BAY AREA AIR QUALITY MANAGEMENT DISTRICT

BayREN March Regional Forum

Regional Climate Protection Strategy for the San Francisco Bay Area

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Climate Protection Resolution

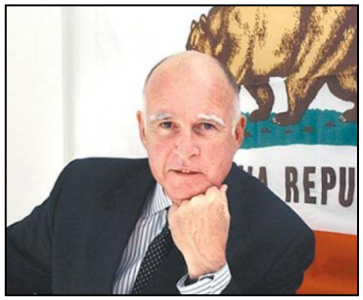
Air District Board Resolution 2013-11:

- 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

Landscape of Climate Action Planning

State of California

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

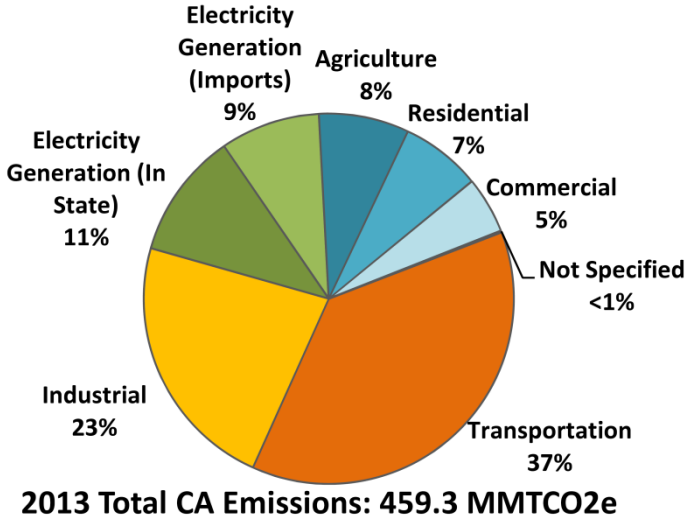


GHG Reduction Targets

- **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**



2013 Total CA Emissions: 459.3 MMTCO2e

2016 Clean Air Plan

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

New for 2016

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.*

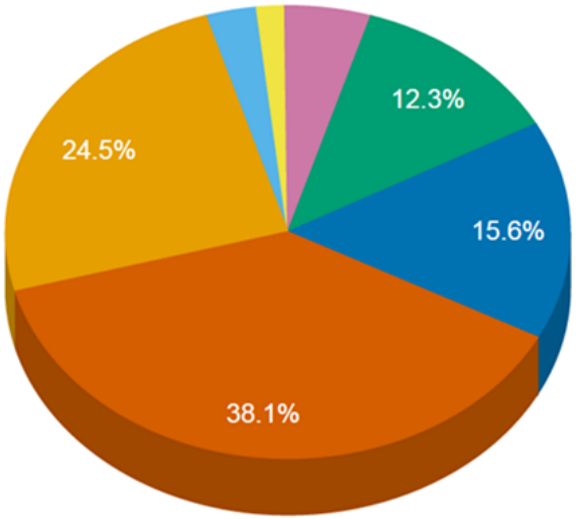
Economic Sector Analysis

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

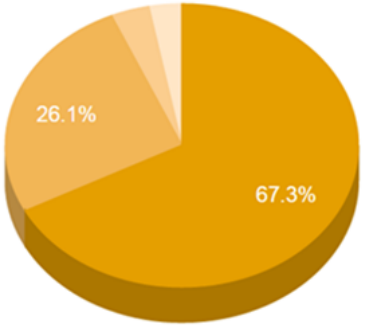
2015 Bay Area GHG Emissions by Sector (CO_2e)



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

Total: 81 $MMTCO_2e$

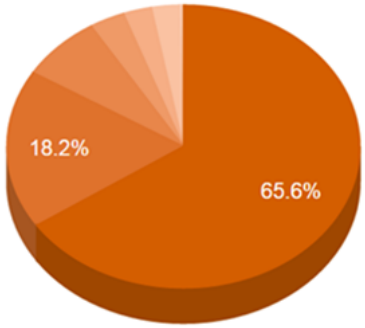
Industrial



- Oil Refineries
- General Fuel Usage*
- Fugitive and Process Emissions (3.5%)
- Cement Plants (3%)

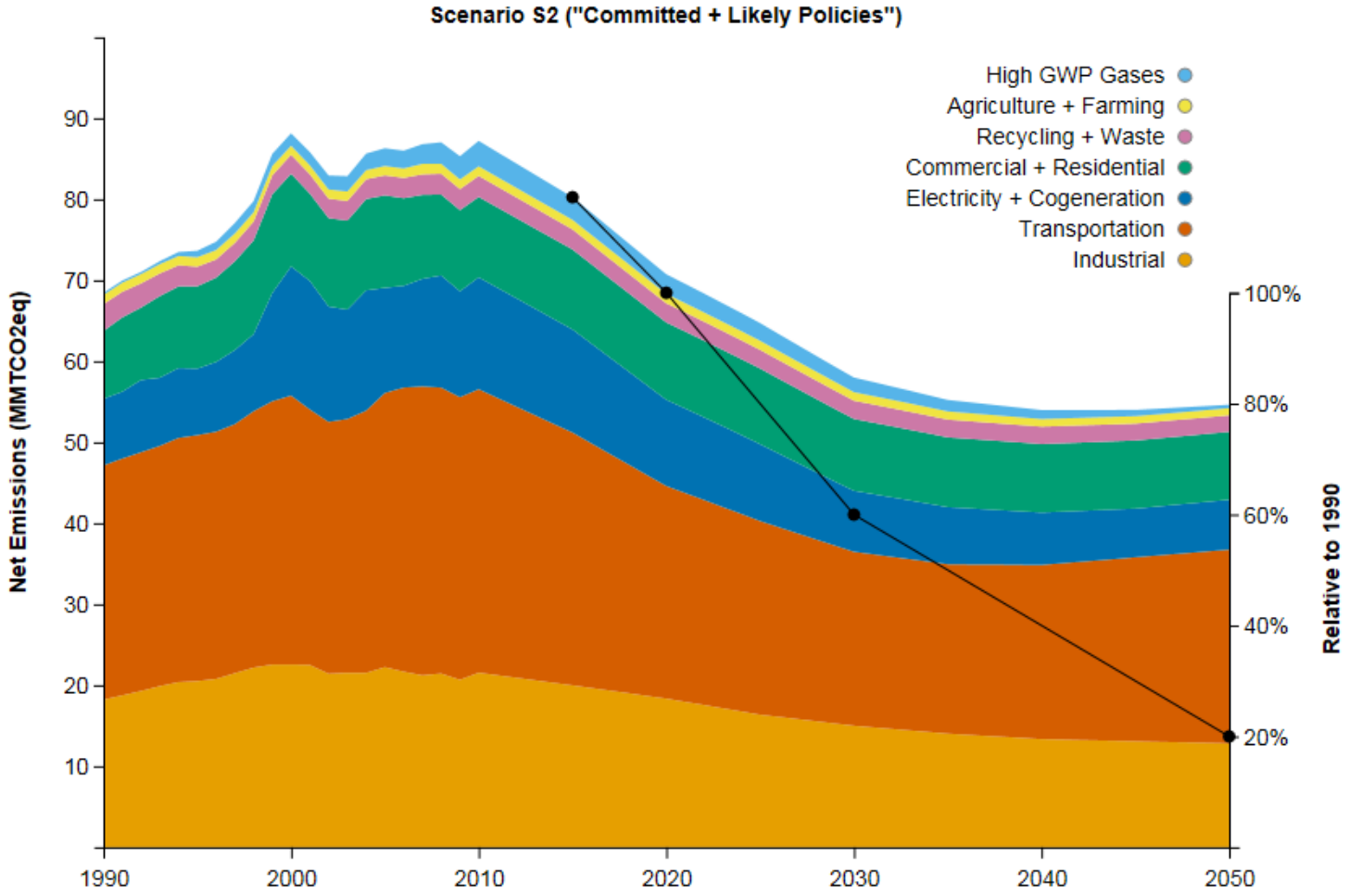
* Boilers, dryers, heaters, etc.

Transportation



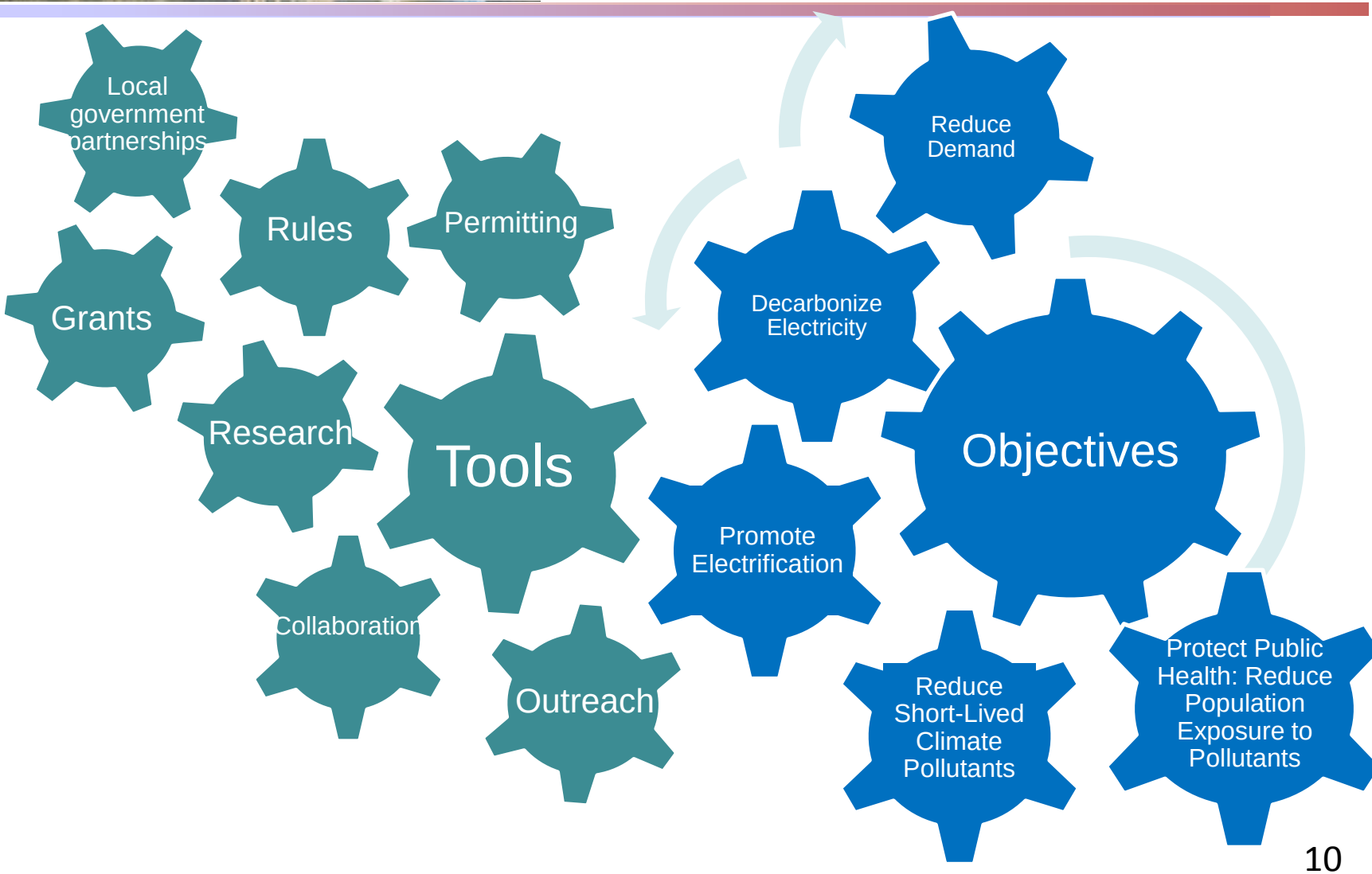
- Passenger Cars/Trucks
- Heavy Duty Trucks
- Aviation (7.5%)
- Industrial Equipment (3.2%)
- Ships and Boats (2.6%)
- Buses and Motorhomes and Motorcycles (2.6%)
- Locomotives (0.3%)

Bay Area GHG Projection to 2050



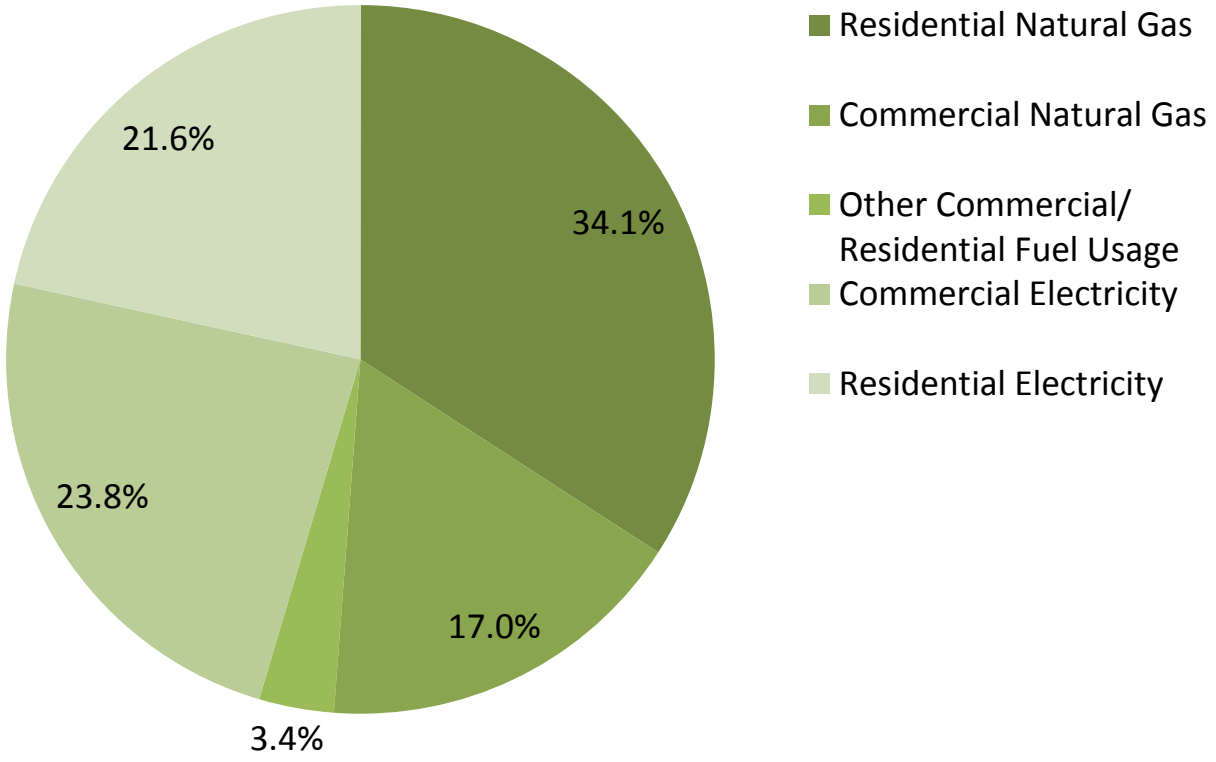
Sector-based GHG Analysis

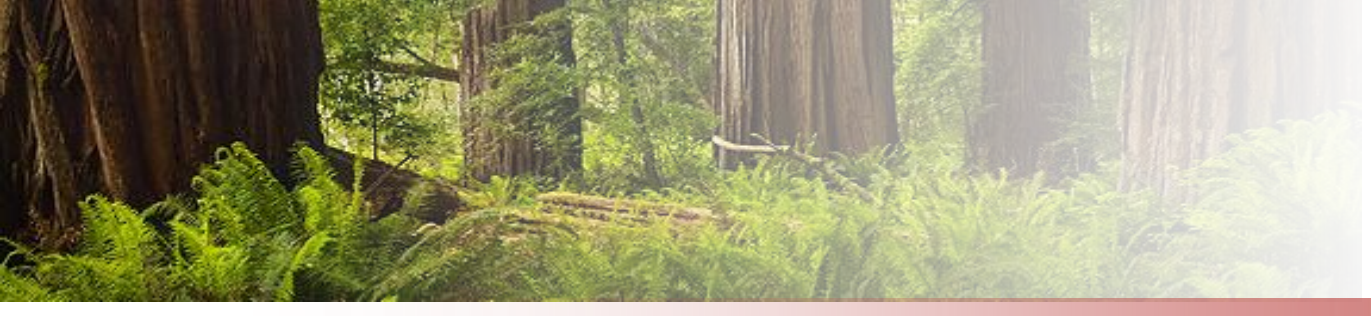
Tools & Objectives



Buildings

2015 Bay Area GHG Emissions (S2)
Buildings (18 MMT CO2eq)





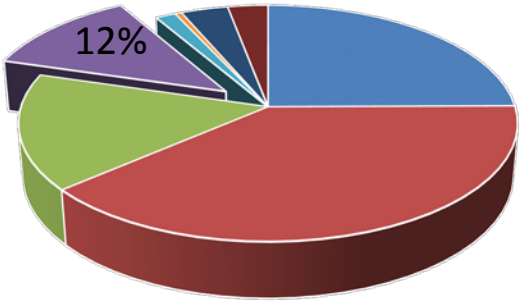
Buildings

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

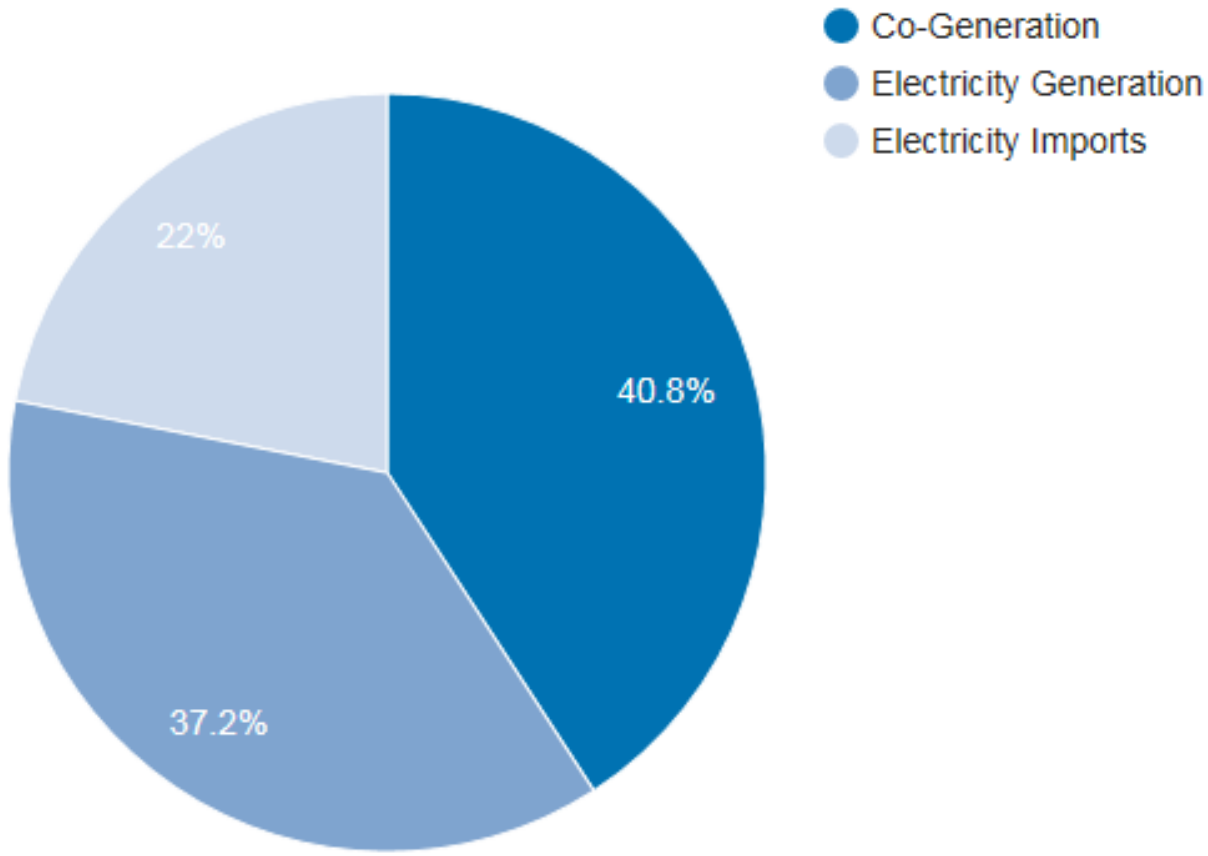
Decarbonize Building Energy Use

- 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



Energy

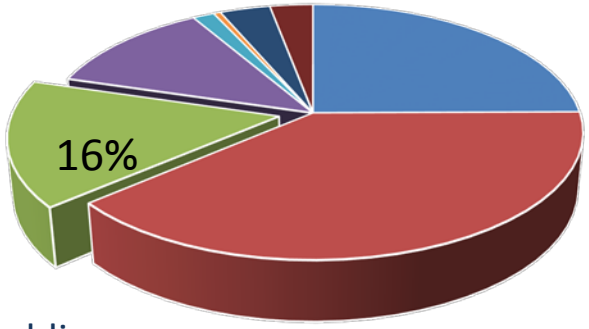
2015 Bay Area GHG Emissions (S2):
Electricity + Cogeneration (13 MMTCO2eq)



Energy

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

Develop Rules

- Cap & trade backstop
- Limit methane
- Limit black carbon

Grants

- Reduce 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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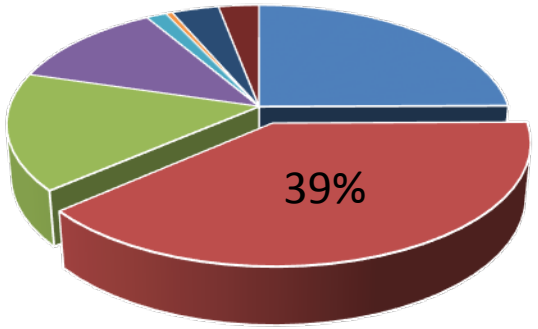
Transportation

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)*

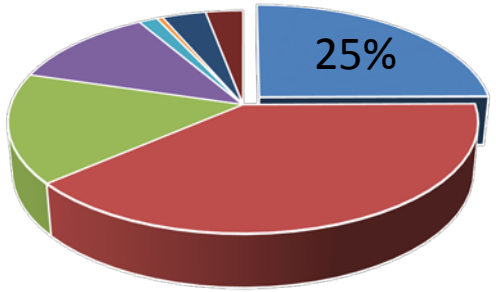
- Limit GHG emissions in permits

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

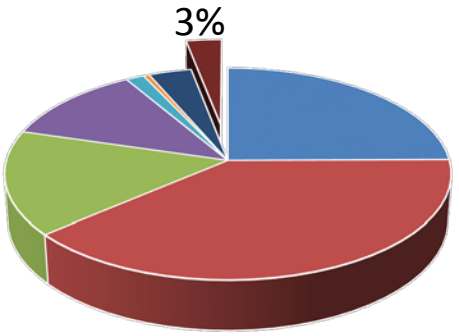
- Natural gas and crude oil wells
- Natural gas transmission and distribution
- Residential space and water heating
- Emergency back up generators



Waste & Water

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

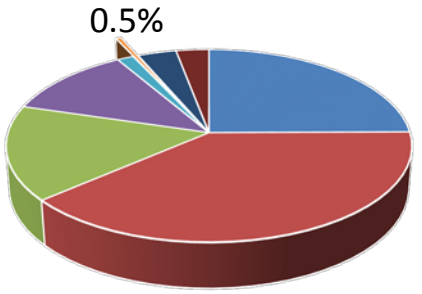


Divert Waste and Recycle

- 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

Agriculture & Natural & Working Lands

Increase Carbon Sequestration

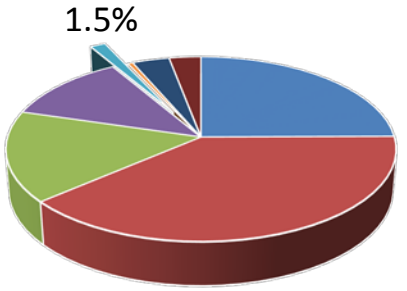
- Develop best practices on low carbon soil management
- Work with local farms, resource conservation districts and others to apply compost on rangelands

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

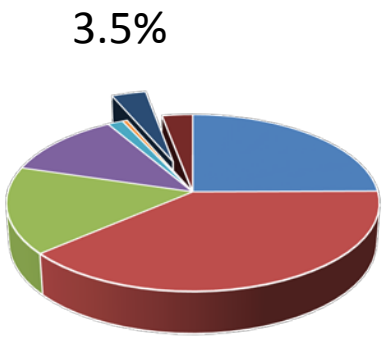
- Encourage local government efforts to expand tree canopy



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