

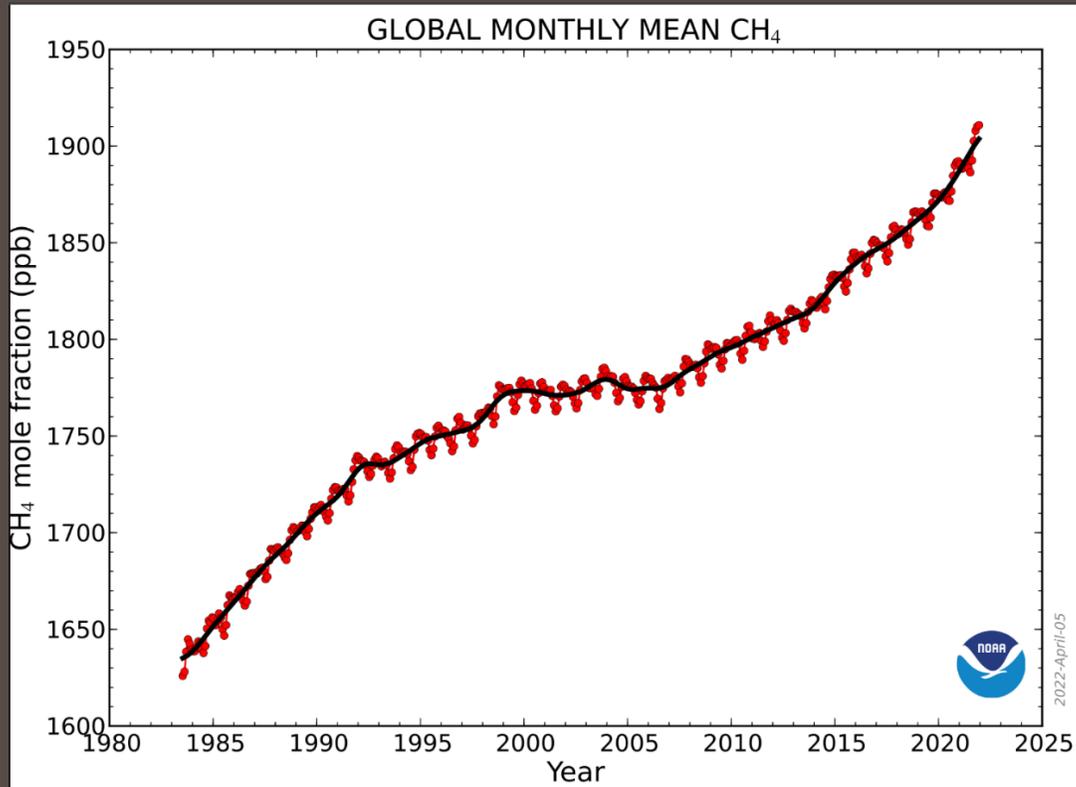
Board Strategic Development Committee and Special SMUD Board of  
Directors Meeting  
Tuesday, November 12, 2024  
SMUD Headquarters

# Methane in the Context of Regional Air and Climate Efforts

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# Why do we care about methane?



CH<sub>4</sub>: Methane  
GWP: Global Warming Potential

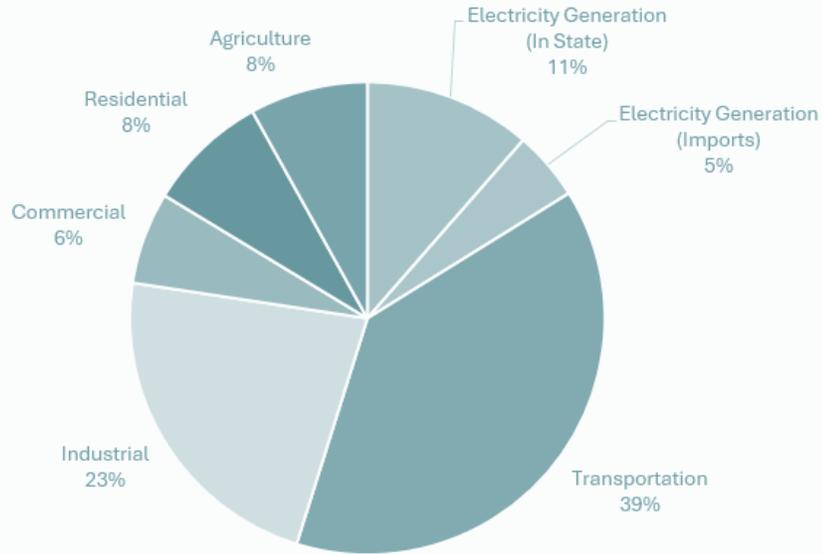
- Biggest component in natural gas
- Second most prevalent greenhouse gas
- Very potent GHG (25-85X GWP<sub>CO<sub>2</sub></sub>)
- Short-lived climate pollutant (~10 years)
- Controlling methane to reduce atmospheric warming
- Although methane is “exempt” compound - it has negligible reactivity to form ozone

# GHG & Methane – California Emissions



## 2022 GHG EMISSIONS BY SECTOR

371.1 MMT CO<sub>2</sub>e Total in CA



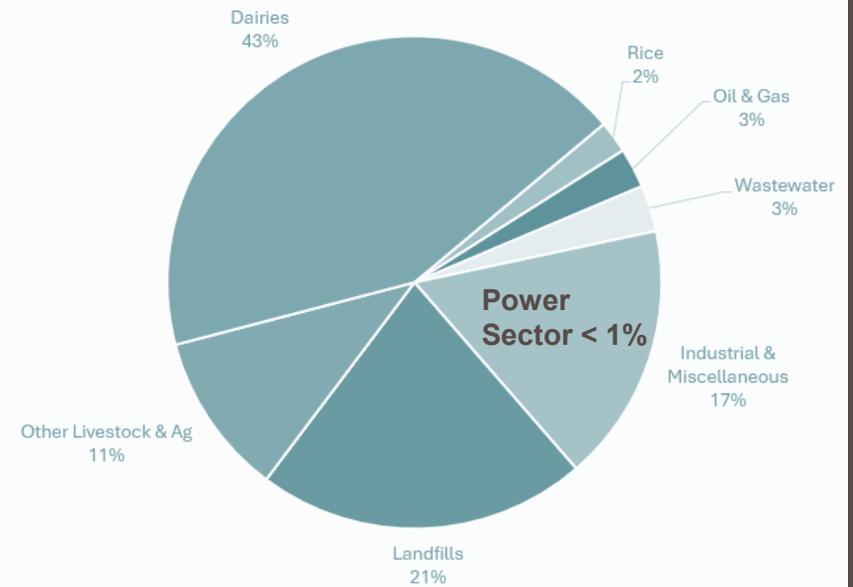
Methane **less than 10%** of Total GHG Emissions

**BUT ...**

Global Warming Potential **~25-85**

## 2022 METHANE EMISSIONS BY SECTOR

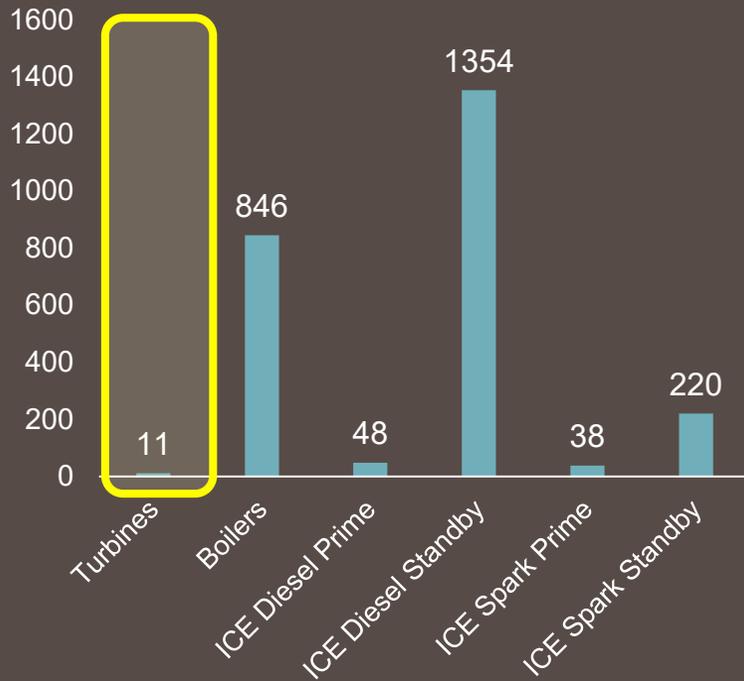
36.33 MMT of CO<sub>2</sub>e total for CA



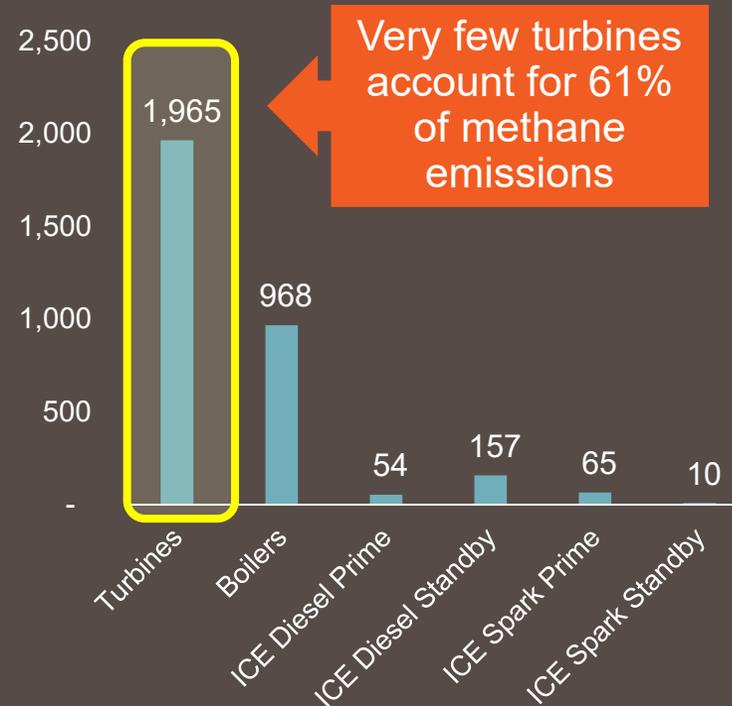
# SMUD's Carbon Footprint

## Permitted Combustion Equipment

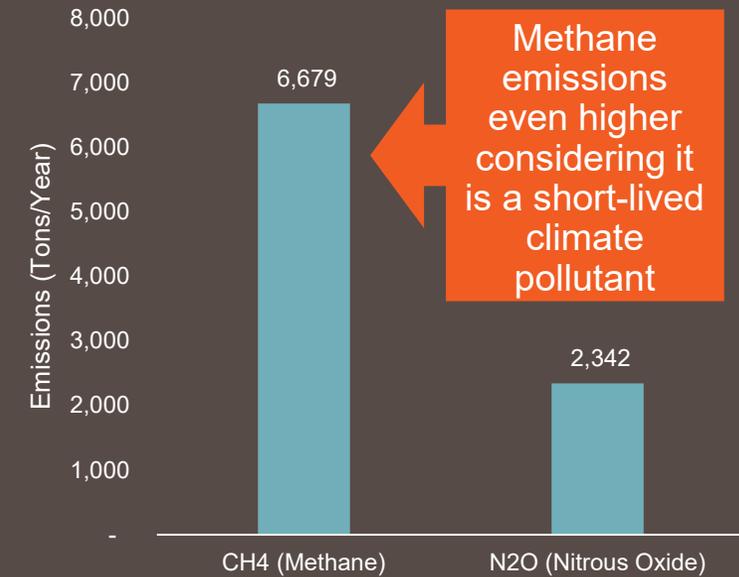
Permitted Combustion Equipment Number



Methane Emissions (TPY)



Turbine Methane Emissions (20-year horizon)



**Note: CO2 emissions are 4M tons/year**

**Note: 9 out of 11 turbines are SMUD's**

# GHG & Methane – Local Air District Efforts

- Local Enforcement of CARB Regulations
  - Landfill Methane Regulation
  - Oil & Gas Methane Regulation
- Air Quality Permitting
  - Stationary source permits focus on criteria pollutant control
  - Controls can also reduce methane emissions
- Tracking City & County Climate Action Plans



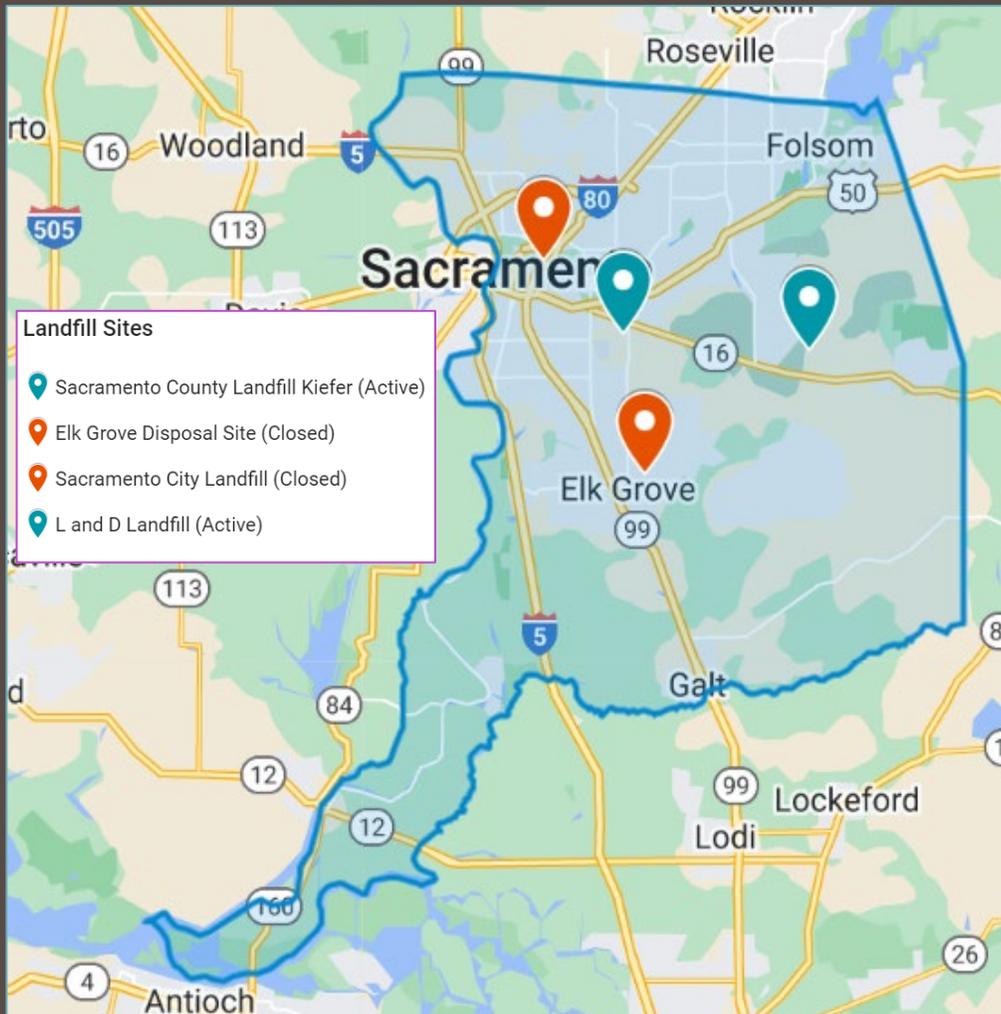
# Landfill Methane Regulation & Local Enforcement

## CARB Landfill Methane Regulation (LMR)

- Effective in 2010
- Reduces methane from landfills by setting standards to promote optimal management of landfills
  - Regular surface monitoring
  - Reporting requirements

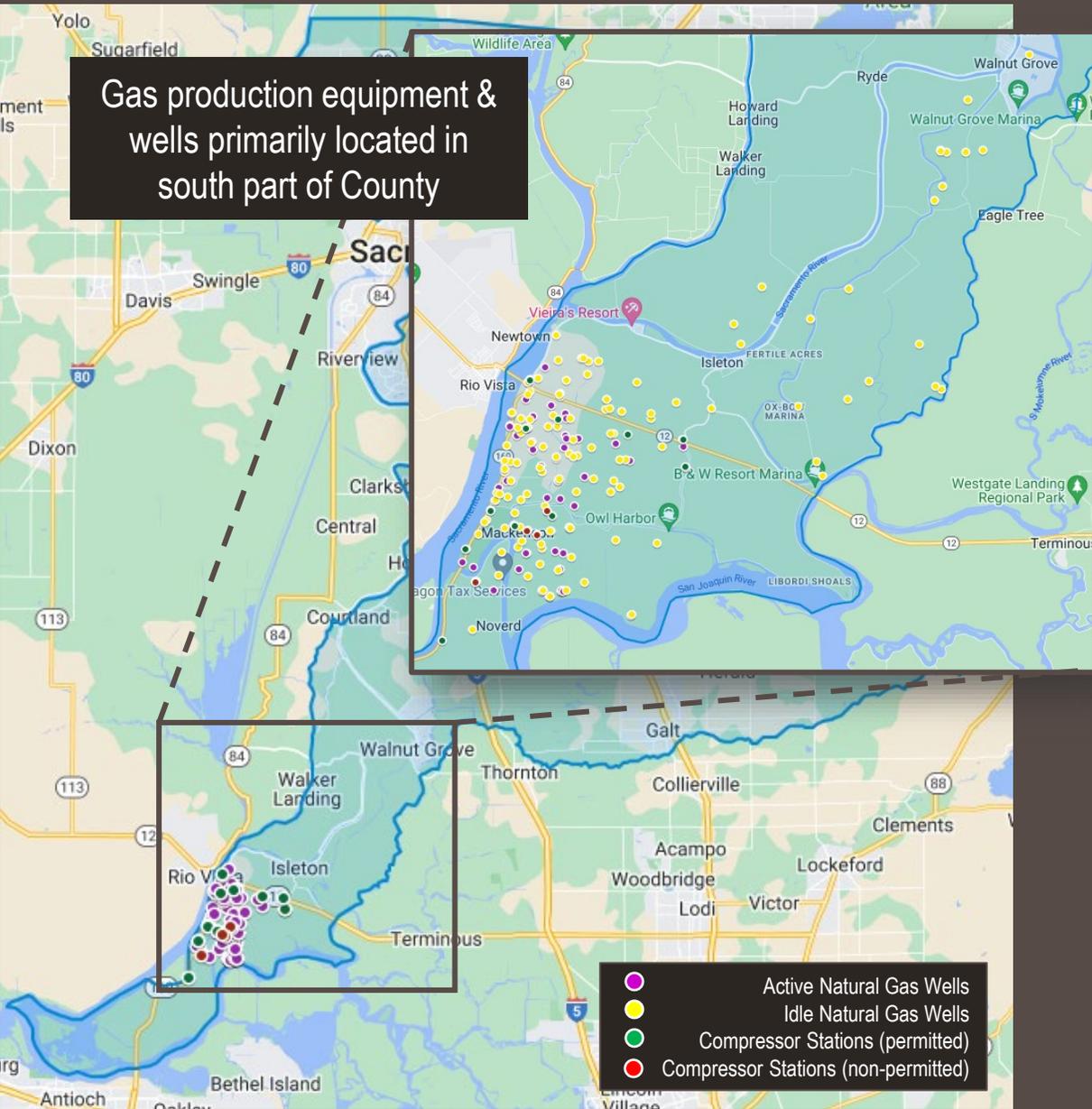
## Sac Metro Air District Enforcement

- Heavily regulated source (federal, state, local)
- District issues local air quality permits
- District enforces CARB LMR
- Annual inspections and source tests at landfills



# Oil & Gas Regulation & Local Enforcement

- CARB Oil & Gas Regulation (adopted 2017)
  - Reduces methane emissions from oil & gas sector
  - Requires sources to regularly monitor and repair leaks
- Sacramento County Stats
  - Dry gas production only
  - Five oil & gas companies with operations
  - 0.2% of active and idle wells in California
- Sac Metro Air District Enforcement
  - Annual inspections of local gas production facilities
  - Leak detection using infrared camera & gas detectors





# Dairies & Methane

- Dairies and livestock are major methane contributor
- Five dairies operate under local air quality permits; four of them have onsite methane collection
- Account for over half of all methane emissions in California
- Strategies to reduce methane
  - Methane capture, i.e., anaerobic digesters
  - Diet Modification
- Sacramento County
  - Dairy & Beef production are in Top 10 Commodities for County

# Methane Hotspots Program

- State research project started in 2015
- Satellite and aerial flyovers “methane plume mappers”
- Detect methane hotspots from landfills, oil & gas and other sectors
- How is the data used?
  - Shared with facilities to quickly stop leaks
  - Local air district enforcement tool
  - Data informed state regulatory amendments



Carbon Mapper satellite launched Aug 16, 2024

Image Source: <https://carbonmapper.org/articles/carbon-mapper-coalitions-first-methane-sensing-satellite-to-launch>

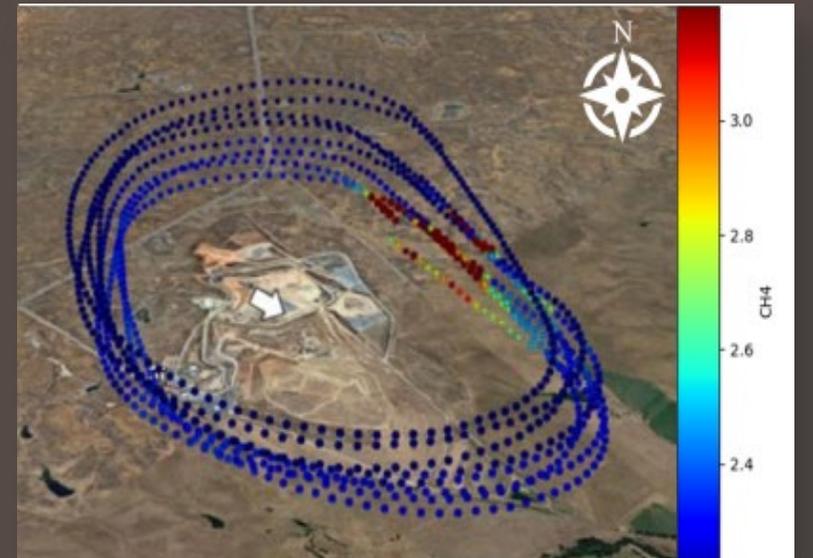
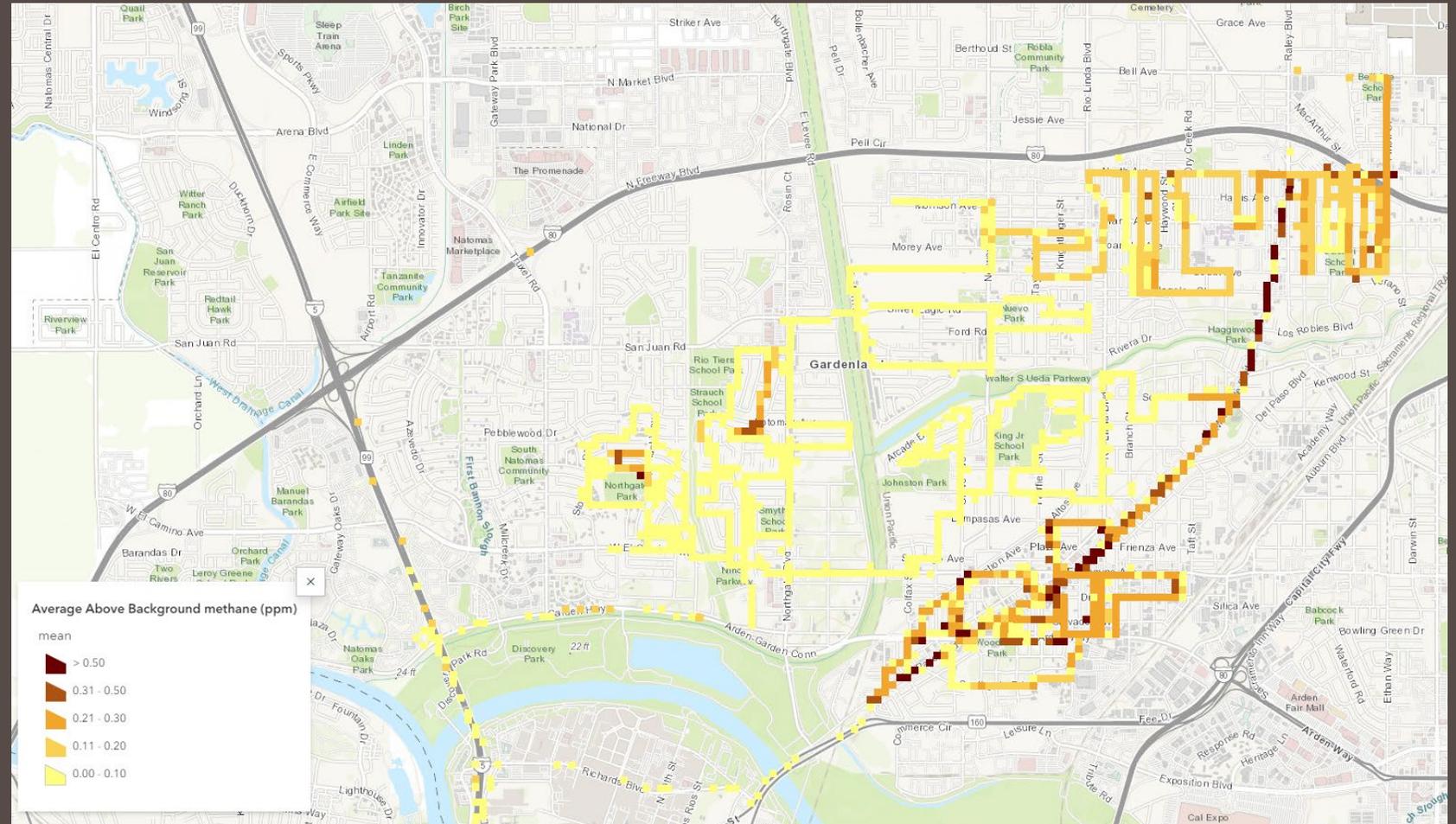


Image Source: [https://ww2.arb.ca.gov/sites/default/files/2021-05/CARB%20Final%20Final%20Summary%20Report\\_2021\\_ADA.pdf](https://ww2.arb.ca.gov/sites/default/files/2021-05/CARB%20Final%20Final%20Summary%20Report_2021_ADA.pdf)

# Community-Scale Air Quality Monitoring

- City of Sacramento and Sac Metro Air District partnership
- Block by block air quality mobile monitoring project
- Spring 2023
- Results show higher levels of methane emissions at street level
- But generally, concentrations are low



# GHG & Methane Federal Actions



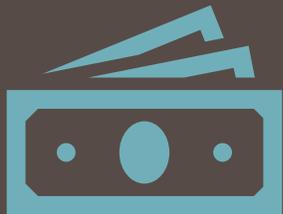
- Recent Supreme Court Actions

- Denied requests to stay EPA regulation to reduce methane emissions from oil and gas drilling
- EPA regulation to reduce emissions of carbon dioxide by power plants left in place



- Federal focus on large methane emitters

- National Enforcement Initiatives: Tackling the climate crisis is EPA's top priority with a focus on Oil & Gas and Landfill sectors
- Finalized Oil & Gas GHG Regulation (May 2024)
- New Standards for Landfills (2021)



- Federal Inflation Reduction Act

- \$1.36 billion in funding
- Funding to reduce methane from Oil & Gas sector