



BAY AREA  
AIR QUALITY  
MANAGEMENT  
DISTRICT

**AGENDA: 22**

# **Authorization of Fiscal Year Ending 2025 Mid-Year Budget and Staffing Adjustments**

**Board of Directors Meeting  
December 4, 2024**

**Arsenio Mataka**  
Deputy Executive Officer  
Equity and Community Programs  
[amataka@baaqmd.gov](mailto:amataka@baaqmd.gov)

**Greg Nudd**  
Deputy Executive Officer  
Science and Policy  
[gnudd@baaqmd.gov](mailto:gnudd@baaqmd.gov)

**Hyacinth Hinojosa**  
Deputy Executive Officer  
Finance and Administration  
[hhinojosa@baaqmd.gov](mailto:hhinojosa@baaqmd.gov)

# Requested Motion

This is an action item for the Board of Directors to consider approving the following Fiscal Year Ending (FYE) 2025 mid-year budget and staffing adjustments:

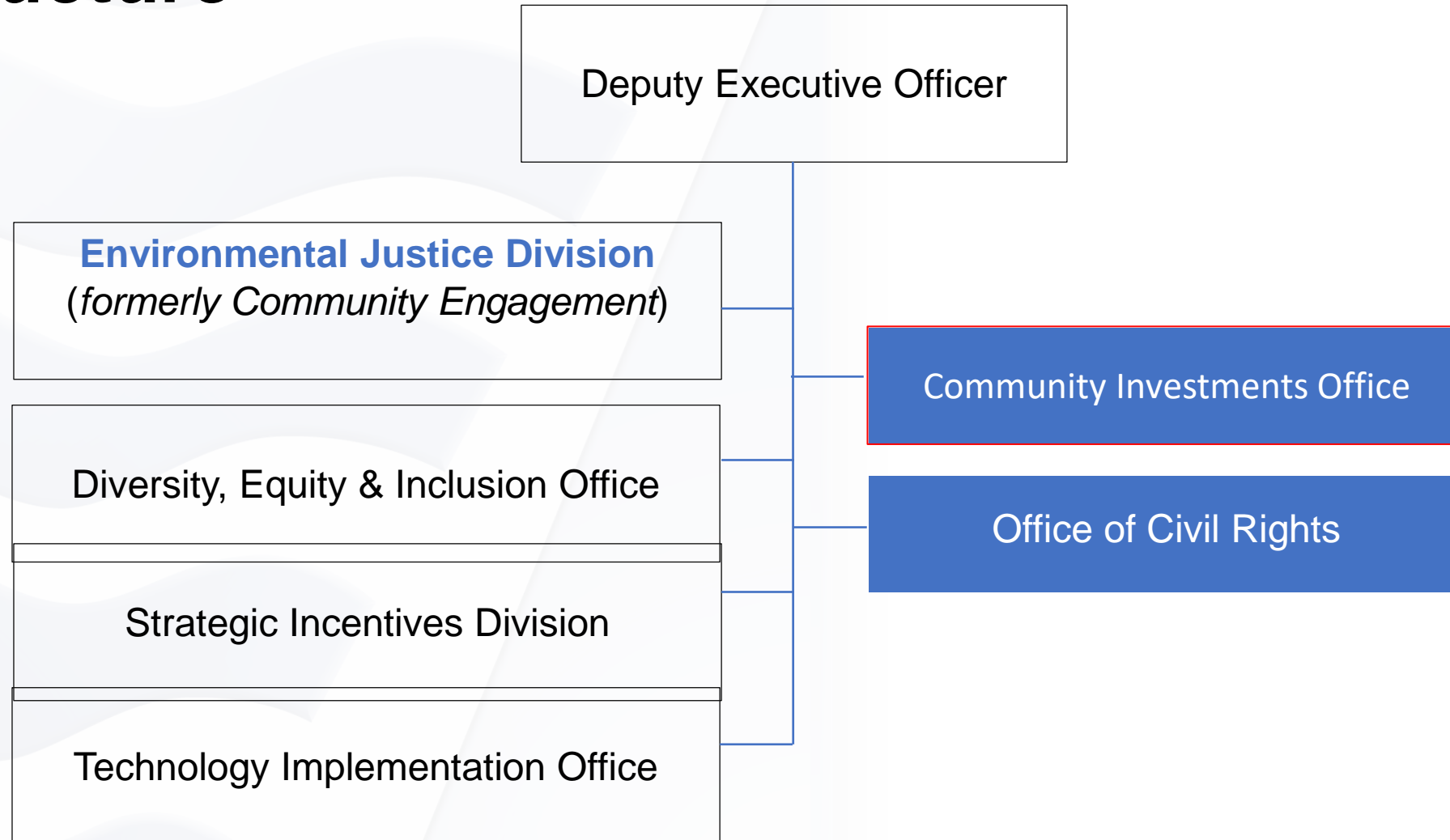
- Authorize the use of up to 9% of the Community Benefit penalty assessment funds for administrative costs to support the creation of the new Community Investment Office to implement the penalty policy and direct funds to impacted communities
- Authorize the use of Schedule X designated reserves to accelerate and improve the Community Air Monitoring Program in refinery communities
- Authorize the addition of three new Full Time Employees (FTEs) and three new Limited-Term Contract Employees (LTCEs) for the Community Investments Office; three new FTEs for Meteorology & Measurement; and three new FTE for Strategic Incentives, all funded by new revenue sources
- Authorize reclassify vacant positions and transfers to support organizational operations

# Background

The Finance and Administration Committee recommends Board of Directors approve the following mid-year staffing adjustments to ensure the Air District can implement the strategies in the Strategic Plan and effectively manage key programs:

- **Community Investments Office:** Three new FTEs and Three Limited-Term Contract Employees (LTCEs) are requested to administer community reinvestment initiatives from penalty funds. These funds are sourced from penalties imposed on air quality violators and directed towards projects in impacted communities
- **Meteorology & Measurement Division:** Three new FTEs are requested to accelerate installation of regulatory-grade monitors in refinery communities and to improve the quality and usability of data from refinery-owned fenceline monitors. Funding will come from designated reserves that have been set aside for such monitoring programs, and then on an ongoing basis by permit fees (including fees collected under Schedule X)
- **Strategic Incentives Division:** Three new FTEs are requested to manage the increasing workload related to grant programs, which have grown to exceed \$80 million (M) annually. These positions will be funded by the allowable increase in administrative costs (from 6.25% to 12.5%) made available by a change to California Air Resources Board (CARB)'s program guidelines, starting in FYE 2025

# Equity and Community Programs: Organizational Restructure



# Community Investments Office – Staffing Request

## Why the Positions Are Needed:

The **Community Investments Office** is needed to manage over \$124 M in penalty funds, which per Board policy, must be invested in projects in impacted communities. These positions are critical to:

- Engage with local leaders, businesses, and community-based organizations to prioritize fund allocation
- Design programs that ensure that penalty funds are distributed effectively and align with community needs
- Manage the resulting programs and associated grants/contracts across multiple Bay Area communities

## Funding Source

- The requested positions will be funded by allocating up to 9% of the Community Benefit penalty assessment funds to cover administrative costs under the new Community Benefits Penalty Funds Policy

# Community Investment Office – Fund Amounts

- Projected admin funds sufficient to fund 3 FTEs and 3 LTCEs through at least 2033
- Does not include interest earned or expected additional penalty revenue
- Implements Strategies
  - 1.4 Reimagine Funding
  - 2.8 Community-Directed Funds

Available Funding Source	As of Nov. 14, 2024
Regional Community Benefit Fund	\$4,345,865
Local Benefit Funds	\$20,617,832
Other funds: Richmond Community Air Quality Fund*	\$20,000,000
Funds from recent settlement	\$79,150,000
<b>Total</b>	<b>\$124,113,697</b>
<b>9% Admin Funds (Estimated)</b>	<b>\$11,170,232</b>

**Assumptions:**

\*Timing of funds is subject to initiation of projects expected to occur between 2025-2027

# Strategic Incentives Division – Staffing Request

## Why the Positions Are Needed:

The **Strategic Incentives Division** is experiencing significant growth in workload due to increased funding for grant programs, which now generate over \$80 M annually. The additional staff will:

- Manage the growing number of grants aimed at improving air quality through incentives for cleaner technologies
- Ensure compliance with increasing grant requirements and maximize the impact of the programs

## Funding Source:

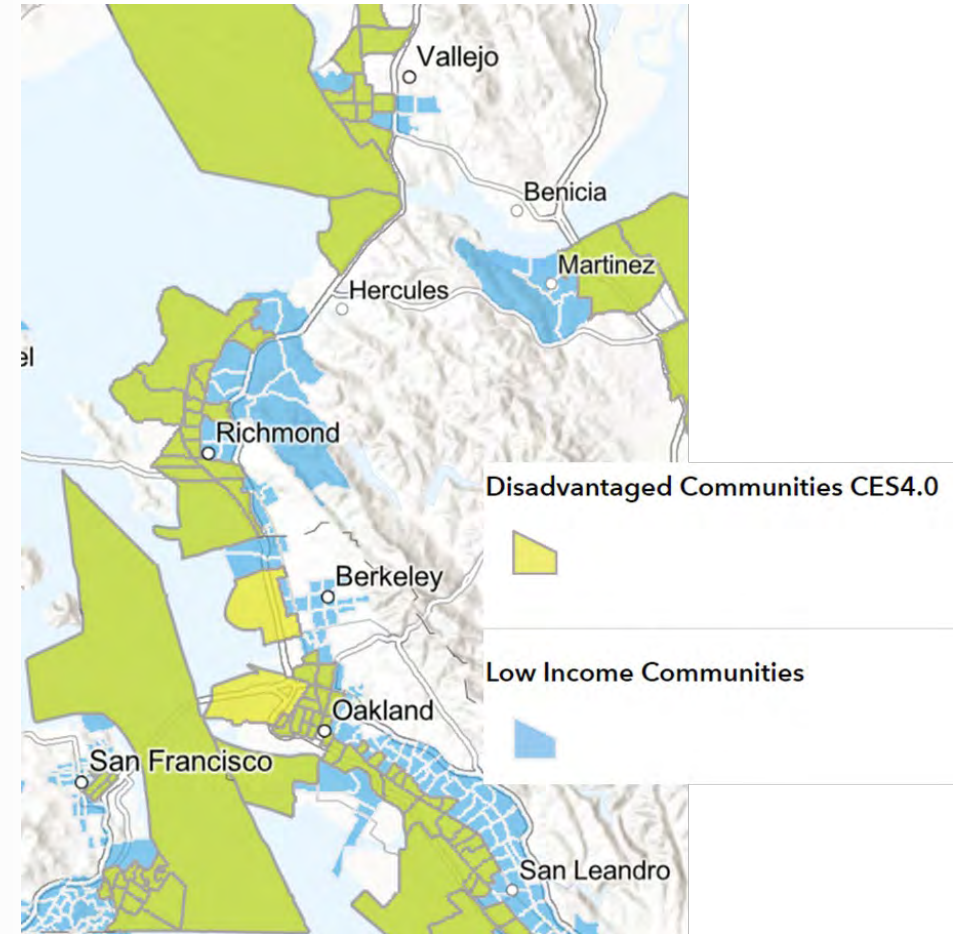
The new positions will be funded by an increase in allowable administrative costs due to a change to the California Air Resources Board's program guidelines, starting in FYE 2025. Maximum allowable administrative costs will increase **from 6.25% to 12.5%**, allowing for increased staffing to support the expanding portfolio



# Strategic Incentives Division (cont.)

Additional staff needed to:

- Oversee administration, reporting, and quality control for state grant programs
- Create and implement grant programs that align with community needs and Strategic Plan goals
- Develop and maintain a new data management system to ensure greater transparency in grant programs and results





# Meteorology & Measurement Division – Staffing Request

## Why the Positions Are Needed:

The **Meteorology & Measurement Division** is responsible for measuring ambient air quality, source testing of industrial sources to directly measure pollution, forecasting air quality and calling Spare the Air Days, and assessing and evaluating air quality data

Additional staffing is needed to meet commitments and community expectations for expanding the community air monitoring program in refinery communities, including improvement and oversight of fenceline monitoring systems operated by the refineries under Rule 12-15

## Funding Source:

These positions will be funded from designated reserves that have been set aside for the community air monitoring program, and then on an ongoing basis by permit fees (including fees collected under Schedule X) which are specifically allocated for such monitoring

# Refinery Community Monitoring

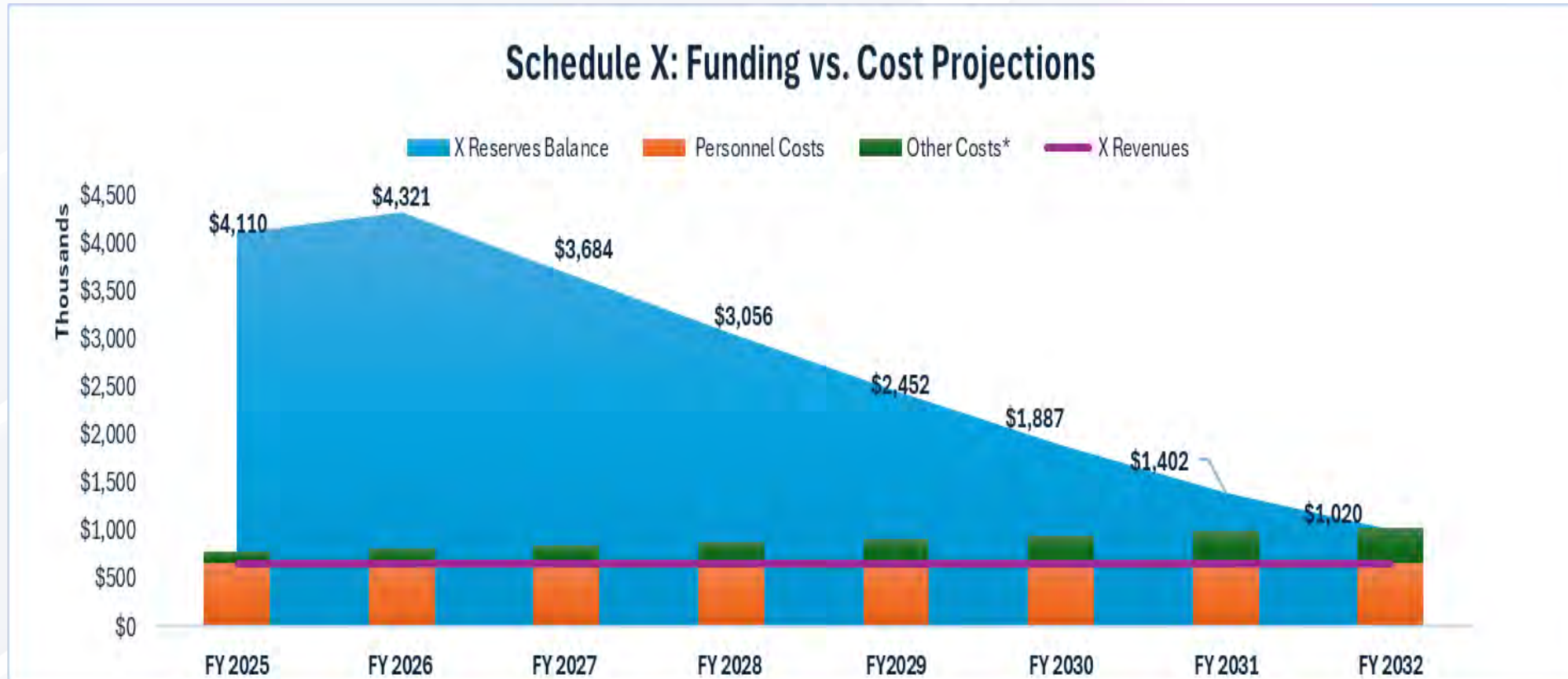
Proposed staff will accelerate the community air monitoring program, including refinery community monitoring and refinery fenceline monitoring, including the following:

- Site development and construction of refinery community monitoring sites, including instrument testing
- Station operation, data review, quality assurance
- Evaluate new monitoring methods
- Review of fenceline plans and quality assurance project plans, track submitted reports and data, enforcement, rule development, external communications about fenceline air monitoring

Mid-year FYE25 budget request and staffing adjustment for three new permanent full time equivalent positions in the Meteorology and Measurement Division

# Community Air Monitoring Program

## Cost Impact using Schedule X to Accelerate and Enhance Monitoring Program



- Schedule X Reserve balance assumes the use of \$4.1 M from Schedule X Reserves (\$2 M remains in reserves for Capital Expenses)
- Personnel Cost Assumes funding new 3 FTES in the Meteorology & Measurements Division

# New Funding & Staffing Cost Considerations

Division	New FTE	Annual Cost	Funding Source
Community Investments	3	\$695,141	Admin Portion – Community Benefit Funds
Meteorology & Measurement	3	\$648,401	Designated Reserves - Schedule X Fees
Strategic Incentives	3	\$576,321	New CARB Guidelines – Admin Cost

**Total \$1,919,863**

Division	New LTCE	Annual Cost	Funding Source
Community Investments	3	\$555,584	Admin Portion – Community Benefit Funds

**Total \$555,584**

# Add & Delete Positions

Division	Old Position Title	New Position Title	Annual Cost
Administrative Resources	Senior Staff Specialist	Supervising Staff Specialist	\$20,737
Assessment Inventory & Modeling	Advanced Projects Advisor	Senior Air Quality Engineer	(\$21,774)
Compliance & Enforcement	Senior Air Quality Engineer	Principal Air Quality Engineer	\$21,774
Meteorology & Measurement	Assistant Air Quality Specialist	Air Quality Specialist	\$15,474
Human Resources	Senior Human Resources Analyst	Human Resources Analyst	(\$18,809)
Civil Rights Office	Manager	Officer	\$55,180
Planning & Climate Protection	Assistant Manager	Manager	\$6,409
Rules	Senior Air Quality Engineer	Senior Air Quality Specialist	(\$10,115)
Position	Division Transfer from	Division Transfer to	Annual Cost
Manager	Information Services Operations	Enterprise Technology Solutions	\$0
Assistant Staff Specialist	Information Services Operations	Enterprise Technology Solutions	\$0
Senior Policy Advisor	Planning & Climate Protection	Executive	\$0
Staff Specialist I/II	Communications	Civil Rights Office	\$0

\* The table has been updated to reflect staffing changes made subsequent to the Finance & Administration Committee meeting, leading to a \$10k decrease in cost savings

**Total \$68,876**



# Recommendation for Motion

Authorize FYE 2025 mid-year budget and staffing adjustments as follows:

- Authorize the use of up to 9% of the Community Benefit penalty assessment funds for administrative costs to support the creation of the new Community Investment Office to implement the penalty policy and direct funds to impacted communities
- Authorize the use of Schedule X designated reserves to accelerate and improve the Community Air Monitoring Program in refinery communities
- Authorize the addition of three new FTEs and three new Limited-Term Contract Employees (LTCEs) for the Community Investments Office; three new FTEs for Meteorology & Measurement; and three new FTE for Strategic Incentives, all funded by new revenue sources
- Authorize reclassify vacant positions and transfers to support organizational operations





BAY AREA  
AIR QUALITY  
MANAGEMENT  
DISTRICT

**AGENDA: 25**

# **Staff Update: Rule 9-6, Zero NOx Residential Water Heaters**

**Board of Directors Meeting  
December 4, 2024**

**Amy Dao, Senior Environmental Planner, Planning & Climate Protection**

**[adao@baaqmd.gov](mailto:adao@baaqmd.gov)**

**Jennifer Lam, Assistant Manager, Rules & Strategic Planning**

**[jlam@baaqmd.gov](mailto:jlam@baaqmd.gov)**

# Outline



- Overview of Zero Nitrogen Oxide (NO<sub>x</sub>) Amendments to Rules 9-4 and 9-6
- Purpose and Scope of Informational Update
- Implementation Working Group
- Findings
- Equity Concerns
- Next Steps

# Why are building appliances important?

Because building appliances can emit NO<sub>x</sub> and other harmful air pollutants

## What is NO<sub>x</sub>?

Nitrogen Oxides (or NO<sub>x</sub>) contribute to the:

- Development or worsening of respiratory illnesses
- Formation of particulate matter (or PM) and ozone (main component of smog)

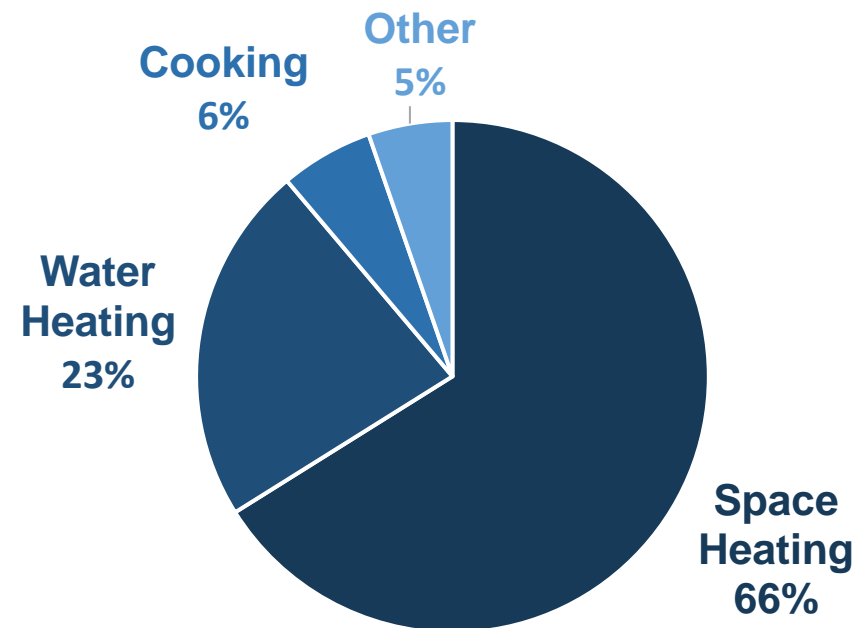
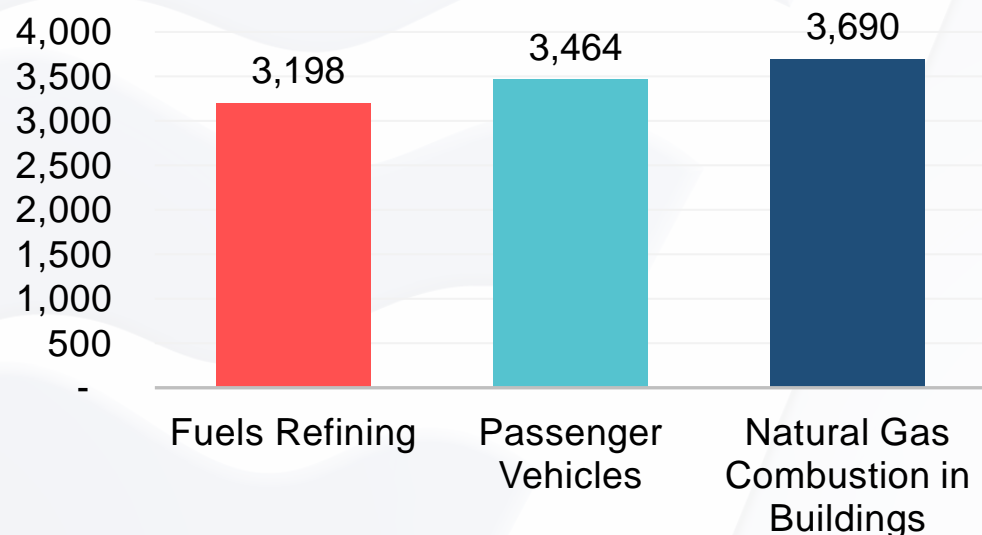


*Source: Stock photo owned by Air District*

# Residential Appliance Emissions

Natural gas combustion from space and water heating emits more NOx than either fuels refining or passenger vehicles in the Bay Area!

2019 Air District NOx Emissions (tons)



Air District Residential Natural Gas Combustion NOx Emissions (2019)

Water and space heating account for about 90% of residential natural gas combustion NOx emissions


# Significant Public Health Benefits From Zero NOx Amendments to Rules 9-4 and 9-6

**IMPROVE OVERALL  
REGIONAL AIR QUALITY**




**FROM THE  
OUTDOOR VENTING  
OF APPLIANCES**

**LOWER** **PM<sub>2.5</sub>**



**EXPOSURE**

**PARTICULARLY IN  
COMMUNITIES  
OF COLOR**



**AVOID UP TO**



**\$890M**

**PER YEAR IN HEALTH  
IMPACTS DUE TO  
AIR POLLUTION  
EXPOSURE**



**PREVENT**



**UP TO**



**85**

**PREMATURE  
DEATHS  
PER YEAR**



# Rules 9-4 and 9-6 Overview

- **Regulation 9, Rule 4:** Nitrogen Oxides from Fan Type Residential Central Furnaces
- **Regulation 9, Rule 6:** Nitrogen Oxides from Natural Gas-Fired Boilers and Water Heaters
- **Zero NOx amendments** adopted on March 15, 2023, with future implementation dates:

1/1/2027	Water heaters less than 75,000 BTU/hr*
1/1/2029	All applicable natural gas-fired furnaces (e.g., residential and commercial; including direct-vent units)
1/1/2031	Water heaters 75,000 to 2 million (M) BTU/hr

\*BTU/hr = British thermal units per hour



# Purpose and Scope of Informational Update

- Rule 9-6 section 404 requires informational updates two years prior to each compliance date
- This update focuses on the January 2027 compliance deadline for <75,000 BTU/hr water heaters
  - Includes tanked ~75 gallon and below
- This update does NOT include:
  - Tanked water heaters greater than 75 gallons
  - Gas tankless on-demand water heaters
  - Central water heaters seen in large multi-family buildings

# Implementation Working Group (IWG)

**Advisory group** that helped inform staff update to Air District Board on two aspects of rule implementation:



**Technical Readiness**



**Equitable Transition**

**40+ members**

Environmental  
Justice and  
Community-  
Based  
Organizations

Subject Matter  
Experts on  
Energy,  
Buildings, and  
Technology

Regional/Local  
Government  
and State  
Agencies

Labor and  
Trade  
Organizations

Utilities and  
Community  
Choice  
Aggregators

## Meetings

**6** Public  
Plenary

**5** Steering  
Committee

**5** Technical  
Subcommittee

**5** Equity  
Subcommittee

# Additional Engagement 2023 – 2024

## Community Outreach

- Invited Community Advisory Council (CAC) to join IWG Equity Subcommittee; three members participated in meetings and follow-up discussions
- Conducted lived experience interviews with nine Bay Area renters
- Engaged with over 12 additional Community-Based Organizations to those in the IWG
- Held Public Learning Session on building appliance rules in October 2024

## Coordination with State and Local Agencies

- Met regularly with California Air Resources Board (CARB) and South Coast Air District to discuss their upcoming building appliance rules

# Additional Engagement 2023 – 2024 (cont.)

## Coordination with Utilities and Community Choice Aggregators (CCAs)

- Met with Pacific Gas & Electric (PG&E), California Public Utilities Commission, and California Energy Commission to discuss energy code, proceedings, pilots, grid, etc.
- Met quarterly with CCAs on outreach and heat pump programs

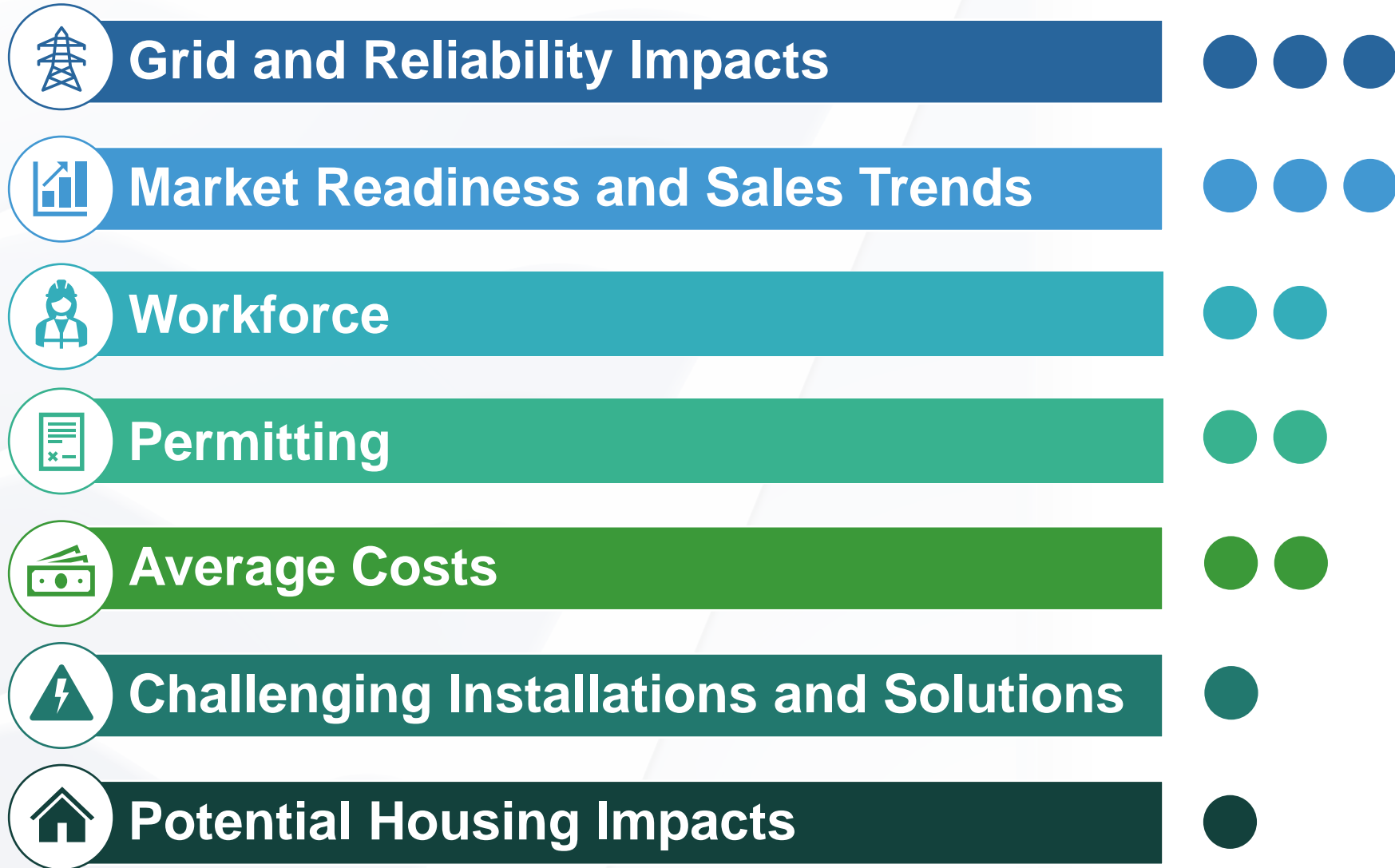
## Participation at Public Events and other Forums

- Presented at 12 events including electrification fairs, contractor education and workforce events, and forums on zero NOx rules, permitting, building electrification, sustainability, etc.



Source: Microsoft stock photo

# Topic Overview



**LEVELS**

- ● ● READY
- ● ON-TRACK
- MORE WORK NEEDED

# Grid and Reliability



- New electrical loads resulting from rule implementation are highly unlikely to cause power outages
- Large majority of power outages are caused by physical impacts (downed trees, storms, etc.) or public safety power shutoffs, which have significantly declined since 2019
- At the appliance level, zero NOx and new NOx-emitting gas water heaters have similar reliability in power outages





# Market Readiness: Public Drivers

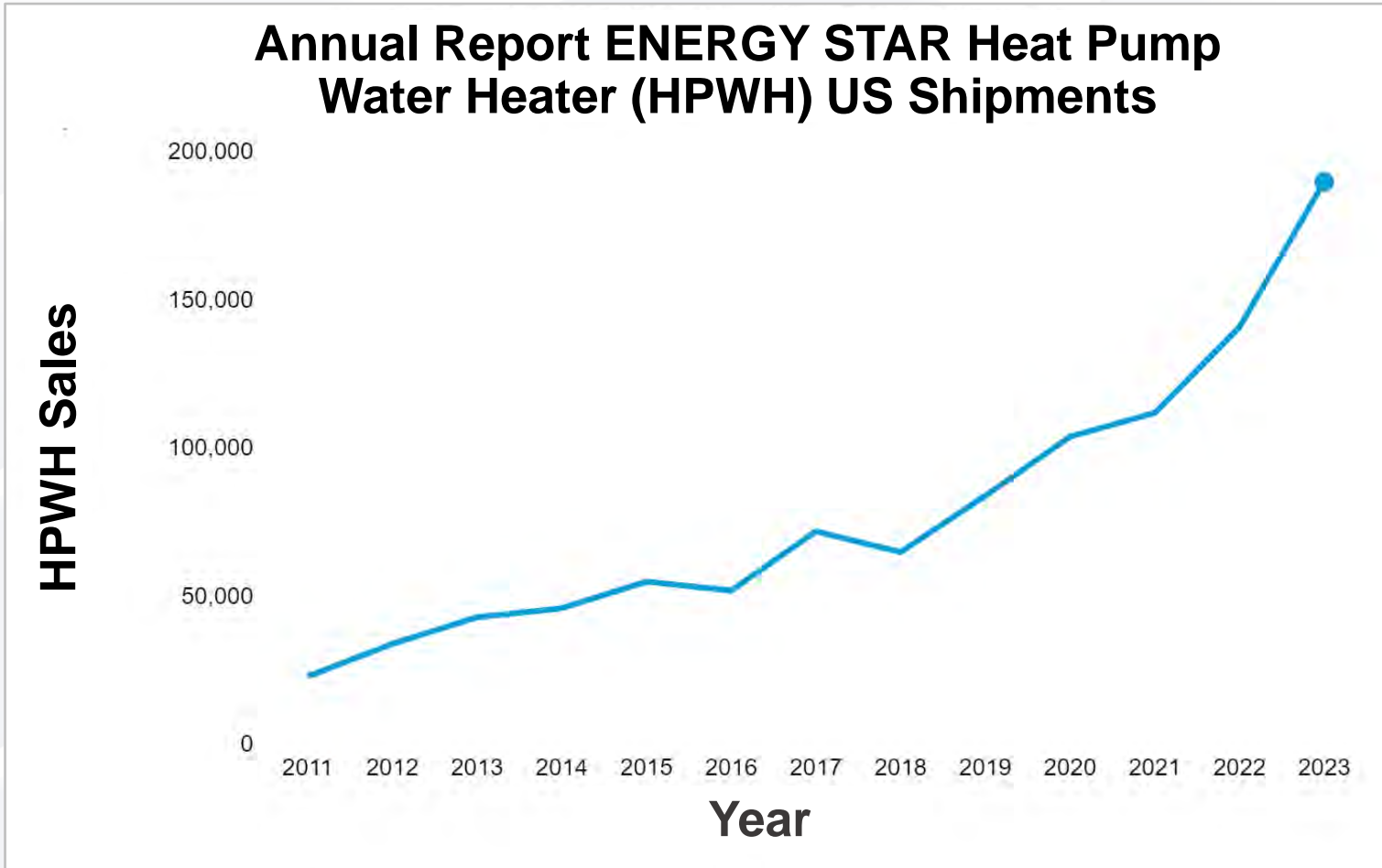


- Local programs, pilot programs, and policies from cities, CCAs, and Bay Area Regional Energy Network
- State market development through programs including TECH Clean CA and CA Heat Pump Partnership
- Federal Inflation Reduction Act (IRA) funds and US Department of Energy electric water heater efficiency standards passed in 2024



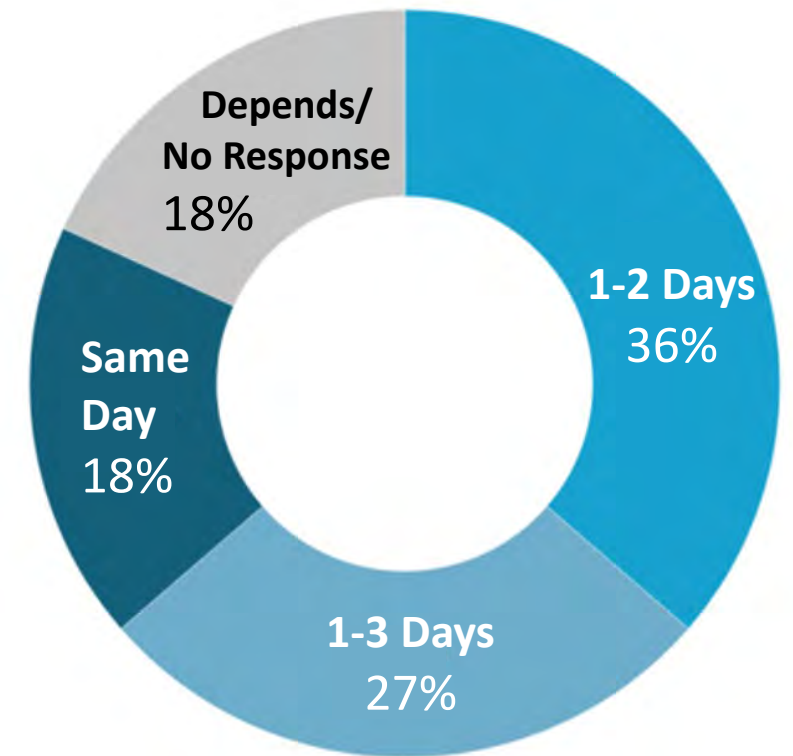
Source: Microsoft stock photo

# Market Readiness: Wait Times and Sales Trends



Source: Advanced Water Heating Initiative

## Bay Area contractors wait times for HPWHs



Source: Appendix C of Staff Report: Informational Update on Rule 9-6

# Workforce: Benchmarking and Surveys



**National metrics show Bay Area workforce concentration is close to national averages (0.86 – 0.98)**

## Findings from surveys and interviews

- Majority of contractors are available for emergency failures within a couple of days
- About 2/3 of contractors had awareness of zero NOx amendments and incentive programs
- Almost 1/3 of contractors plan to provide additional heat pump training to their staff
- Almost 1/4 of plumbers expect to expand their workforce



# Permitting: Local Building Permits



## Findings from surveys and interviews with 11 Bay Area local governments:

- Turnaround time for zero NOx water heater permits takes less than 3 days in most jurisdictions
- Most cities surveyed have a single permit for HPWHs
- Growing number of local jurisdictions are pursuing best practices for HPWH permitting, informed by efforts from:
  - BayREN and TECH Clean California's Permitting Pilot
  - San Mateo County
  - Silicon Valley Clean Energy (SVCE)



Source: Microsoft stock photo

# Costs: Billing Impacts



- Most high-usage households (5,000 kWh or more annual usage before electrifying) see savings
- Some low-usage households see increase of ~\$2 per month
- Discount rate for low-income and electrification-specific rate are key

Usage	Sector	Customer	% Customers who Switch to E-ELEC	Bill Impact	% Customers	Avg \$/Month
Low	SF Res	CARE	8%	Increase	12%	\$1.33
				Decrease	88%	-\$8.28
	Non-CARE	10%	Increase	34%	\$1.73	
			Decrease	66%	-\$7.51	
	MF Res	CARE	13%	Increase	10%	\$1.33
				Decrease	90%	-\$7.89
Non-CARE	18%	Increase	59%	\$2.09		
		Decrease	41%	-\$7.65		
High	SF Res	CARE	62%	Increase	4%	\$1.50
				Decrease	96%	-\$15.38
	Non-CARE	64%	Increase	5%	\$1.71	
			Decrease	95%	-\$32.97	
	MF Res	CARE	48%	Increase	7%	\$1.42
				Decrease	93%	-\$16.58
Non-CARE	76%	Increase	3%	\$1.24		
		Decrease	97%	-\$27.59		

SF Res = Single-family Residential  
MF Res = Multifamily Residential

E-ELECT = Electric Home Rate Plan  
CARE = California Alternate Rates for Energy

Source: Appendix A of Staff Report: Informational Update on Rule 9-6



# Average Costs: Upfront Purchase and Installation

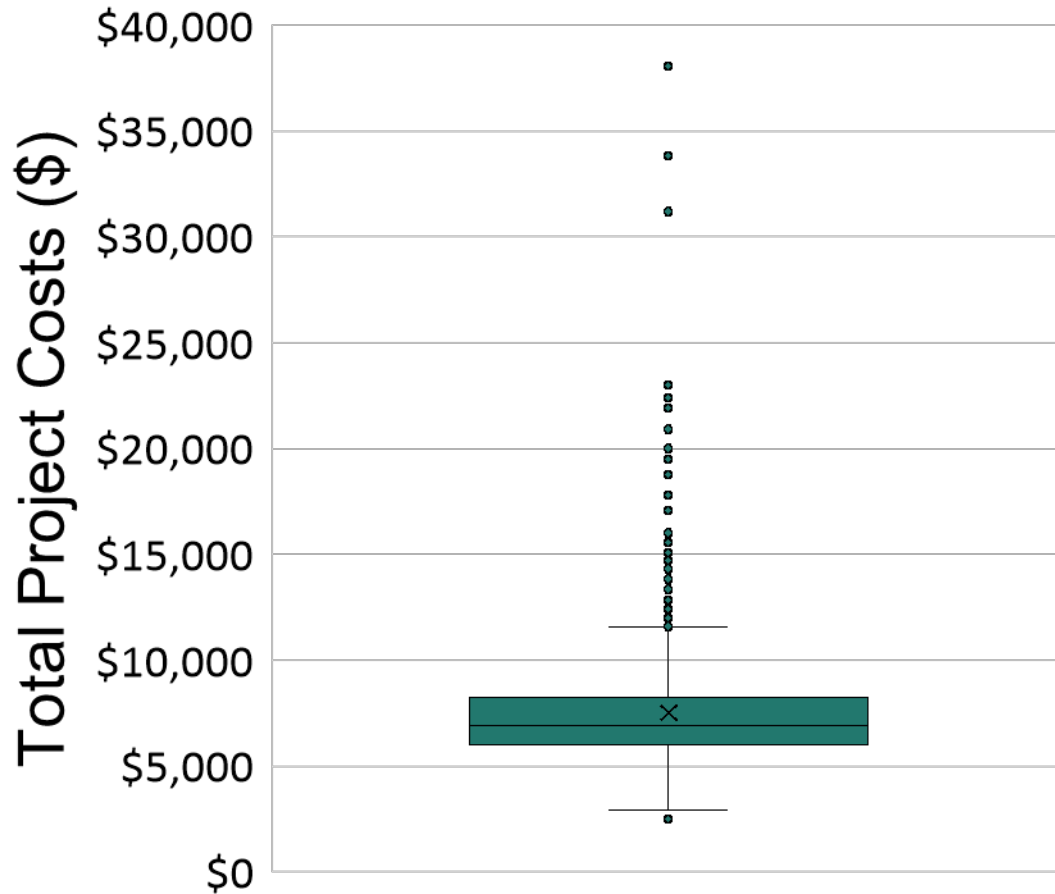


End User	NOx-emitting Baseline Type	NOx-emitting Average Upfront Cost	Zero NOx Average Upfront Cost	Incremental Cost
Single-family	Tanked + Tankless (N=450)	\$5,231	\$7,071	<b>\$1,840</b>
Single-family	Tanked (N=37)	\$3,575	\$7,071	<b>\$3,496</b>
Multi-family	Tanked, tankless	No data	\$8,939	Not available

- Current and upcoming incentives offered at multiple levels: Federal, State, PG&E, and local
- After incentives and tax credits, upfront costs for a new zero NOx water heater can be less than for a new NOx-emitting water heater



# Challenging Installations: Cost of Edge Cases



- The majority of the ~4k HPWH projects evaluated are close to the median and average of ~\$7k for total upfront costs
- But TECH data shows statistical outliers and “edge cases”

Source: Appendix A of Staff Report: Informational Update on Rule 9-6 & TECH Clean CA December 2023



# Challenging Installations: Space Constraints and Emerging Solutions

Early research show space constraints in up to  
~1/4 of homes

- Ventilation measures will be mostly low cost (avg.=\$208; max=\$1.7k) vs. other measures, especially relocation (avg.=\$1.3k; max=\$4.5k)

## Emerging solutions:

- Split-system HPWHs – with unattached, outside condenser or heat pump (*top photo*)
- Electric on-demand tankless water heaters (*bottom photo*)



Source: Embertec.com and Homedepot.com



# Challenging Installations: Panel Upsizing and Emerging Solutions

**Only 3% of single-family and 10% of multi-family homes statewide will need panel upsizing for *full* electrification**

- 120V HPWHs are “plug and play”
  - Growing market: Energy Star lists 68 records
  - \$800 – \$15,000 cost savings vs. 240V HPWH install
- Bay Area projects validated *full* electrification on 100 amps through “watt diet” panel optimization
  - Circuit splitting, sharing, or pausing
  - Smart panels
  - Low-amperage appliances



Source: Grainger.com

# Emerging Solutions: Emergency Replacements



**75 – 90% of water heater replacements only happen when there is a failure**

- New “loaner” programs and pilots from Palo Alto, SVCE, Peninsula Clean Energy, and Marin Clean Energy (MCE)
- Opportunities to encourage pre-planning and readiness:
  - Senate Bill (SB) 382 *Notice to Homebuyers* passed in 2024
  - Potential local government ordinances (e.g., City of Piedmont, Mountain View)
  - Education and outreach
- Potential to speed up installations through contractors, training, and permitting

# Potential Housing Impacts



## Findings from detailed policy research and engagement with key stakeholders, experts, and other agencies

- Capital cost pass-throughs and/or potential rent increases (cost recovery) is a priority issue
- Potential for temporary evictions from construction activities required to make zero NOx replacements (“substantial repair”)



Source: Microsoft stock photo

# Potential Housing Impacts: Lived Experience Interviews with Bay Area Renters



“I am aware of rebates, for switching from gas to electric appliances. My landlord has not taken the measure yet, but he is interested in changing from gas to electric...My landlord should be the one to take care of figuring out the switch.”

“[The water heater] works, but I don’t like it because it’s gas and very old. I don’t feel safe.”

“I didn’t have a contract and it was an informal agreement. Many people like to rent without a formal contract, because sometimes the requirements are a lot, especially for Latinos. I have experienced housing discrimination for being Latino.”

“Disposable income needs to be considered with this trend (electrification), and tenants might not be able to afford the transition. It needs to be affordable.”

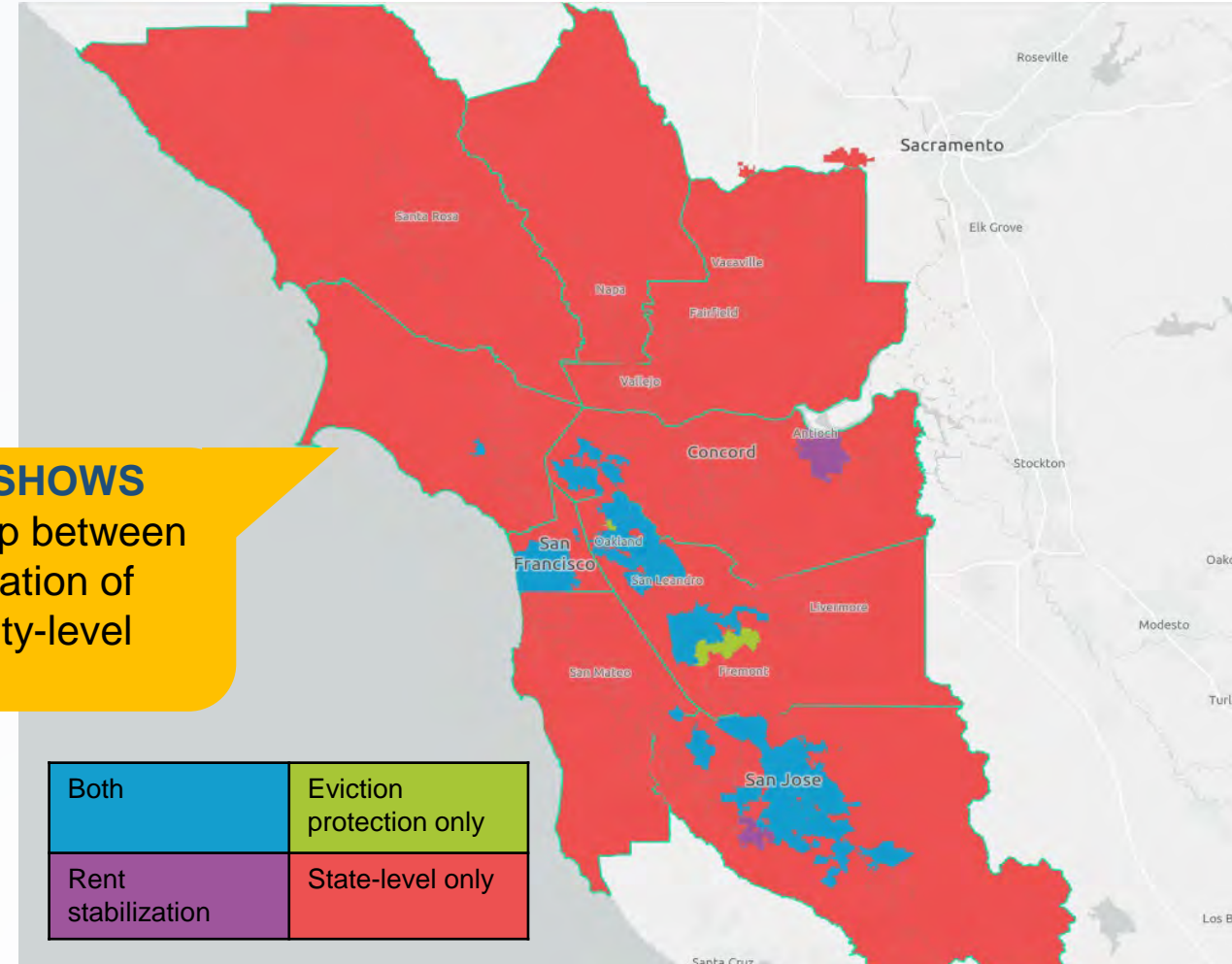
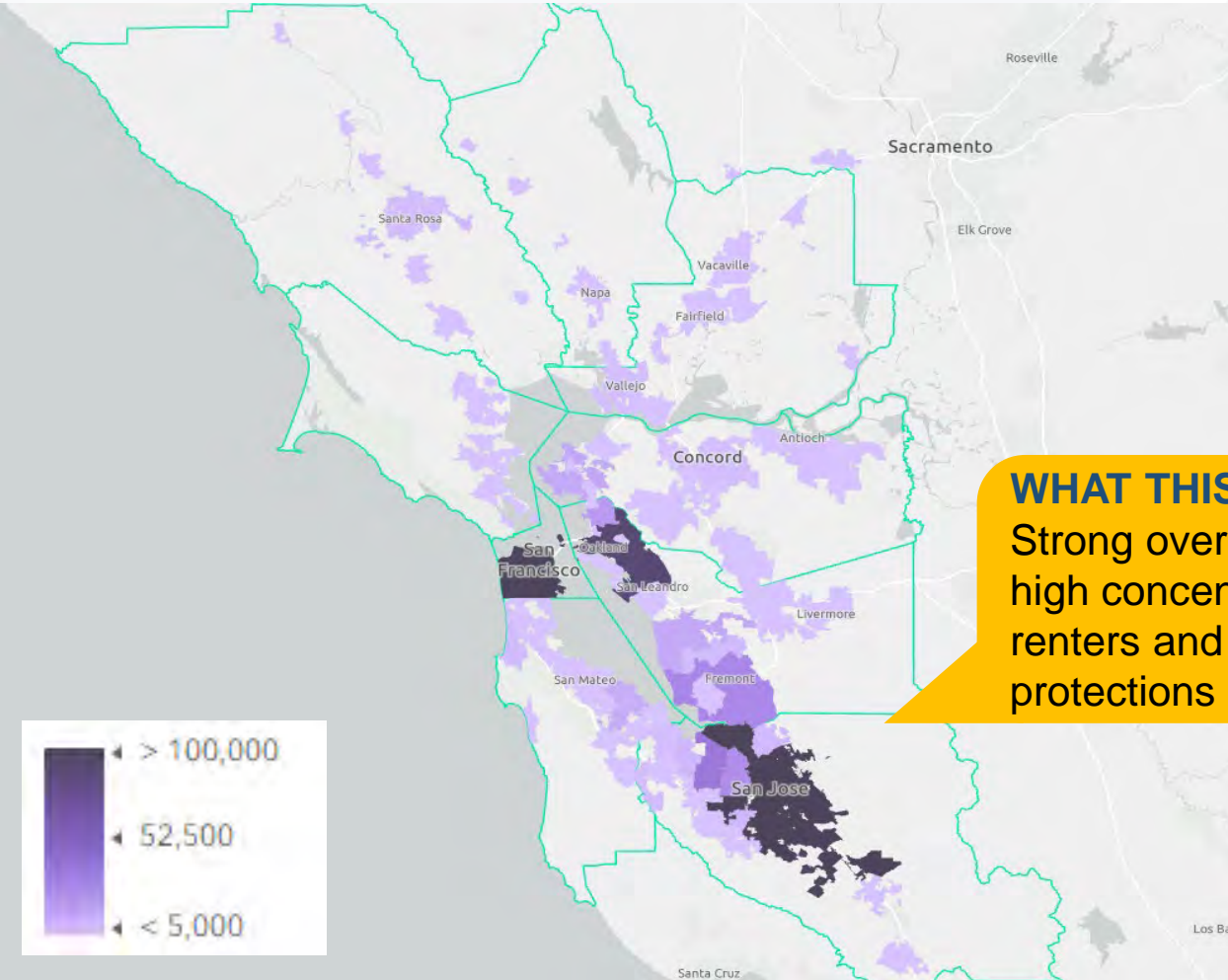


# Key Finding: Cities with the strongest protections have the highest percentage of renters



Total Rented Households (Census Data)

Types of Protections in Place by Jurisdiction



**WHAT THIS SHOWS**

Strong overlap between high concentration of renters and city-level protections

# Potential Housing Impacts: Emerging Solutions



## Pass Throughs

- Consider ways to *prohibit or limit pass through* costs for zero NOx appliance upgrades in local rent laws
- Conduct *outreach to landlords* to increase participation in incentive programs to lower costs and pass through amounts

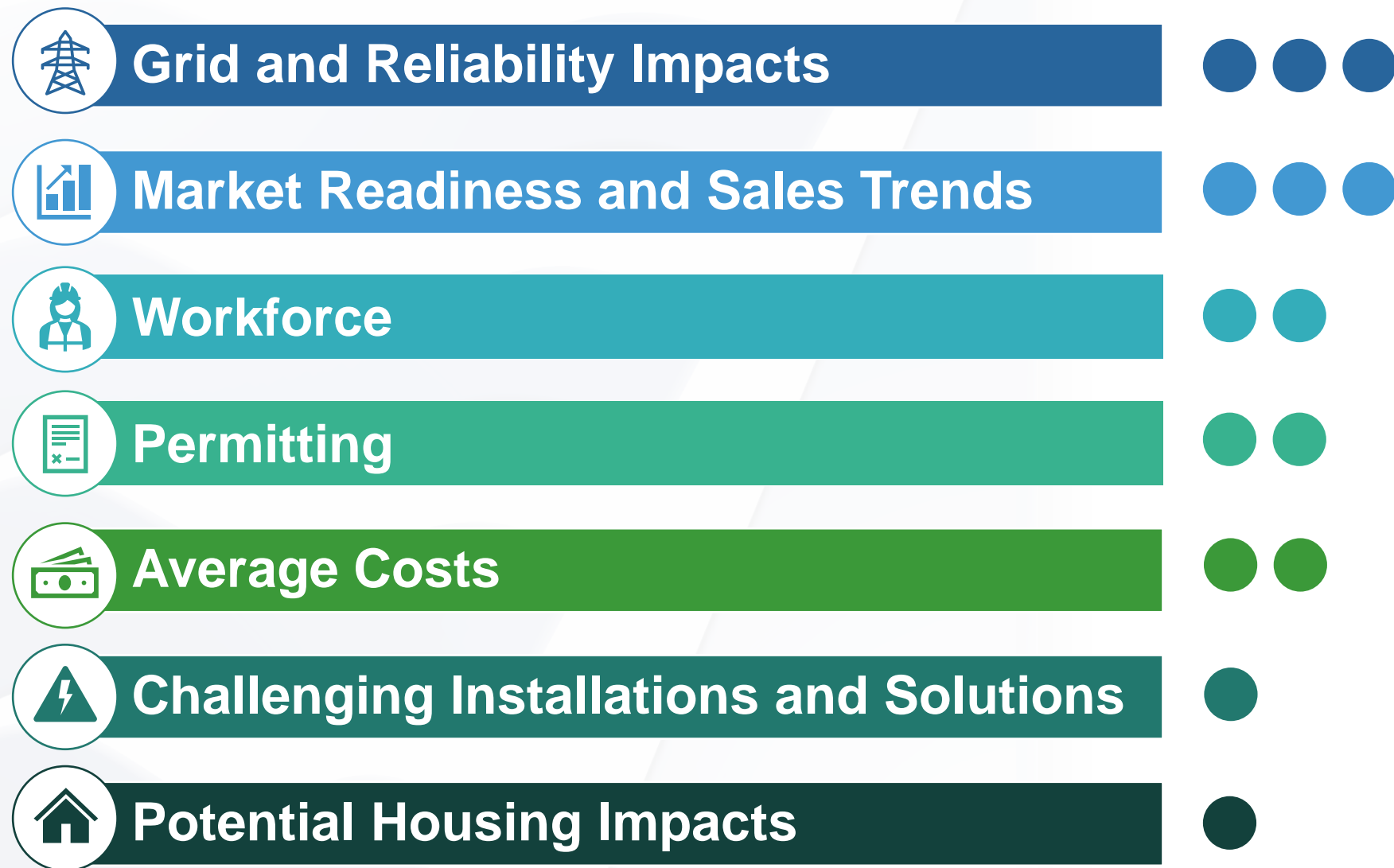
## Eviction Protections

- Explore ways to limit “substantial repair” for zero NOx appliance replacements
- Expand relocation assistance for affected tenants
- Address and prevent “renovictions”



Source: Microsoft stock photo

# Current Implementation Readiness



**LEVELS**

- ● ● READY
- ● ON-TRACK
- MORE WORK NEEDED

# Equity Concerns: Costs

- Higher upfront incremental costs without incentives
- Scale and continuity of incentives
  - Approximately 120k Bay Area small water heaters will be replaced annually, with a substantial number of those being in lower-income households
  - Current and upcoming electrification and energy efficiency incentives that include HPWHs offered from multiple sources: federal, state, PG&E, local utilities and CCAs
  - Funding programs are a snapshot in time



Source: Microsoft stock photo

# Equity Concerns: Potential Housing Impacts

- Cost pass throughs from owner to tenant in privately-owned rented buildings
- Potential temporary displacement of tenants due to additional construction activities for more complex installations; for example:
  - Electrical service upgrades
  - Building constraints for installation that require reconfiguration



# Next Steps: Communications and Outreach

- Continue and grow robust key stakeholder engagement
  - Local government and CCAs
  - Contractors
  - Multifamily building owners and residents
- Research and advocacy for funding and policy changes to address remaining challenges
- As implementation dates near
  - Broader public education and outreach campaign



Source: Microsoft stock photo



# Next Steps: Rule Development

EPA requested changes for State Implementation Plan compliance

Conditional approval expected in January 2025

Administrative rule changes to be completed in 2025

Possible changes to introduce flexibility

Stationary Source Committee planned for Quarter 2 2025

Discuss strategies to address remaining gaps including benefits and resource implications

EPA = Environmental Protection Agency