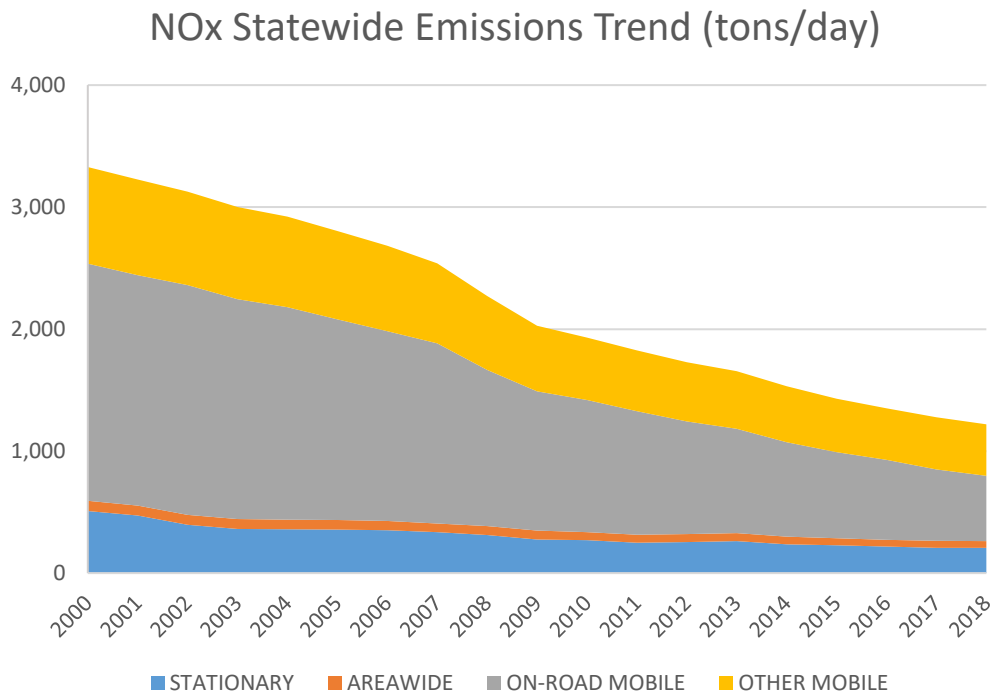
Joint Legislative Committee on Climate Change Policies: Informational Hearing

CHAIR RANDOLPH

APRIL 21, 2022

Air Quality Successes – Criteria Pollutants

- **NOx emissions reduced nearly 70% since the 1970s**
- **Reductions are due to improvements in vehicle efficiency and advancements in stationary source engine and stack emission control technologies**

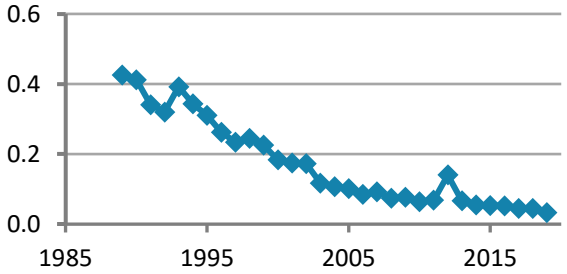


Total NOx combines NO2, NO, and additional species (so NOx is higher than NO2 alone)

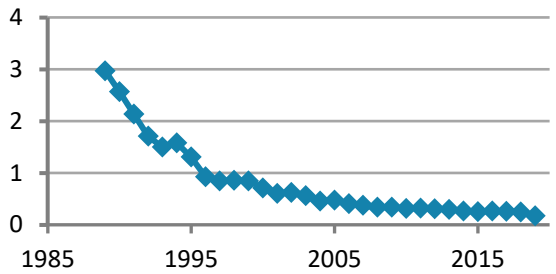
Air Quality Successes – Toxic Air Contaminants

Substantial statewide toxic air contaminant reductions have occurred since the early 1990s due to Federal (Clean Air Act), State (Air Toxics Control Measures) and local air district regulations (stationary source reductions).

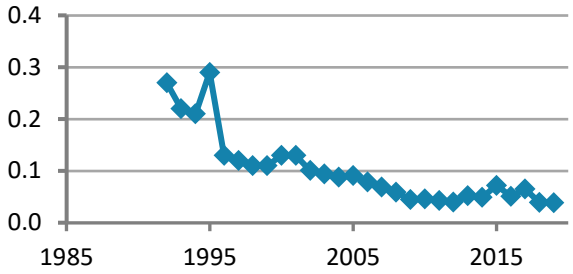
1,3-Butadiene
Air Monitor Trend - Mean (ppb)



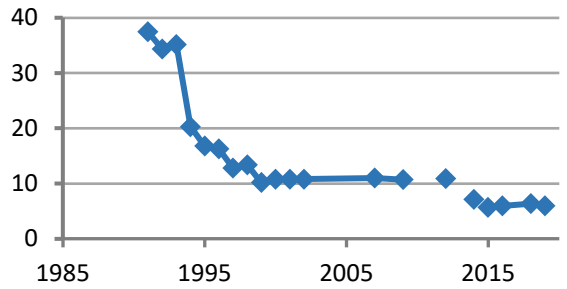
Benzene
Air Monitor Trend - Mean (ppb)



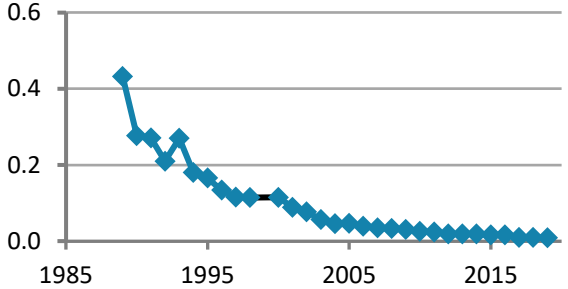
Hexavalent Chrome
Air Monitor Trend - Mean (ppb)



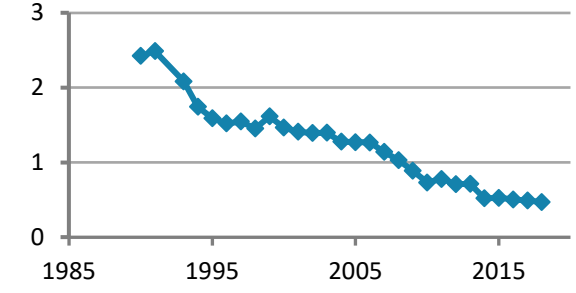
Lead
Air Monitor Trend - Mean (ng/m3)



Perchloroethylene
Air Monitor Trend - Mean (ppb)

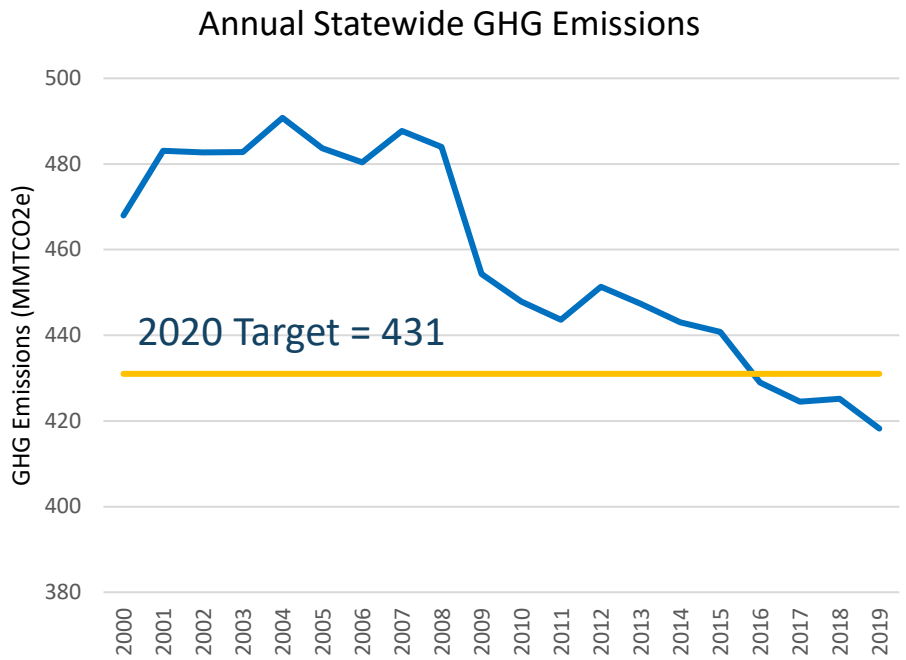


Diesel PM
Air Monitor Trend - Mean (µg/m3)

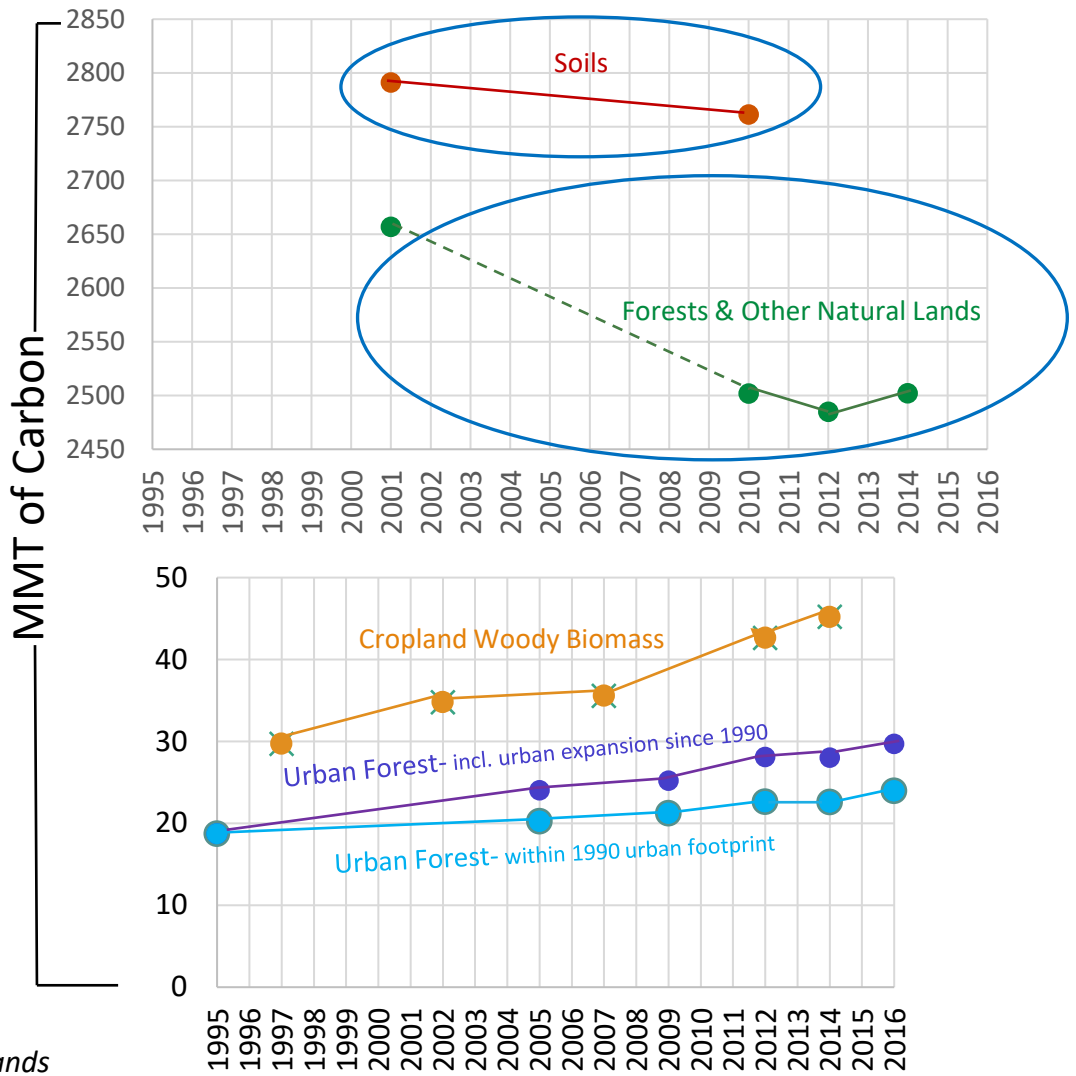


California's Trends

AB 32 INVENTORY SOURCES

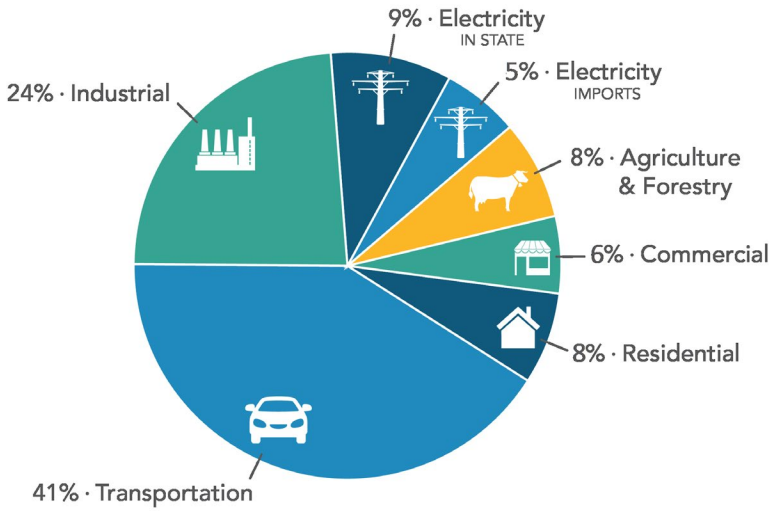


NATURAL & WORKING LANDS



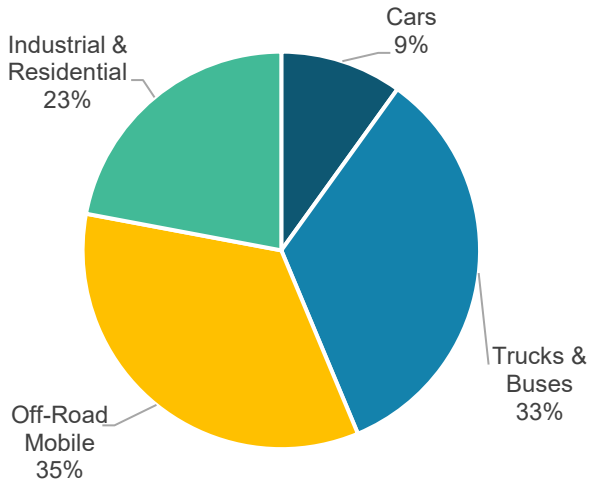
Source (left): 2021 Edition, California Greenhouse Gas Emission Inventory: 2000-2019
Source (right): 2018 Edition, An Inventory of Ecosystem Carbon in California's Natural and Working Lands

Transportation Sector: Largest source of GHG and NOx Emissions



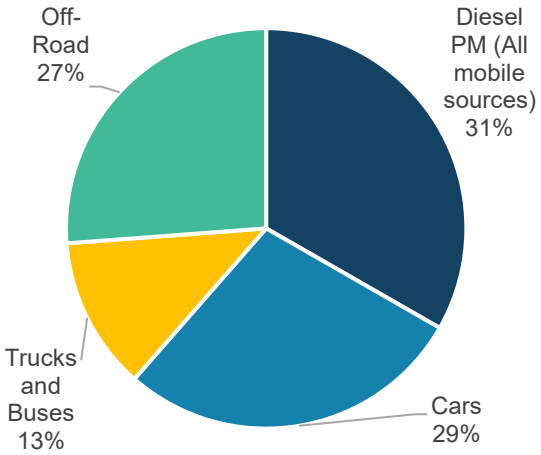
418.2 MMT CO_2e
2019 TOTAL CA EMISSIONS

Source: 2021 Edition, California Greenhouse Gas Emission Inventory: 2000-2019



1,178 Tons per Day
2019 TOTAL CA NOx EMISSIONS

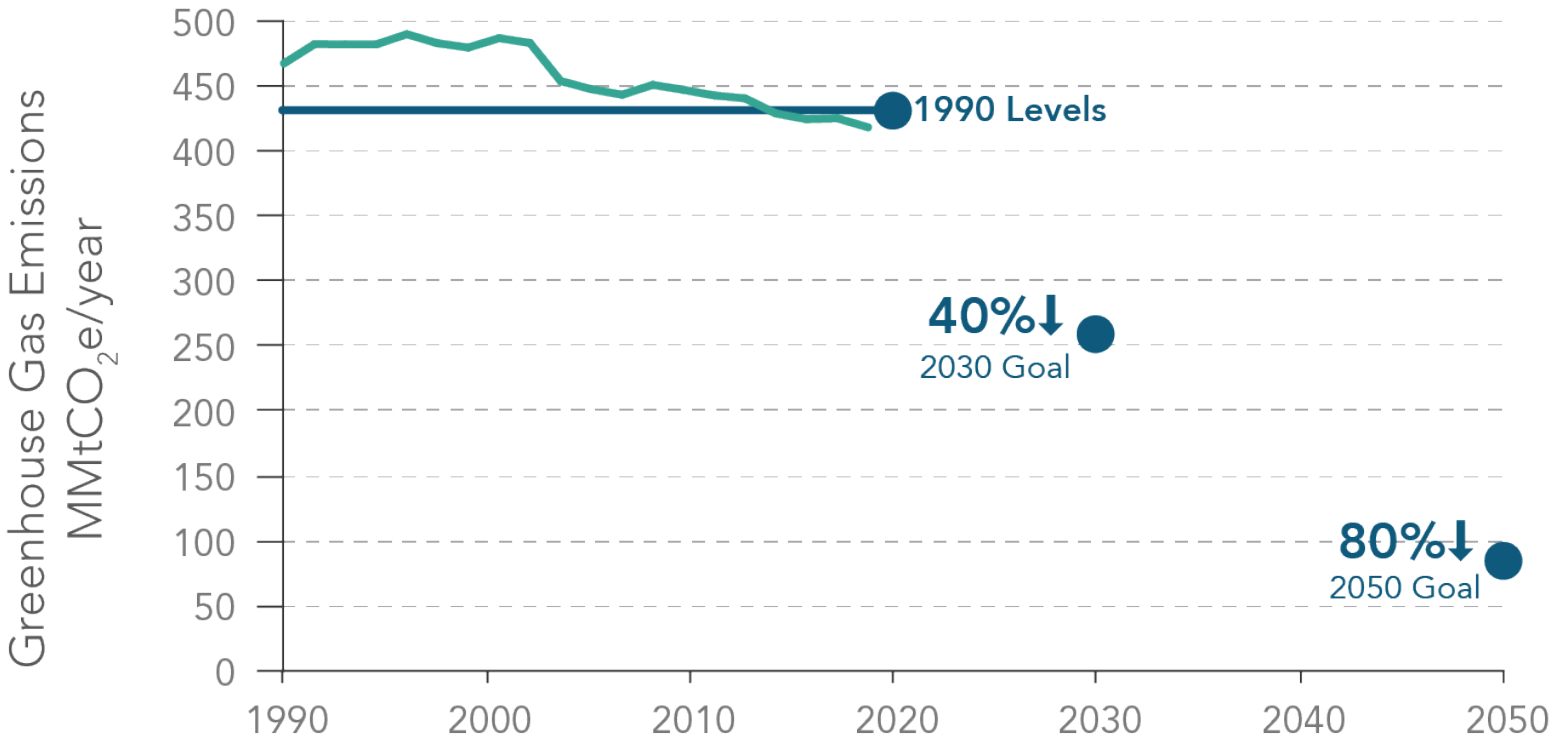
Source: CARB Emission Inventory



56 tons per day
2019 MOBILE SOURCE PM2.5 EMISSIONS

Source: CARB Emission Inventory

CA GHG Reduction Targets

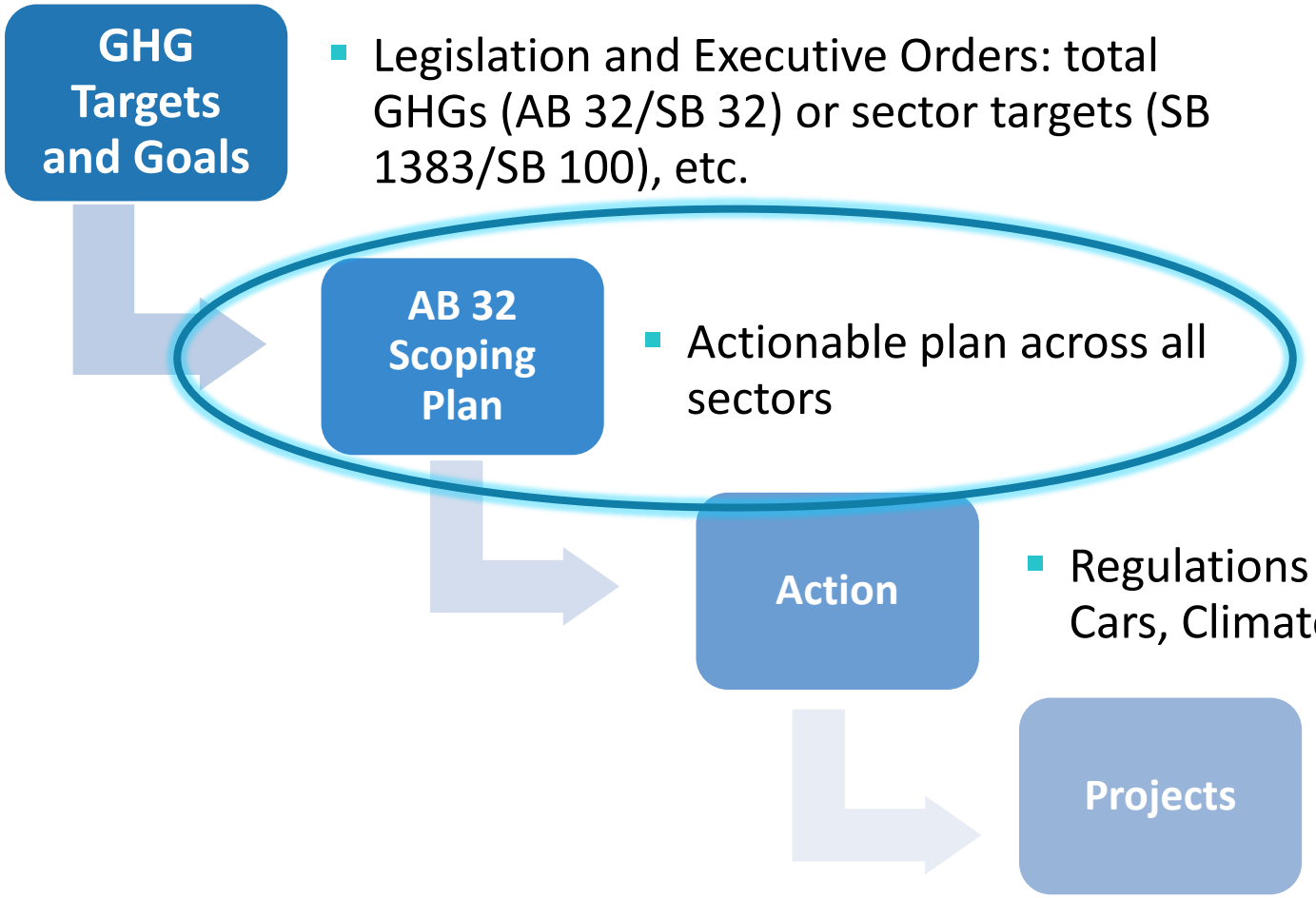


ACHIEVING
CARBON
NEUTRALITY
BY **2045**

AB 32 Climate Change Scoping Plan Statutory Requirements

- Scoping Plan(s) are action plans for CA to meet statewide GHG reduction targets
  - Scoping Plan(s) outline a suite of climate policies to address emissions across all sectors
  - Required to be updated at least every 5 years
  - 2017 SP (most recent) – cost-effective and technologically feasible path to achieve the 2030 target
- Provide direct GHG emissions reductions and air quality benefits
- Minimize emissions "leakage" – increase to non-CA GHG emissions
  - Ensure high-road jobs remain
- Facilitate sub-national and national collaboration
  - Develop exportable programs for partners to adopt
- Support cost-effective and flexible compliance

California's Climate Policy Framework



- Legislation and Executive Orders: total GHGs (AB 32/SB 32) or sector targets (SB 1383/SB 100), etc.
- Actionable plan across all sectors
- Regulations & Incentives: Advanced Clean Cars, Climate change investments, etc.

Examples: building compost facilities, digesters, renewables, energy infrastructure, etc.

2017 Scoping Plan Portfolio

40% below 1990 levels by 2030

Double building efficiency

More clean, renewable fuels

Cleaner zero or near-zero emission cars, trucks, and buses

Walkable/bikeable communities with transit

Cleaner freight and goods movement

60% renewable power

Slash potent "super-pollutants" from dairies, landfills and refrigerants

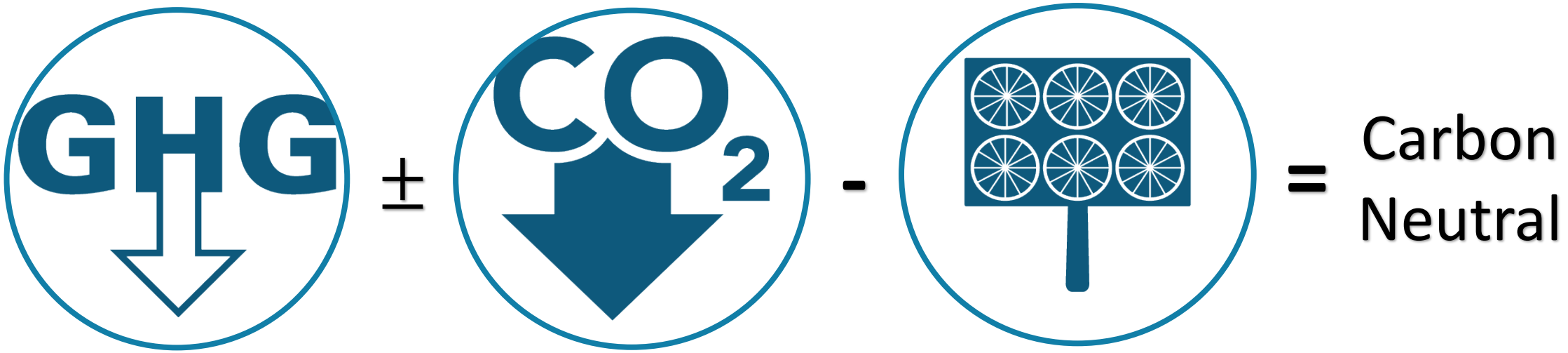
Cap emissions from transportation, industry, natural gas, and electricity

Invest in communities to reduce emissions

Protect and manage natural and working lands

AB 32 Scoping Plan Implementation

What Carbon Neutrality Means

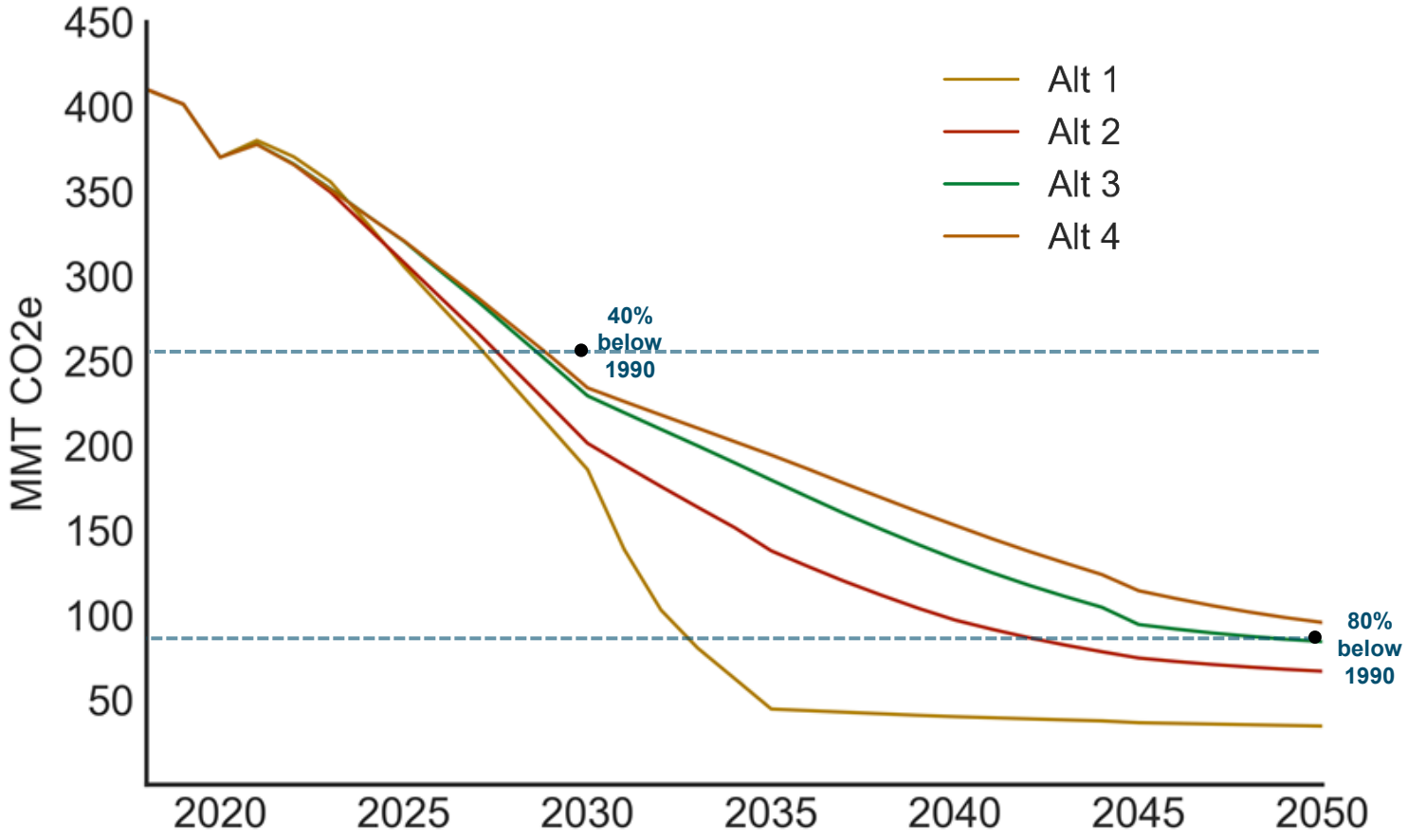


Continue to reduce emissions from sources in the AB 32 GHG Inventory

Emissions and sequestration from natural and working lands

Technological Carbon Dioxide Removal

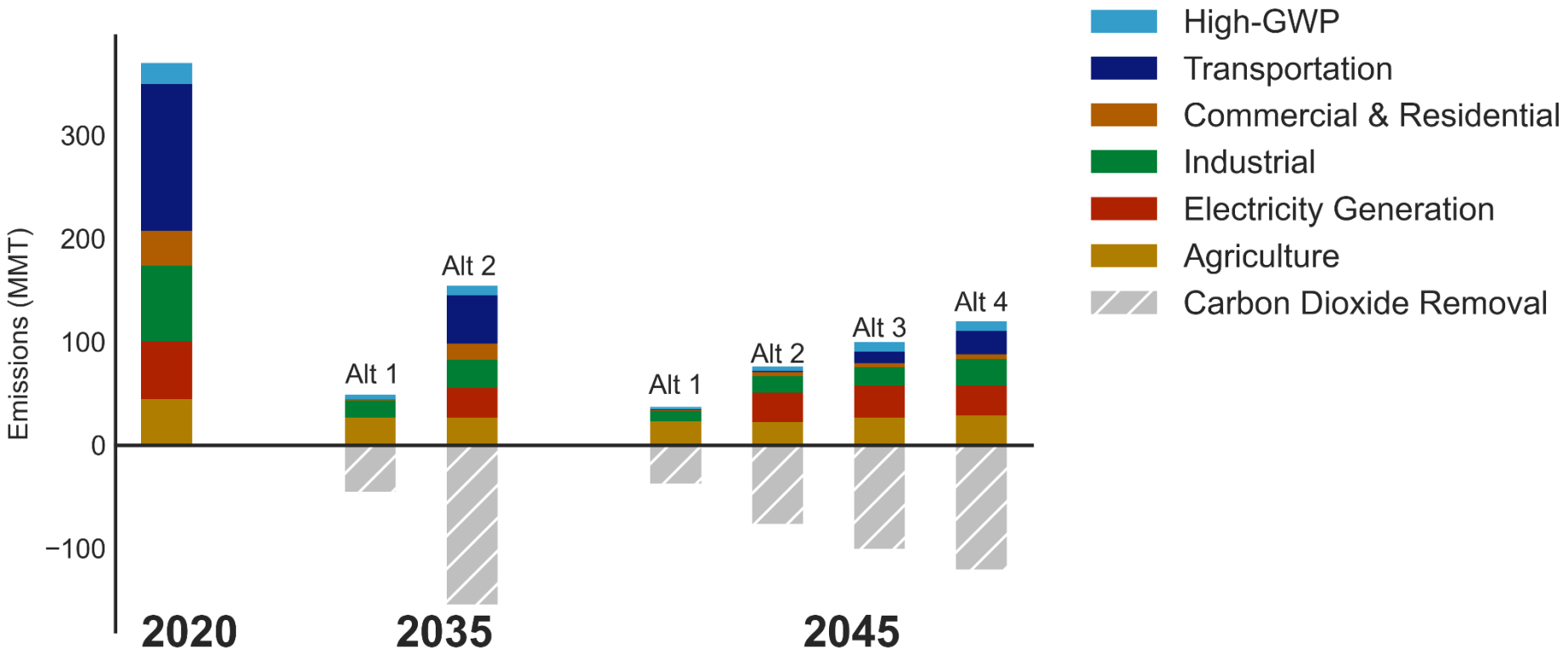
AB 32 Sources Scenarios



- Alternatives meet 2030 target of 40% below 1990 levels
- Alternatives meet 2050 target of 80% below 1990 levels, except Alternative 4
- Alternatives have residual emissions in mid-century

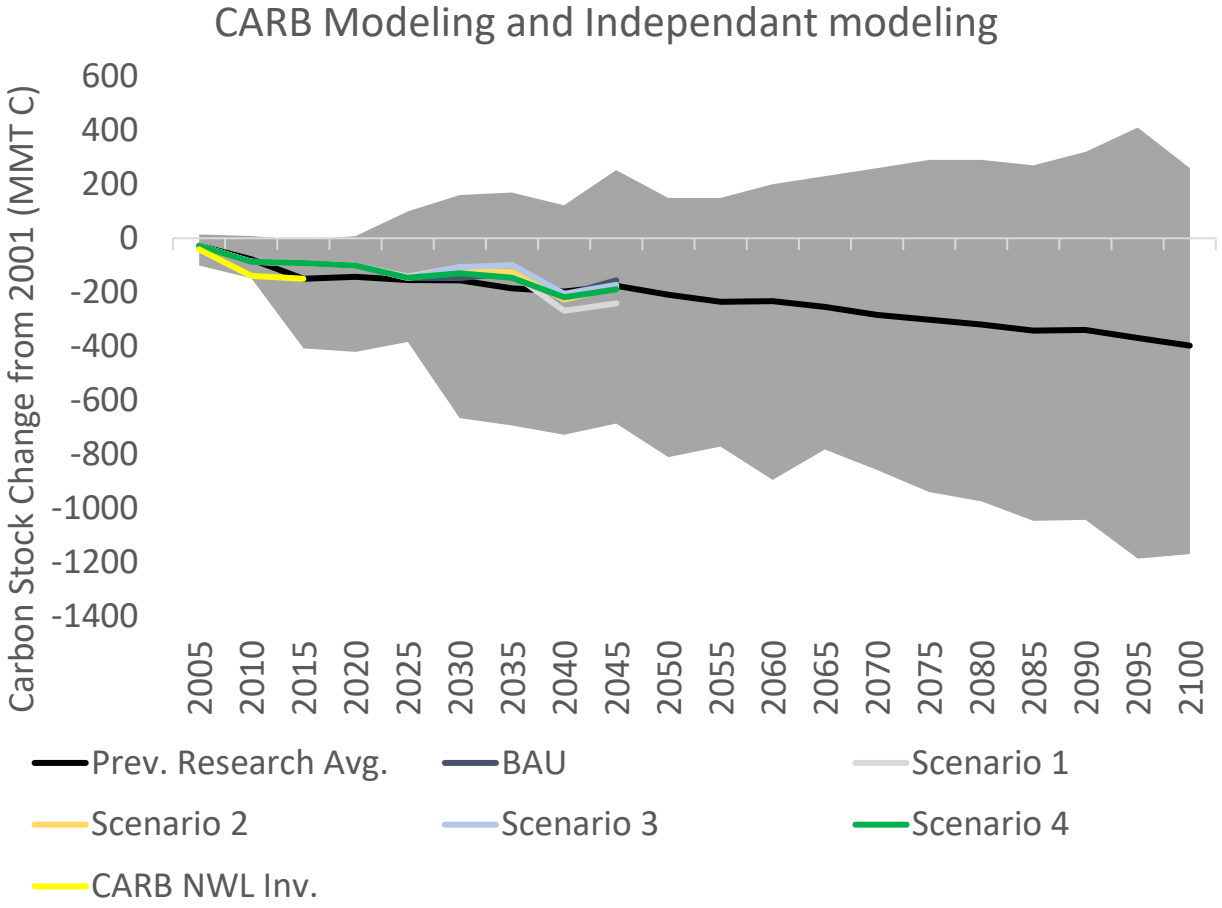
Emissions shown after CCS, before CDR

Potential Role of Carbon Dioxide Removal to Achieve Carbon Neutrality



Emissions shown after CCS, before CDR

Natural and Working Lands Modeling



- Shows all modeled NWL land type carbon stocks together
- Grey shadow = range of previous research carbon outcomes
- Prev. research and CARB modeling project decreasing carbon stocks, and that lands are affected by climate change and management decisions
- Management can reduce emissions and improve carbon stocks, ecosystem, and public health

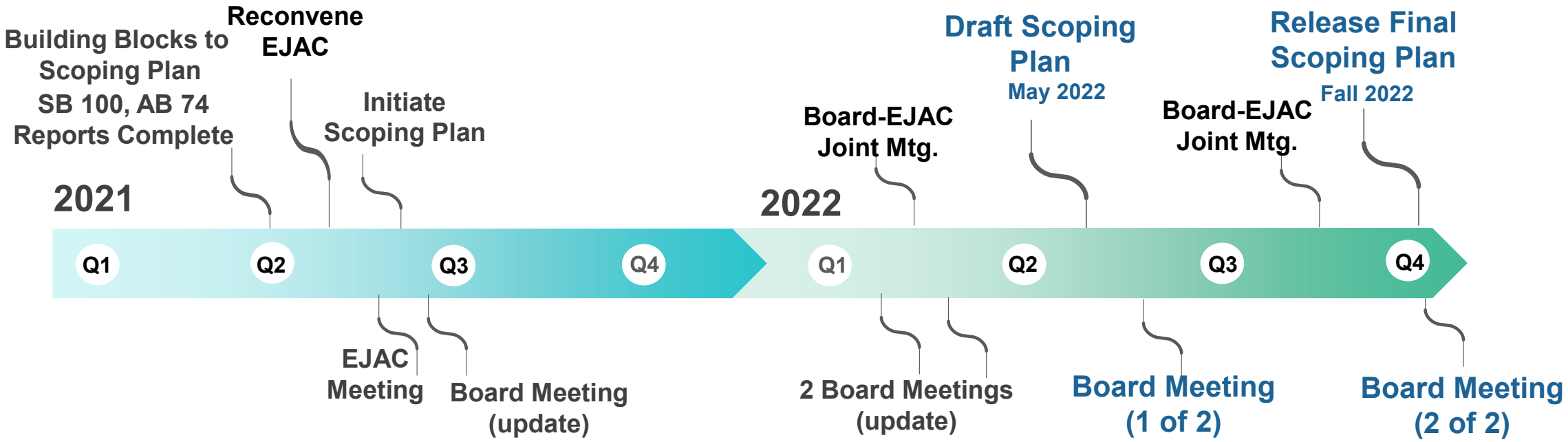
Additional Analyses for 2022 Scoping Plan Update

- Health and Economic Analyses
  - AB 197 social cost of carbon, cost per ton of measure, estimated air quality
  - Economic (health, macro, household, jobs)
- Public Health
- Environmental (CEQA)

Release of Draft Scoping Plan

- Early May
  - Release of underlying modeling data after final QC/QA (emissions, economics, air quality)
- Updated estimated role of Cap-and-Trade for achieving the 2030 target
  - Initial modeling shows potentially smaller role due to several factors
  - GHG impacts related to the pandemic
  - Relative to 2017 Modeling - more stringent LCFS, RPS, ZEV EO
  - Uncertainty around successful implementation of some policies persists (VMT, permitting, infrastructure, etc.)
  - As any new specific measures are introduced through legislation, those will continue to reduce the role of the cap-and-trade program

2022 Scoping Plan Update Schedule



Reporting and Oversight

Ongoing monitoring and reporting provides opportunities for public input, Board feedback and adjustments if needed

- CARB annual Greenhouse Gas Inventory (data) and annual Mandatory GHG Reporting Data
- Annual status report to the Board on Scoping Plan Implementation
- Update to the AB 32 Scoping Plan at least once every 5 years (written report)
- AB 398
  - Annual report by the Independent Emissions Market Advisory Committee on environmental and economic performance of relevant climate policies
  - Annual report by the Legislative Analyst's Office on the economic impacts and benefits of specified greenhouse gas emissions targets
- SB 1018 (written reports)
  - Semi-annual update on key climate programs
  - Semi-annual report on actions proposed by WCI, Inc.
  - Annual fiscal report on prior fiscal year
  - Annual resources report on resources by major program area
- AB 197
  - Annual informational report by CARB Chair on emissions covered by the Scoping Plan

Additional Information

Carbon Neutrality Website
https://ww2.arb.ca.gov/our-work/programs/carbon-neutrality

Scoping Plan Website
AB 32 Climate Change Scoping Plan | California Air Resources Board

All Workshops
Scoping Plan Meetings & Workshops | California Air Resources Board

2017 Scoping Plan
https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan