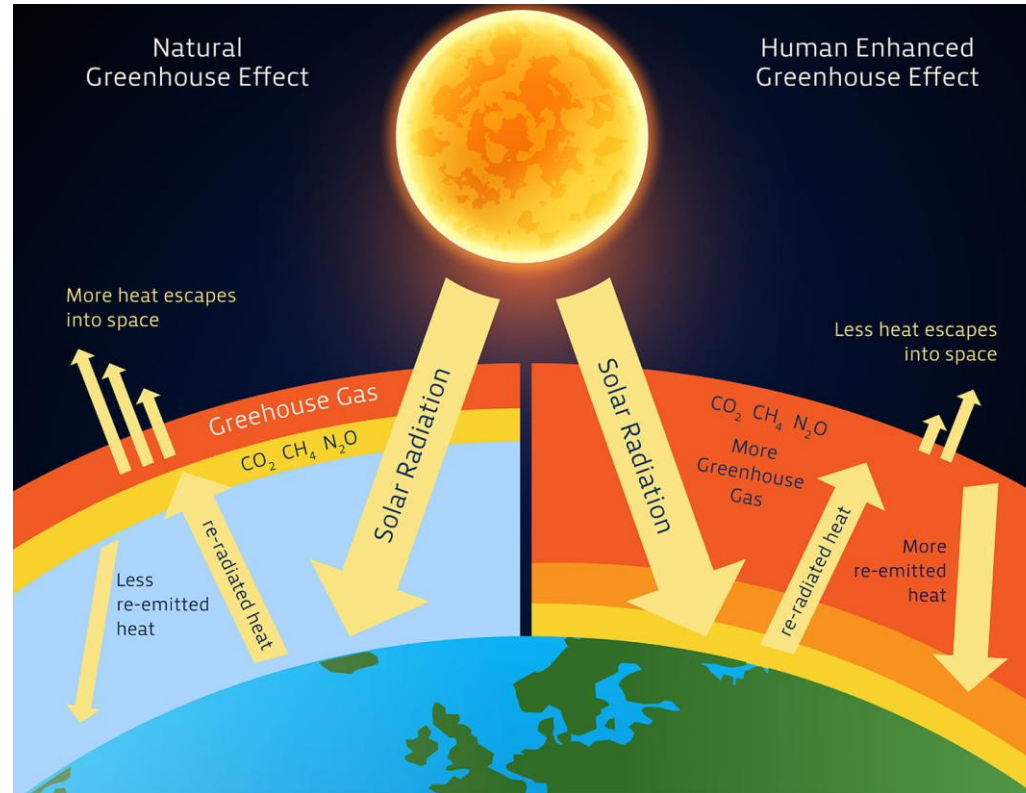
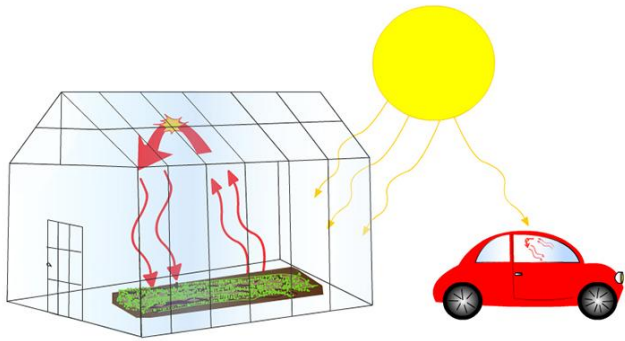


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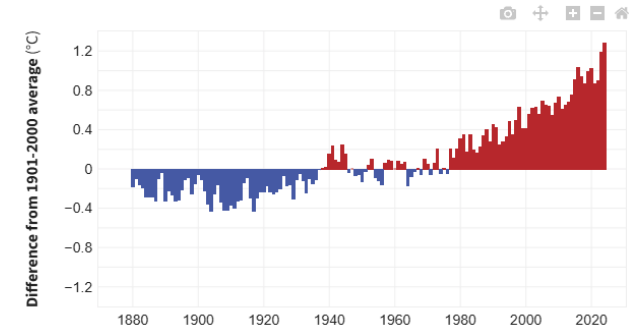
Thank you!



# Greenhouse Gases and Climate Change



## GLOBAL AVERAGE SURFACE TEMPERATURE



ISP Tutor Background Research Module, Greenhouse Effect. <https://go.isptutor.org/brm/greenhouse-effect/>

Smith College, Greenhouse Effect (2024), Climate in Global Cultures and Histories: Promoting Climate Literacy Across Disciplines. <https://www.science.smith.edu/climatelit/greenhouse-effect/>

NOAA Climate.gov, Climate Change: Global Temperature, <https://www.climate.gov/news-features/understanding-climate/climate-change-global-temperature>

# Studies Supporting Health Impacts from Natural Gas

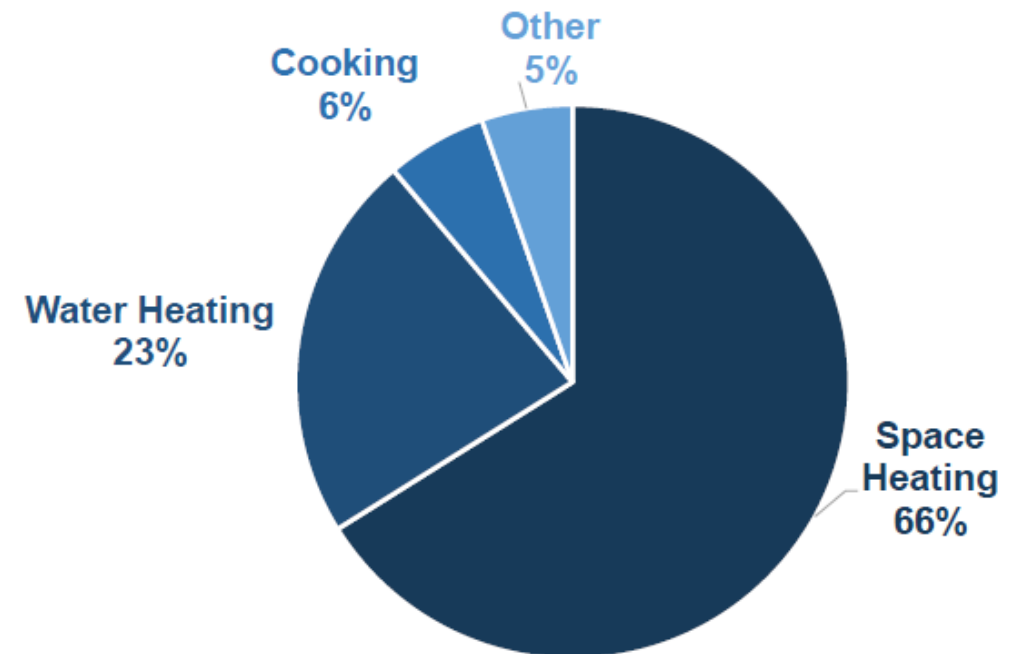
- American Lung Association: <https://www.lung.org/getmedia/da394c1a-200e-4c89-9947-7ecb1a26571a/The-Health-Impact-of-Combustion-in-Homes.pdf>
- Stanford: <https://sustainability.stanford.edu/news/climate-and-health-impacts-natural-gas-stoves>
- U.S. Energy Information Administration: <https://www.eia.gov/energyexplained/natural-gas/natural-gas-and-the-environment.php>
- California Air Resources Board (CARB): <https://ww2.arb.ca.gov/resources/documents/combustion-pollutants-indoor-air-quality>
- American Journal of Respiratory and Critical Care Medicine: <https://academic.oup.com/ajrccm/article/207/8/996/8428301>
- Science Advances: <https://www.science.org/doi/10.1126/sciadv.adm8680>
- Environmental Health Perspective: <https://pmc.ncbi.nlm.nih.gov/articles/PMC10901287/>
- Environmental Science and Technology: <https://pubmed.ncbi.nlm.nih.gov/35081712/>
- International Journal of Epidemiology: <https://academic.oup.com/ije/article-abstract/42/6/1724/737113>

# Bay Area Air District Rule 9-6

## Gas Appliances Create Air Pollution

- Gas furnaces and water heaters release pollutants including:
  - ◆ Nitrogen oxides (NO<sub>x</sub>)
  - ◆ Fine particulate matter (PM<sub>2.5</sub>)
- 2019 Bay Area: Natural gas use in building produced roughly the same amount of NO<sub>x</sub> pollution as passenger vehicles.
- Prevent up to 85 premature deaths and 15,000 asthma attacks annually, avoiding up to \$890 million in health-related costs

## Air District Residential Natural Gas Combustion NO<sub>x</sub> Emissions (2019)



*Bay Area Air District, May 13, 2026, Board of Directors Meeting*

# Air District Rule 9-6 Info

## Qualifying Exemptions *(one per property)*

- Electrical and/or Space Constraints (Main Drivers of High Installation Costs)
- Low-Income Property Owners

## Delayed Compliance Dates *(until 2031)*

- Small Capacity Units (<30 gallons)
- Large Capacity Units (>75,001 BTU/hour)\*
- Hydronic Systems

## Limited Exemptions *(if requirements are met)*

- Emergency Replacement Loaners
- Businesses with High-Heat Demand

**MOST  
COMMON**

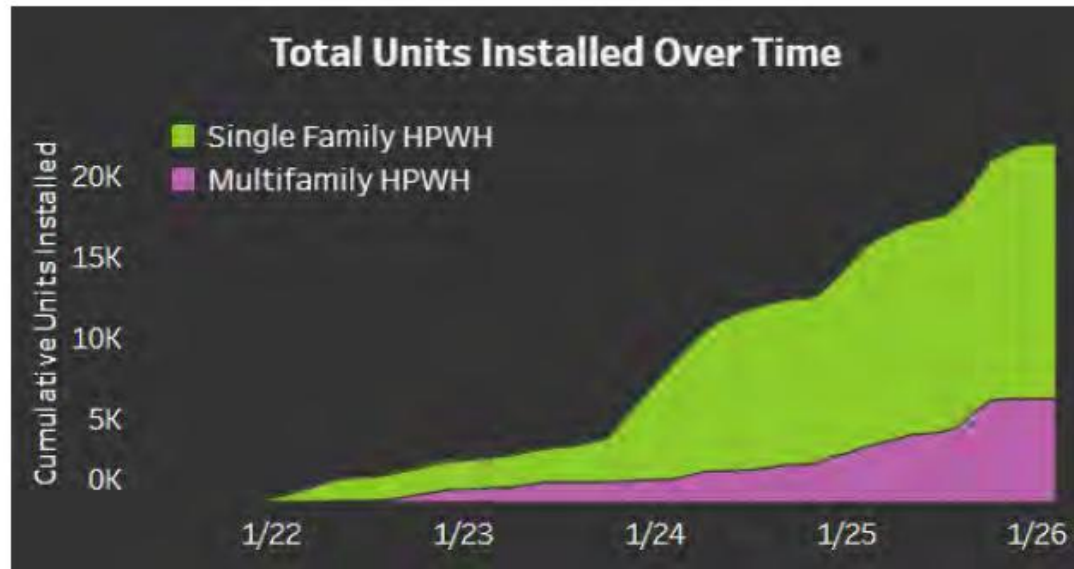
**LEAST  
COMMON**

\*Note: Large capacity unit compliance date is existing requirement, not planned change

*Bay Area Air District, May 13, 2026, Board  
of Directors Meeting*

# BAAD Rule 9-6 Info

- 20,000+ units installed in the Bay Area and growing



Source: [TECH Public Reporting Heat Pump Data Visuals](#)

*Bay Area Air District, May 13, 2026, Board of Directors Meeting*

# BAAD Rule 9-6 Info

## Zero NOx Average Additional (Incremental) Costs:

- Approximately \$3,500 (\$600-\$1,600 additional retail cost for equipment, plus installation)
- Rebates where available will offset some incremental costs
- Operational cost savings may offset some upfront incremental costs over time
- Median incremental costs are similar to the average



*Bay Area Air District, May 13, 2026, Board of Directors Meeting*