



BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT

AGENDA: 17A

Measures to Address Lead from General Aviation Fuel

**Board of Directors Meeting
October 6, 2021**

**Greg Nudd
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Presentation Outcome



- Determine recommended paths forward to address lead from aviation fuel.

Presentation Outline



- Lead emissions from general aviation
- Health effects of lead
- Children's blood lead levels tied to aviation
- Technical feasibility of unleaded aviation fuel
- United States Environmental Protection Agency (USEPA) and Federal Aviation Administration (FAA) need to act
- Next steps to eliminate lead emissions

General Aviation Lead Emissions



- Piston-engine small aircraft operating out of general aviation airports still use leaded aviation fuel.
- Tetraethyl lead (TEL) is added to aviation fuel to increase the octane level of the fuel, decreasing engine knock.
- Aircraft are the largest remaining source of lead emissions to the air, accounting for 70% of the lead air emissions in the US*, and 88% in the Bay Area*.

*Data from 2017 NEI

Health Impacts of Lead Exposure



- No safe level of lead exposure
- Lead is toxic and can persist in human tissue, the brain, and the skeletal system for many decades after exposure
- Even low levels of lead in blood linked to adverse cognitive and behavioral performance in children:
 - IQ loss, decreased ability to pay attention, and poor academic achievement
 - Delinquency and violence in adolescence
 - Early onset dementia in adults with early exposure

Blood Lead Level Studies



- Children of low socioeconomic status have greater risk of elevated blood lead levels.
- Children living near general aviation airports have elevated blood lead levels.
- Study of blood lead levels of children near the Reid Hillview Airport in Santa Clara County
 - Linked elevated levels of blood lead in children to their proximity to the airport, as well as flight activity at the airport itself

Unleaded Aviation Fuel Use



- In the past, technical challenges made the switch to unleaded aviation fuel a challenge.
- After decades of work, these challenges have been largely addressed, and 2/3 of the piston-engine aircraft can use unleaded avgas.

U.S. EPA and FAA Need to Act



- USEPA has made progress in reducing lead exposure risk. Addressing aviation gasoline is a major remaining opportunity.
- USEPA was first petitioned on this issue in 2006 and has intermittently evaluated impacts from lead emissions from aviation since that time.
- In 2015, USEPA stated that they planned to issue a Proposed Endangerment Finding for public comment in 2017, but to date has not followed through on the promise.
- USEPA and FAA have been working to overcome technical and logistical barriers for over ten years.

Proposed Next Steps



- Petition the USEPA to make an endangerment finding under section 231 of the Clean Air Act that leaded aviation gasoline (“avgas”) contributes to air pollution that harms public health and welfare.
- Urge the USEPA and Federal Aviation Administration to take immediate, feasible measures to reduce lead emissions from avgas.
- Urge California Senators and Bay Area Members of Congress to urge USEPA and FAA to take action on this issue.

Proposed Next Steps (cont.)



- Urge sister agencies such as the California Air Resources Board, California Air Pollution Control Officers Association, and the National Association of Clean Air Agencies to take similar actions.
- Petition the California Department of Public Health to study blood levels at other airports especially those with high emissions near residences in order to provide specific information for local decision makers.
- Educate local governments on the issue.



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AGENDA: 18

Update on Air District Climate Protection Program

**Board of Directors Meeting
October 6, 2021**

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Presentation Outcome



- Provide update on the Air District's Climate Protection Program, including opportunities for future action.
- Receive feedback and direction from Board members on the presented concepts.

Presentation Outline



- Background on Bay Area greenhouse gas (GHG) emissions
- Update on the Air District's Climate Protection Program
- Where do we go from here?

Requested Action



- None – information only.



Growing Urgency: Impacts



*“There’s really one key message that emerges from this report: **We are out of time.**”*

– Kim Cobb, Ph.D.
Professor of Earth and Atmospheric Sciences,
Georgia Institute of Technology



Board of Directors Meeting
October 6, 2021

“The IPCC Report is a ‘code red’ for humanity.”
– U.N. Secretary-General António Guterres



Growing Urgency: Equity



“Calls for change after 11 people in NYC basement apartments died during catastrophic floods”



Low-income residents are less able to evacuate due to lack of resources (e.g., money for gas or lodging).

“Across all climate risks, children, older adults, low-income communities, some communities of color, and those experiencing discrimination are disproportionately affected by extreme weather and climate events”

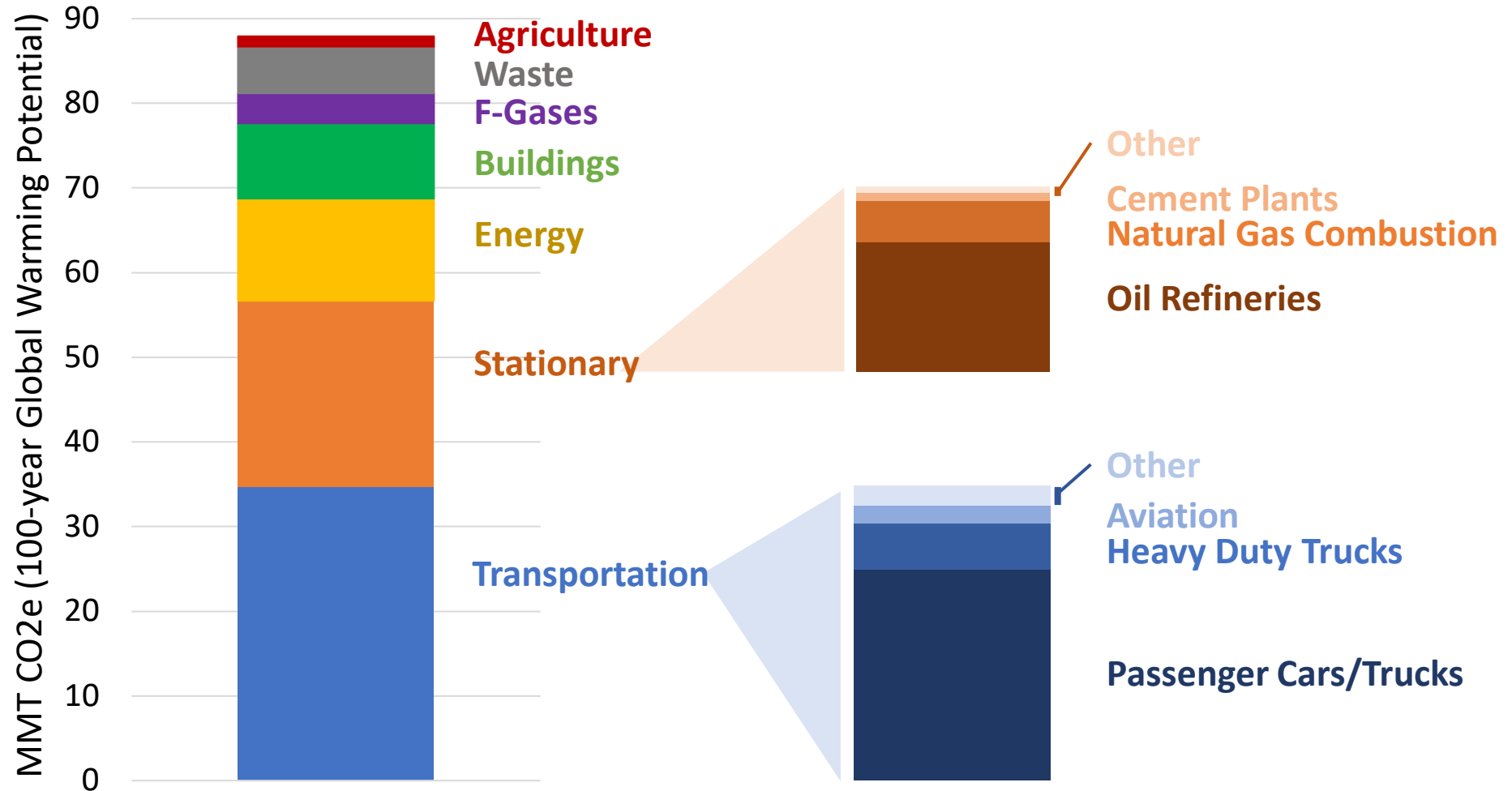
– U.S. 4th National Climate Assessment (2018)

**“WE KNEW WHO WAS GOING TO DIE”:
WARNINGS ABOUT LOWER-INCOME
HEAT RISK WENT UNHEEDED**

**The
Intercept_**



Bay Area Greenhouse Gas (GHG) Emissions

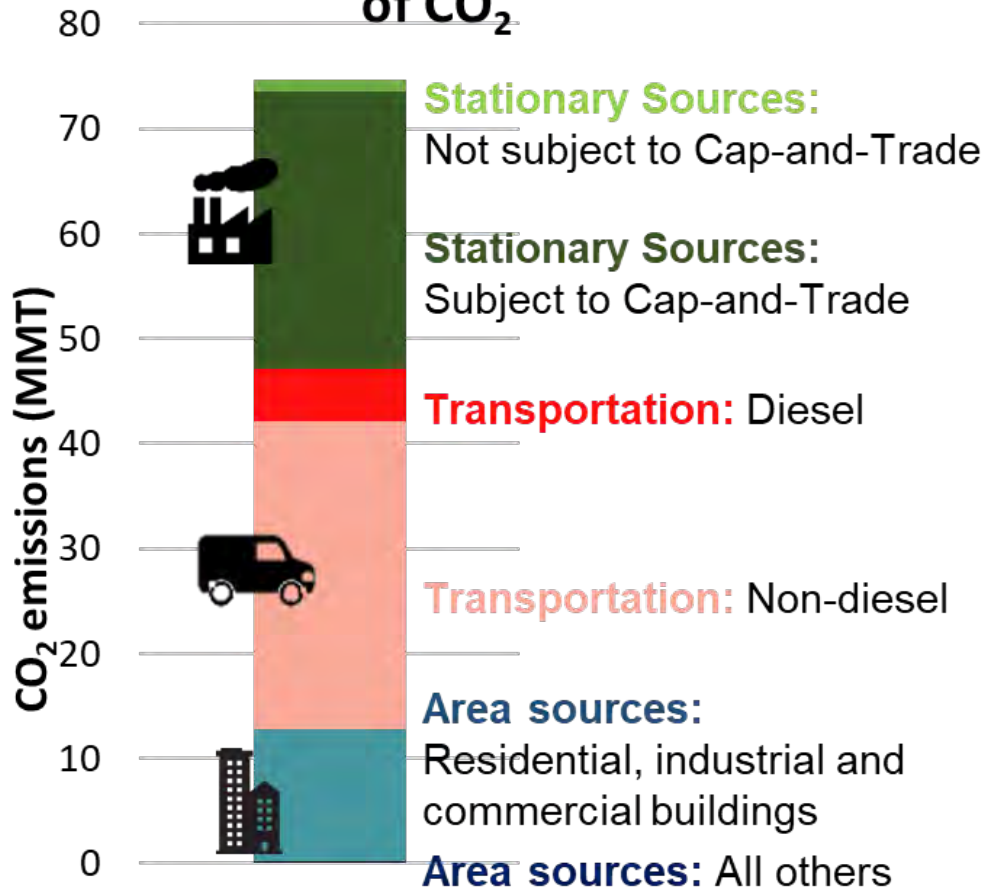


2017 GHG Emissions Inventory
(with measurements-based revisions to methane estimates)

Bay Area GHG Emissions: CO₂



Major Source Categories of CO₂



Key Campaigns



Building Decarbonization Program



Zero Emission Vehicle Acceleration Plan



Diesel Free By '33



Walk. Bike. Ride.

Work with MTC and local governments to overcome barriers to VMT reduction

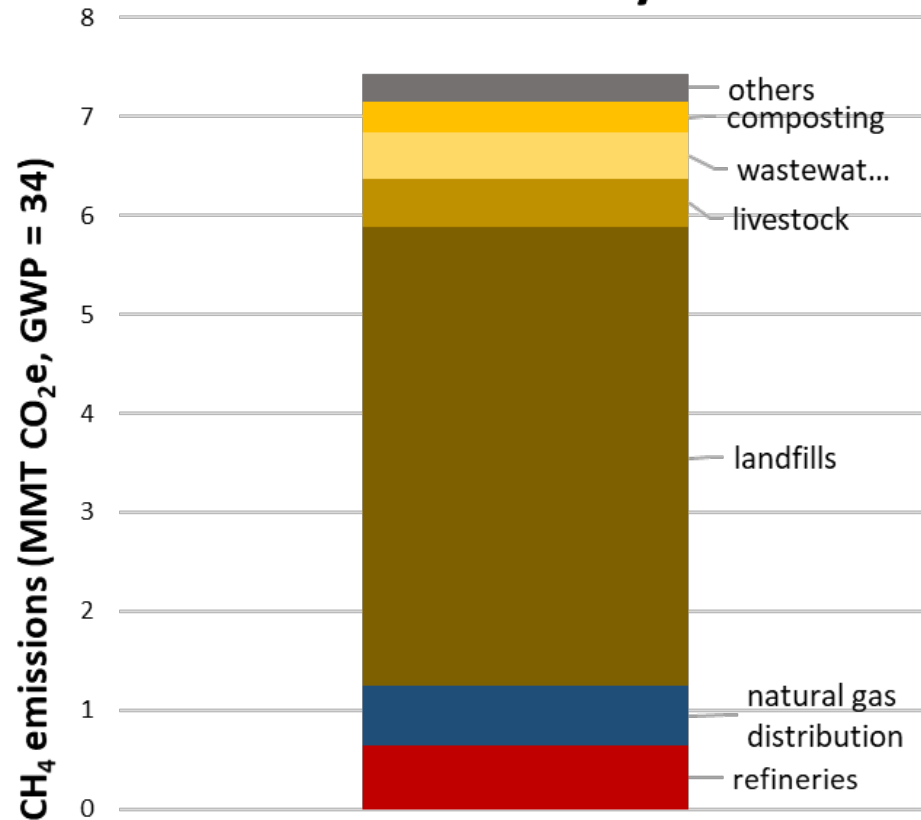


Transition back-up power off fossil fuels

Bay Area GHG Emissions: Methane



Updated Methane Emissions Inventory



Key Campaigns



Rule development: hydrogen plants; landfills



Scientific studies

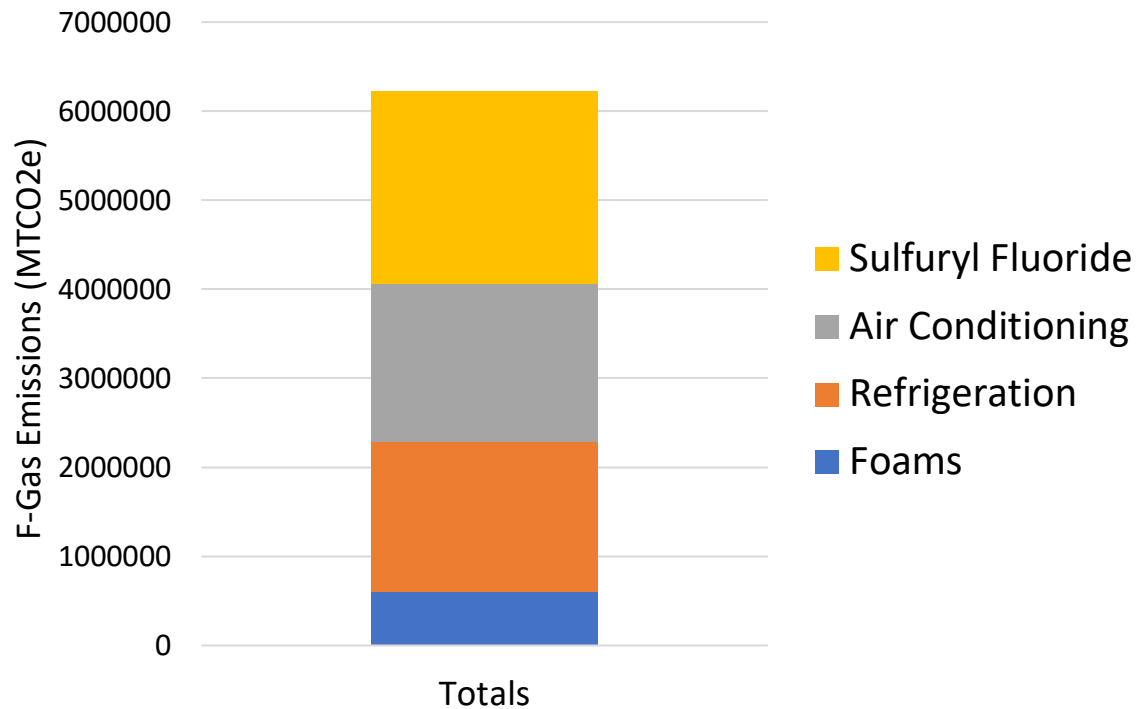


Assisting local governments with organic waste diversion mandates

Bay Area GHG Emissions: F-Gases



Fluorinated Gases Inventory



Key Campaigns:

- Region-wide expansion of Residential Appliance Recycling Program
- Policy and technical support through Clean Building Compass
- Public education and outreach campaign
- Explore potential rule-making for HFCs, sulfuryl fluoride



Climate Protection Program



Local Government

- Climate Action Plans
- Policy & technical support
- Bay Area Healthy Homes Initiative
- Communications



Incentives

- Climate Tech Finance
- EV funding
- TFCA grants
- Moyer grants



Rules

- Hydrogen plants
- Landfill Rule amendment



Policy & Legislative

- Commuter Benefit Program
- Climate bill advocacy



Permitting

- Diesel BUG permitting



Inventory & Measurements

- Methane inventory improvement



Enforcement

- Landfill inspections

Where Do We Go From Here?



Local Government Support

Key Opportunity – Cities and Counties are:

- Laboratories of innovation
 - Community choice energy programs
 - Innovative financing solutions
- Critical players in reducing GHGs
- Eager to continue to be leaders in climate protection
 - Building energy reach codes
 - Climate Action Plans



Following Berkeley's Natural Gas Ban, More California Cities Look to All-Electric Future

Where Do We Go From Here? (cont.)



Local Government Support

Accelerating transformational change at the local level

- Continue & enhance support for building decarbonization programs
- Replicate the success of the building decarbonization initiative to additional sectors, e.g., provide resources and guidance related to F gases, Diesel Free by '33, etc.
- Support the critical role of local governments in achieving state targets and mandates:
 - Divert 75% of organic waste by 2025
 - Increase energy efficiency in existing buildings by 50% by 2030

Where Do We Go From Here? (cont.)



Local Government Support

Accelerating transformational change at the local level (cont.)

- Policy support, information exchange and convenings
 - Model ordinances, best practices
 - Clean Building Compass
 - Local government newsletter, webinars
- Provide key technical and planning support to long-range planning
 - GHG inventories and climate action plans
 - CEQA thresholds, guidance and review

Where Do We Go From Here? (cont.)



Rule Development

We have some constraints:

- Limited authority under AB 398 – cannot regulate sources of CO₂ covered by Cap & Trade
- Cannot regulate transportation sources
- Authority over building codes and energy efficiency is limited to federal, state and local governments
- Technical challenges

Where Do We Go From Here? (cont.)



Rule Development

But we also have opportunities:

- Regulate non-CO₂ GHGs (methane, F-gases)
 - 13-5: Hydrogen Plants, Board hearing Q4 2021
 - Landfills?
- Achieve GHG co-benefits from regulating traditional air pollutants

Where Do We Go From Here? (cont.)



Transportation

Address the largest sources of GHGs

- EV Acceleration Plan and Charge!
- Moyer, etc. – grants for zero and near-zero emission equipment
- TFCA – local transportation demand management programs
- CY 2020 TFCA and Moyer reduced approx. 62,000 tons per year CO₂
- Flex Your Commute
- Support Plan Bay Area implementation

Where Do We Go From Here? (cont.)



Transportation: Incentives for EVs

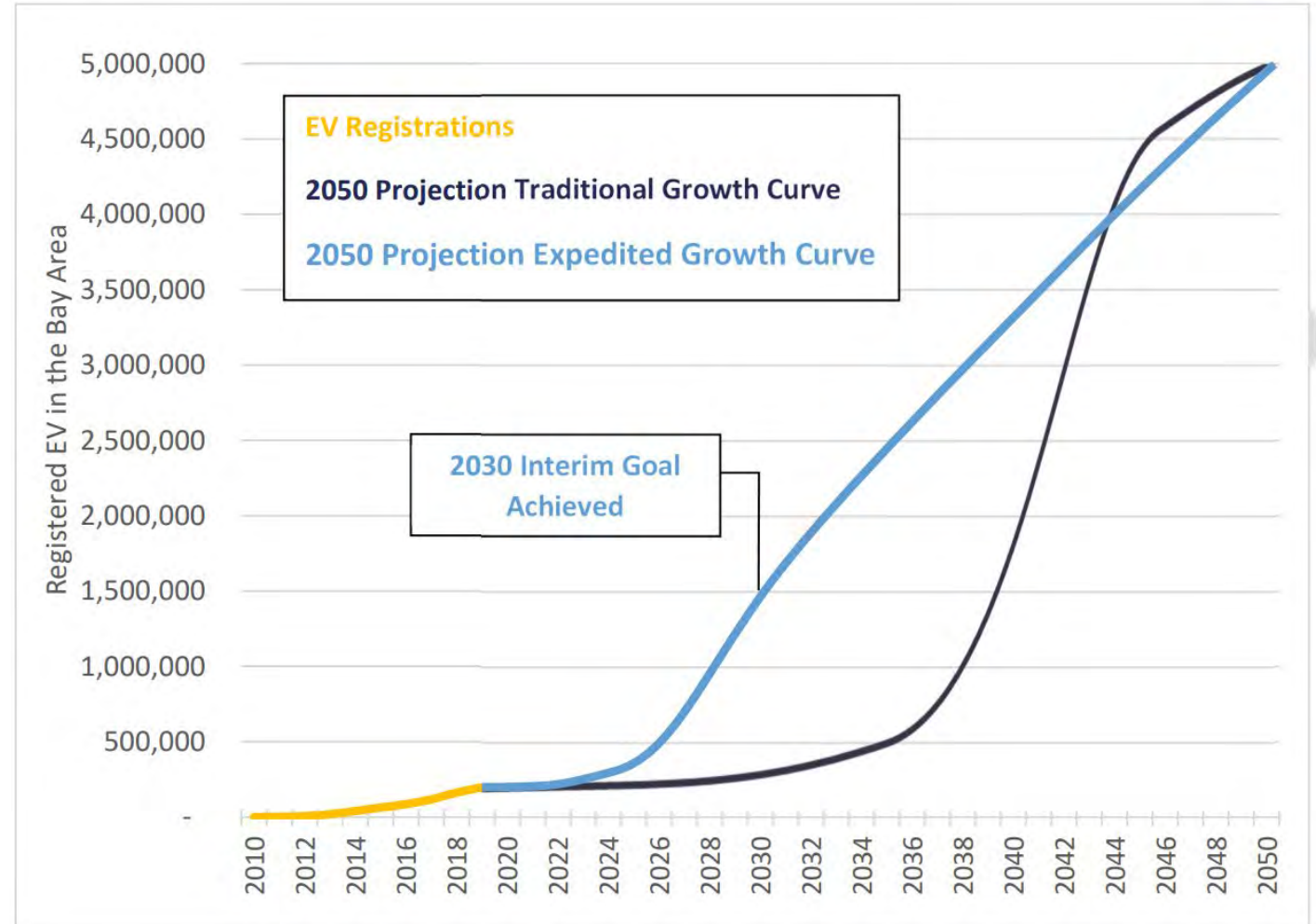


Grants for publicly accessible electric vehicle infrastructure



CLEAN CARS FOR ALL

Grants for low-income residents to trade in cars for cleaner transportation



Where Do We Go From Here? (cont.)



Innovative Financing for Innovative Technologies



Working Capital for Business Growth

*Loan guarantees of up to
\$2.5M or 90%*

Loans for Buying Climate Tech

*Low-interest loans of up to
\$30M over 30 years*

Where Do We Go From Here? (cont.)



Climate and Equity

- Incentive programs
 - Clean Cars for All
 - Expanding EV programs in multi-family sector
- Policy initiatives
 - Diesel Free By '33
 - Promoting clean alternatives for back-up power
- Integrate GHG reduction with AB 617 work
 - Bay Area Healthy Homes Initiative



Green & Healthy
Homes Initiative

Moving Forward



Moving Forward with Meaningful Leadership

- Strengthen and support local action toward achieving statewide goals
- Integrate equity into all climate initiatives
- Seek authority from Legislature to regulate CO₂
- Work with CARB, Dept. of Pesticide Regulation, others to reduce sulfuryl fluoride (high GWP fumigant)
- Leverage all Air District tools to maximize impact

