Regional Climate Protection Strategy for the San Francisco Bay Area

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Air District Board Resolution 2013-11: 

• Reduce Bay Area GHG emissions 80% below 1990 levels by 2050 
• Develop a Regional Climate Protection Strategy to be included in the Clean Air Plan Update
State of California

Two governors: Reduce GHGs 80% below 1990 levels by 2050!

GHG Reduction Targets
- AB 32 (law): Reduce to 1990 levels by 2020
- SB 32 (proposed): 40% below 1990 by 2030; 80% below 1990 by 2050

Climate Plans
- 2008 Scoping Plan – meets 2020 target
- 2014 Scoping Plan Update – lays out post-2020 priorities
- 2016 Scoping Plan Update – in progress
Purpose:
• Reduce emissions and ambient concentrations of pollutants
• Reduce exposure to air pollutants that pose the greatest health risk
• Reduce greenhouse gas emissions and protect the climate

Core Components:
• State mandated ozone plan
• All feasible control measures
• Multi-pollutant approach
Climate Strategy: comprehensive strategy that responds to Air District’s 2013 Climate Resolution to reduce GHGs to 80 percent below 1990 levels by 2050 and to prepare a regional climate strategy via Clean Air Plan.
Consistent with 2014 Scoping Plan sectors

- Transportation
- Energy
- Agriculture
- Water
- Waste
- Buildings
- Stationary Sources
- Short-lived Climate Pollutants
- Natural & Working Lands
Bay Area GHG Emissions

2015 Bay Area GHG Emissions by Sector ($CO_2e$)

- Transportation: 38.1%
- Industrial: 24.5%
- High GWP Gases: 15.6%
- Agriculture + Farming: 12.3%
- Recycling + Waste: 9.9%
- Commercial + Residential: 2.5%
- Electricity + Cogeneration: 2.3%

Total: 81 MMT$CO_2e$
Bay Area GHG Projection to 2050

Scenario S2 ("Committed + Likely Policies")

- High GWP Gases
- Agriculture + Farming
- Recycling + Waste
- Commercial + Residential
- Electricity + Cogeneration
- Transportation
- Industrial

Net Emissions (MMTC2eq)

Relative to 1990

1990 2000 2010 2020 2030 2040 2050

20% 40% 60% 80% 100%
Sector-based GHG Analysis

- Inventory + business-as-usual (BAU) projection
- Analyze federal, state, regional & local policies
- Identify opportunities for Air District, others
- Quantify gap between BAU and 2050 goal
- Recommend implementation actions

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Inventory + business-as-usual (BAU) projection
**Tools & Objectives**

**Objectives**
- Decarbonize Electricity
- Reduce Demand
- Promote Electrification
- Reduce Short-Lived Climate Pollutants
- Protect Public Health: Reduce Population Exposure to Pollutants

**Tools**
- Local government partnerships
- Rules
- Permitting
- Grants
- Research
- Collaboration
- Outreach

**Collaboration**
- Outreach
- Tools
- Research
- Permitting
- Rules
- Grants

**Outreach**
- Local government partnerships
- Research
- Steps
- Outreach
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**Steps**
- Distillation
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2015 Bay Area GHG Emissions (S2)
Buildings (18 MMT CO2eq)

- Residential Natural Gas: 21.6%
- Commercial Natural Gas: 34.1%
- Other Commercial/Residential Fuel Usage: 23.8%
- Commercial Electricity: 17.0%
- Residential Electricity: 3.4%
Increase Energy Efficiency in Buildings

- Help local governments and school districts obtain funding for energy efficiency programs
- Develop model ordinances requiring energy assessments and/or upgrades at time of sale
- Help property owners identify funding for efficiency upgrades
- Promote measures such as cool roofs, cool parking, and shade trees to reduce urban heat island effects

Decarbonize Building Energy Use

- Provide best practices, model ordinances, and incentives to promote low carbon technologies such as rooftop solar, solar water heating, and electric heat pumps
- Facilitate on-site renewable energy at schools
2015 Bay Area GHG Emissions (S2): Electricity + Cogeneration (13 MMTCO2eq)

- Co-Generation: 40.8%
- Electricity Generation: 37.2%
- Electricity Imports: 22%
Promote Energy Efficiency & Conservation
• Increase consumer awareness about energy efficiency through education and outreach
• Collaborate with public utilities to track electricity use

Decarbonize Electricity Production
• Collaborate with community choice aggregation programs and public utilities to expand renewable energy portfolio
• Collaborate with energy providers to increase use of low carbon alternatives and combined heat and power
• Identify funding opportunities for new technologies and applications

Expand Electrification
• Electrify motor vehicle fleet
• Electrify space heating and water heating in buildings
The Pathway to 2050

Grants
• Reduce black carbon

Develop Rules
• Cap & trade backstop
• Limit methane
• Limit black carbon

Permits
• Limit GHG via New Source Review

Research & Science
• Improve methane, BC inventory
• Methane monitoring
• Consumption-based inventory

Work w/ local gov’ts
• Improve building efficiency
• PACE, other financing
• Implement, track local CAPs
• Urban heat island mitigation

Plan & Collaborate
• Support strong Plan Bay Area
• Expand VMT reduction programs
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Transportation

Promote Electrification

• Fund electric vehicles & charging stations
• Promote EV readiness in new development
• Fund projects to promote low-carbon freight movement
  - hybrid drive trains for trucks
  - electric shore power for ships
• Electrify Caltrain commuter rail

Reduce Travel Demand & Promote Efficiency

• Promote public transit
• Expand ride-sharing, car-sharing, and bike-sharing
• Reduce commute trips by reauthorizing Bay Area Commuter Benefit Program
• Fund bicycle and pedestrian facilities
• Fund Safe Routes to Schools and Safe Routes to Transit
• Promote parking policies and pricing strategies that reduce travel demand
• Direct future development to Priority Development Areas (PDAs)
Stationary Sources

Reduce GHGs via Permitting *(New Source Review)*
- Limit GHG emissions in permits

Reduce GHG Emissions from Oil Refineries
- Require energy audits to identify best practices
- Investigate options to achieve GHG reductions from refineries
- Adopt source specific rules

Reduce GHG Emissions from Other Sources
- Natural gas and crude oil wells
- Natural gas transmission and distribution
- Residential space and water heating
- Emergency back up generators

25%
Decrease Emissions from Landfills/Composting

- Develop rule to reduce methane from composting facilities
- Revise existing rule to tighten standards for gas collection control devices and fugitive leaks

Divert Waste and Recycle

- Develop model ordinances/best practices on zero waste and diversion

Reduce Water Use

- Develop best practices for water recycling in new and existing buildings
- Work with local governments to develop water conservation ordinances

Reduce Emissions from Water Treatment Plants

- Consider new Air District rules to reduce GHG emissions from water treatment plants
Increase Carbon Sequestration
- Develop best practices on low carbon soil management
- Work with local farms, resource conservation districts and others to apply compost on rangelands

Reduce Emissions from Agriculture Waste
- Explore the feasibility of biogas recovery/anaerobic digester systems
- Develop best practices for dairy digesters and animal dietary changes

Plant Trees
- Encourage local government efforts to expand tree canopy
Short-lived Climate Pollutants

Reduce Methane
• Measures in the stationary source, agriculture and waste sectors
  - equipment leaks at oil refineries
  - landfill gas collection control requirements
  - waste diversion
  - biogas recovery

Reduce Black Carbon
• Measures in the stationary source and transportation sectors
  - residential wood burning
  - back-up generators
  - cleaner engines to reduce diesel emissions

Reduce Hydrofluorocarbons (HFCs)
• Enforce regulations on leaks from refrigerants systems
• Enforce regulations on the servicing of auto air conditioning units
• Support more stringent HFC standards