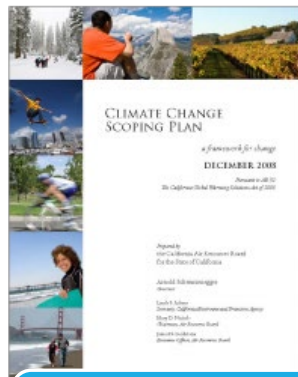


Overview of the Development of the 2022 Scoping Plan Update



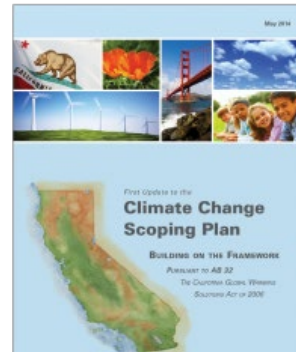
FEBRUARY 2022

AB 32 Scoping Plan(s)



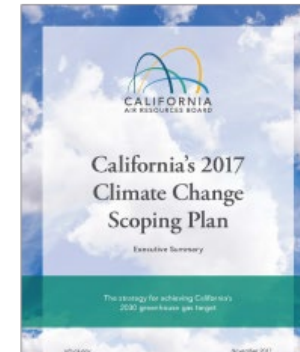
2008

- Path to 2020



2014

- Assess path to 2020
- Focus on SLCPS

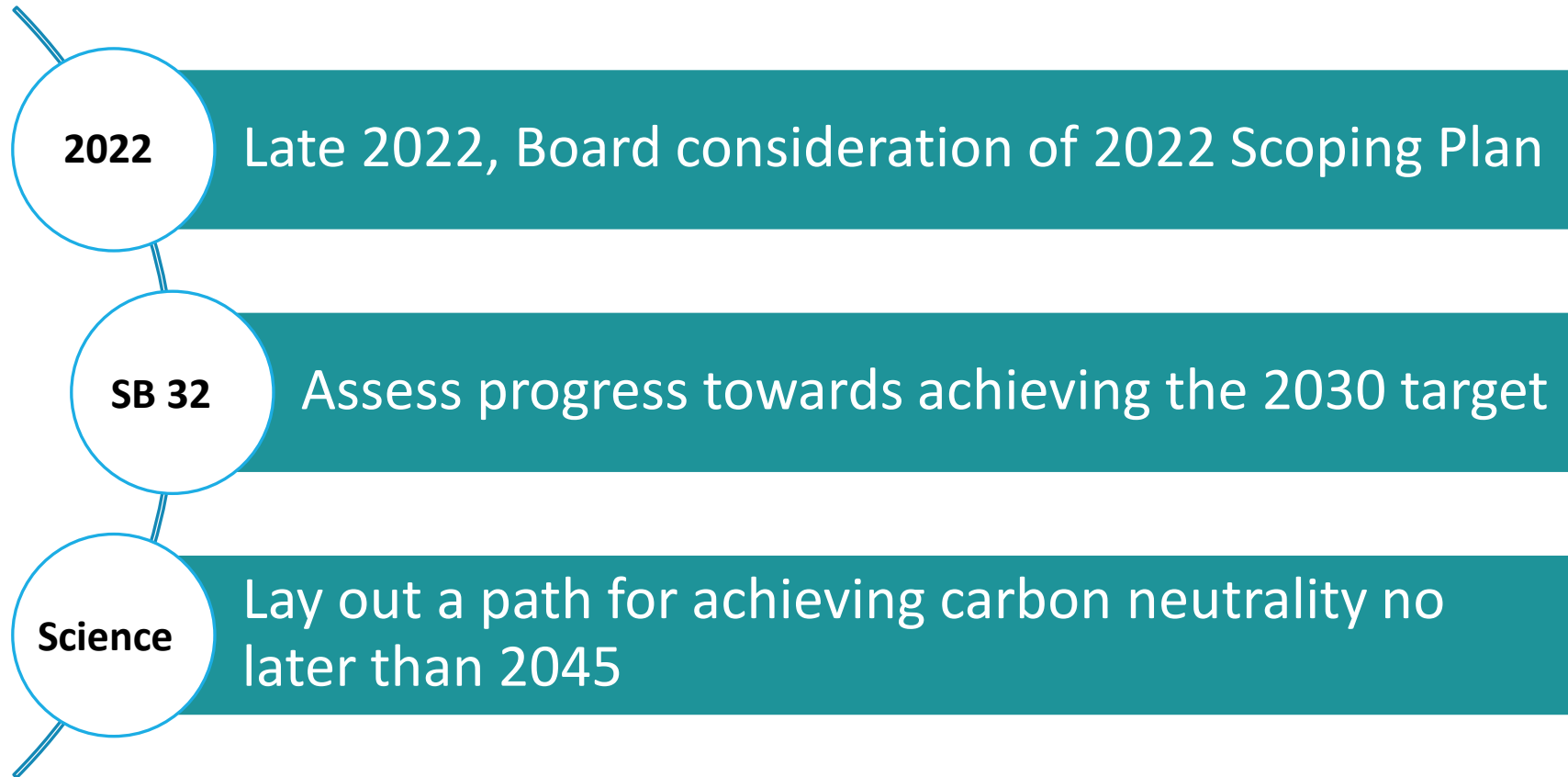


2017

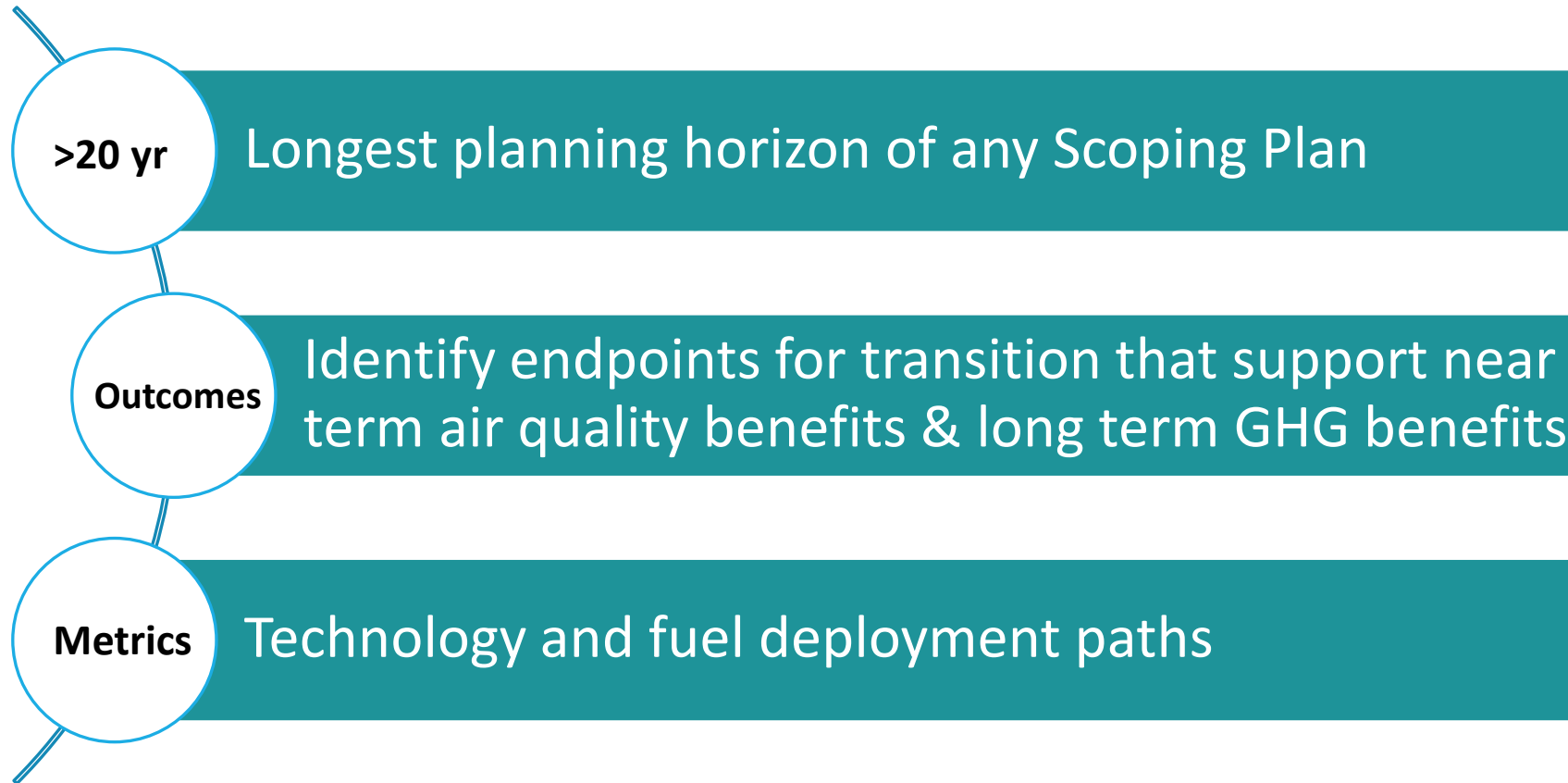
- Path to 2030
- Assess path to 2020

- Planning phase (underway now) – framework for achieving targets and goals
- Implementation phase – transform plan to action via action on regulations, programs, incentives, etc.
- Both critical to success

2022 Scoping Plan Update: Key Objectives

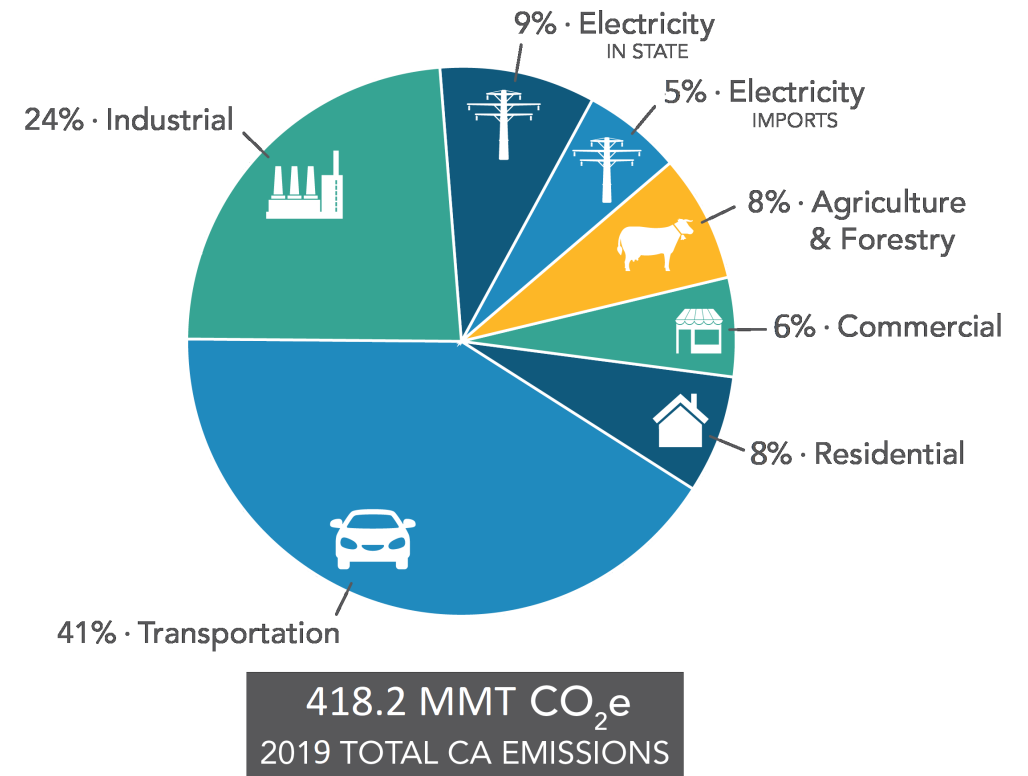


2022 Scoping Plan Update: Key Objectives, cont.



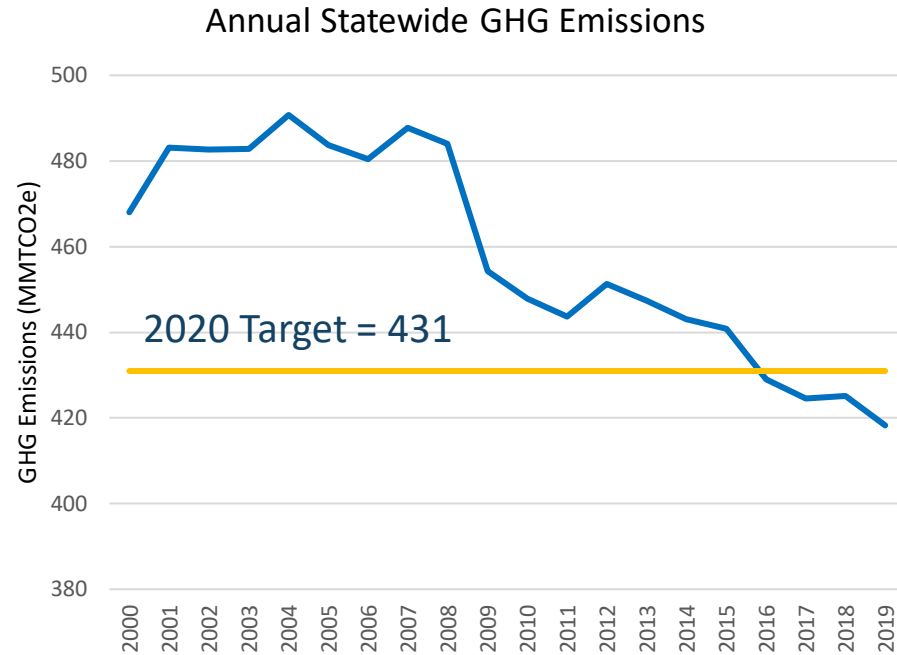
AB 32 & Scoping Plan Greenhouse Gases

- Greenhouse Gases included in statute: Carbon dioxide (CO₂), Methane (CH₄), Nitrous oxide (N₂O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), Sulfur hexafluoride (SF₆), Nitrogen trifluoride* (NF₃)
- Focus on sources or categories of sources that contribute the most to statewide emissions
- AB 32 GHG Inventory includes all direct sources of emissions in the State and emissions associated with electricity consumed in-state
- AB 32 and SB 32 targets include all sources in the AB 32 GHG Inventory

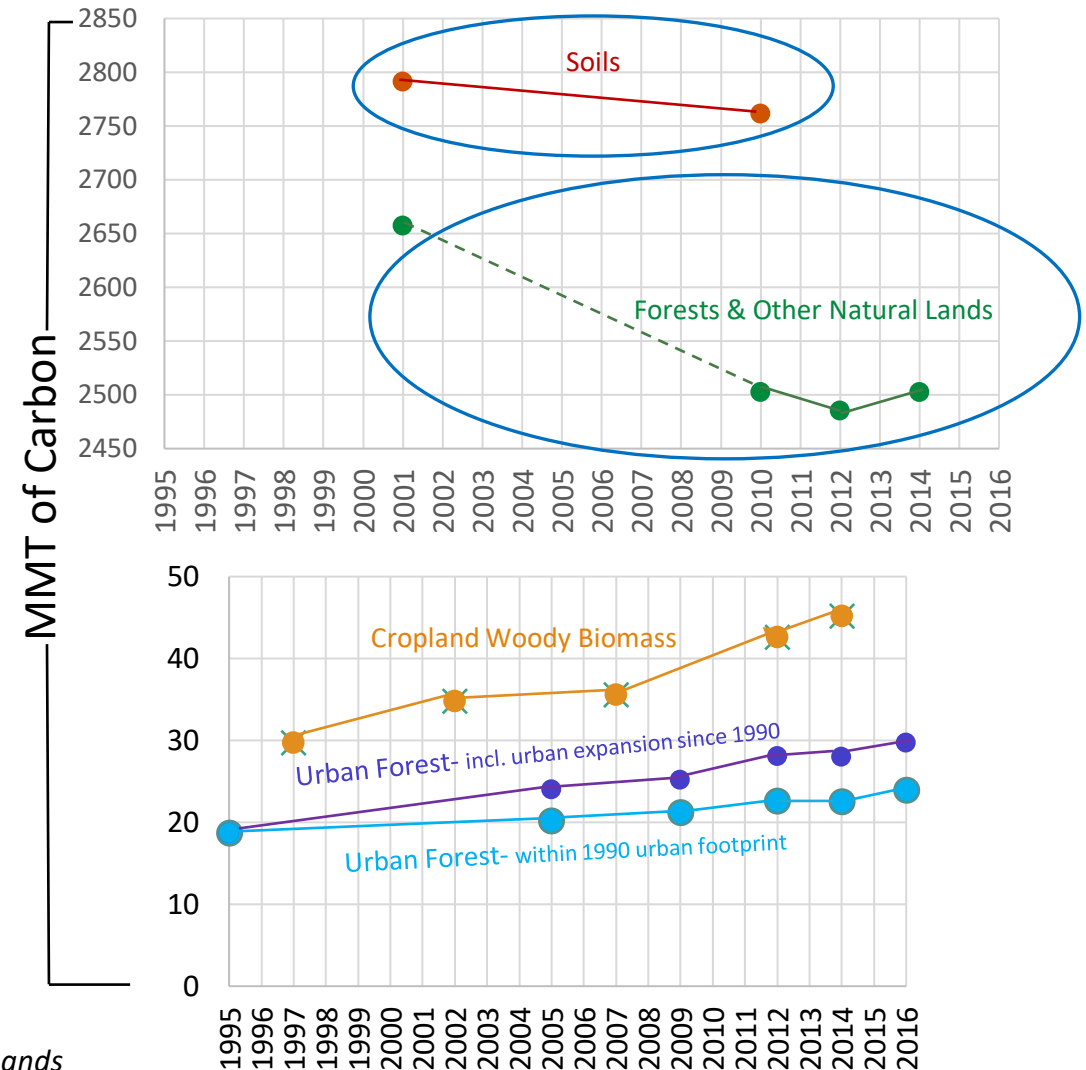


California's Trends

AB 32 INVENTORY SOURCES



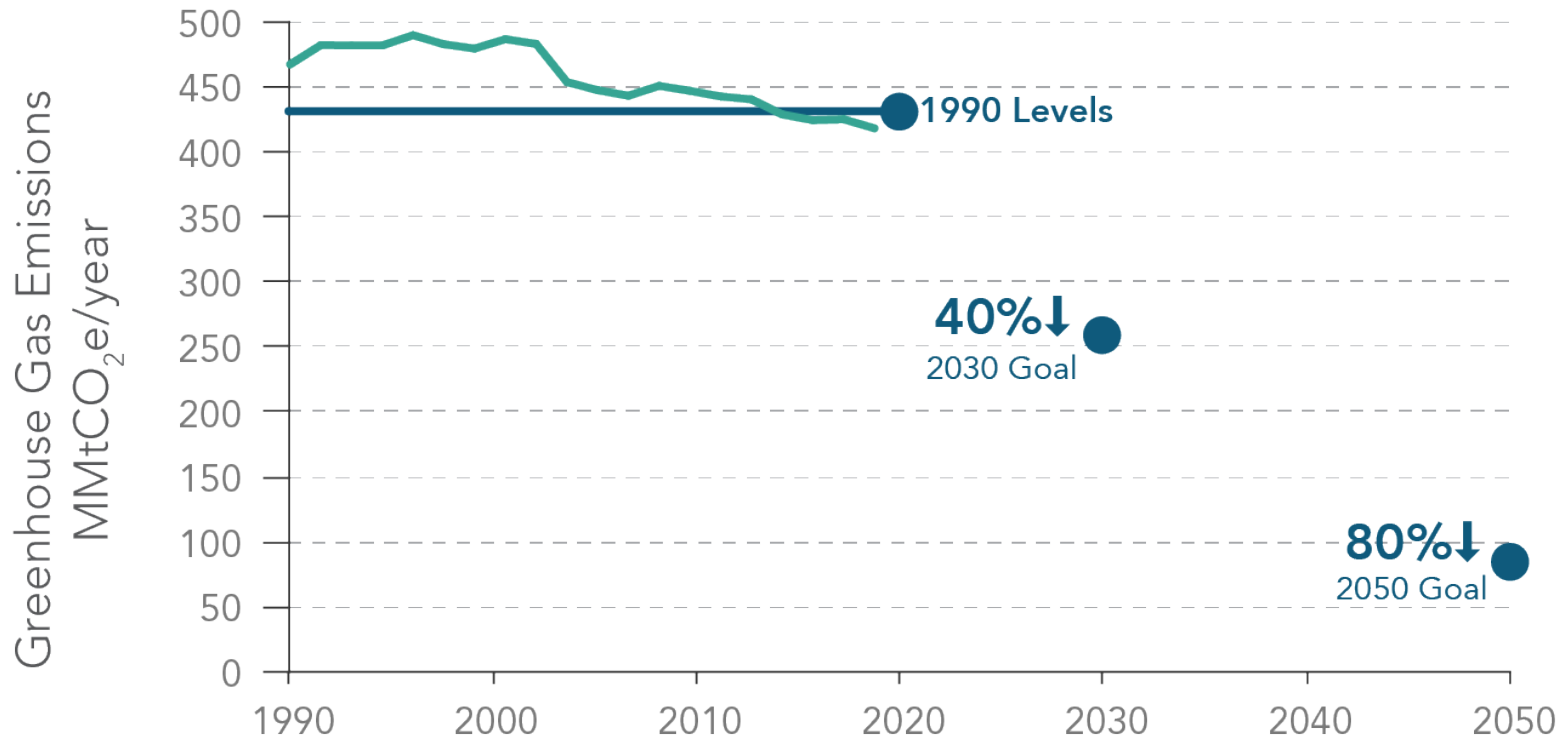
NATURAL & WORKING LANDS



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

CA GHG Reduction Targets

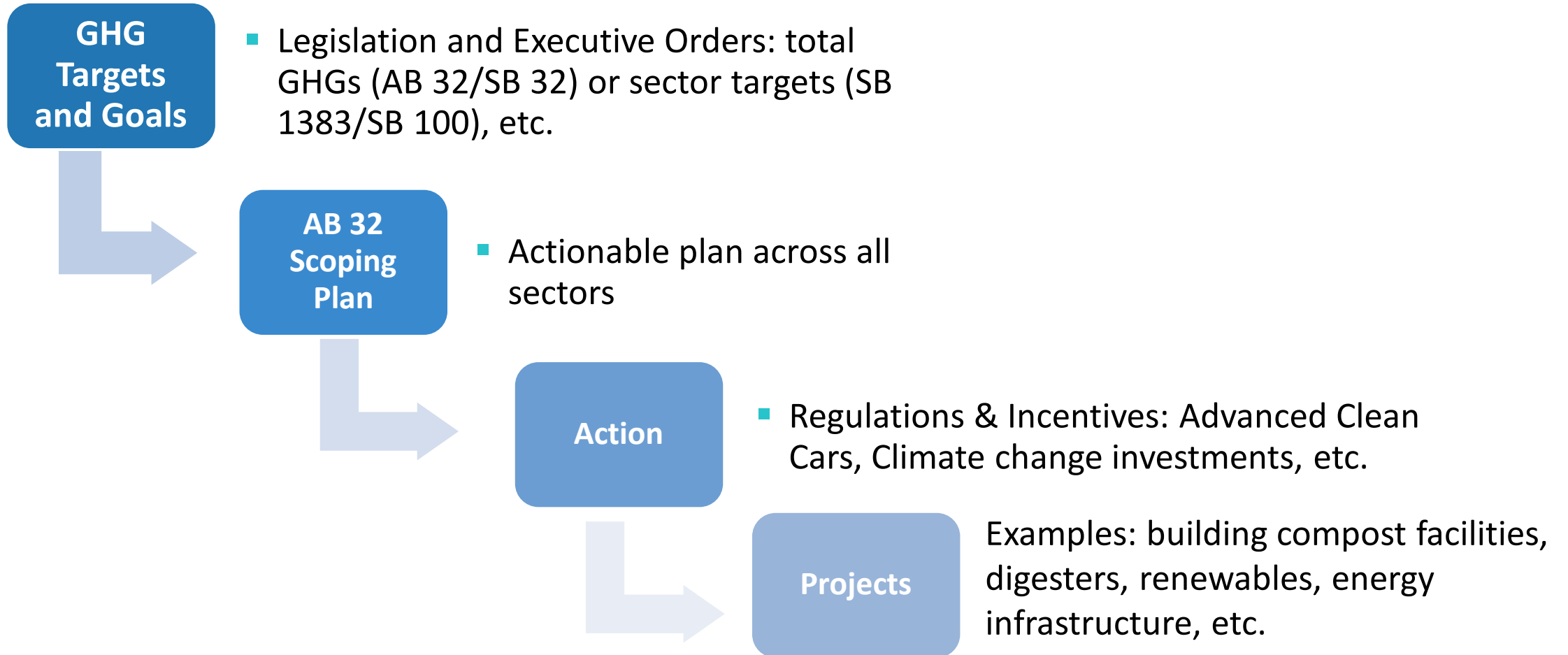


ACHIEVING
CARBON
NEUTRALITY
BY **2045**

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



Climate Legislative and EO Direction for the 2022 Scoping Plan Update (1 of 3)

AB 32

Scope of sources and gases

Do not exacerbate harm to disproportionately impacted communities nor interfere with ambient air efforts

Technologically feasible and cost effective

Minimize leakage

Focus on largest sources of emissions

SB 32 – Reduce GHGs at least 40% below 1990 levels by 2030

S-03-05 – Reduce GHGs 80% below 1990 levels by 2050

B-55-18 – Achieve carbon neutrality no later than 2045

AB 197 – Prioritize direct reductions; include GHG \$/ton of action, air pollution reductions, social cost of carbon

Climate Legislative and EO Direction for the 2022 Scoping Plan Update (2 of 3)



Reduce SLCPs

- **SB 1383** – Reduce methane and HFCs 40% below 2013 levels by 2030
- Implement SLCP Strategy – dairy manure management and enteric strategies



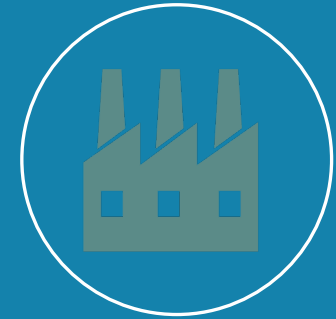
Decarbonize Electricity

- **SB 100** – 60% renewables by 2030 and 100% zero-carbon retail sales by 2045



Reduce Petroleum Use in Vehicles

- **N-79-20** – 100% sales of LDVs are ZEVs by 2035 and by 2045 for MD/HD trucks
- **SB 375** – GHG targets for sustainable transportation to reduce emissions from driving



Reduce Industrial Emissions

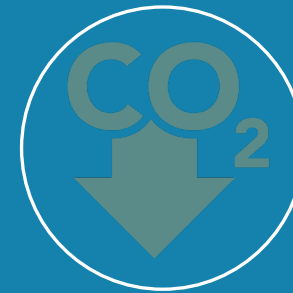
- **AB 398** – Legislative designed Cap-and-Trade Program through 2030
- **SB 596** – Net-zero GHGs from cement by 2045

Climate Legislative and EO Direction for the 2022 Scoping Plan Update (3 of 3)



Incorporate NWL into State's climate goals

- SB 1386 – State agencies shall consider the conservation and management of NWL in meeting GHG emission reduction goals
- N-82-20 – Goal of protecting 30% of California's lands and waters by 2030, and updating the target for the NWL sector in the 2022 Scoping Plan



Carbon dioxide removal targets

- SB 27 – Establish NWL Climate Smart Strategy and CO₂ removal targets for 2030 and beyond
- AB 1504 – Ensure rules governing commercial forest harvesting consider the annual sequestration target of 5 MMTCO₂e established in the 2008 Scoping Plan, in addition to other ecosystem co-benefits

State Multi-Agency Effort



List is not exhaustive

What Carbon Neutrality Means



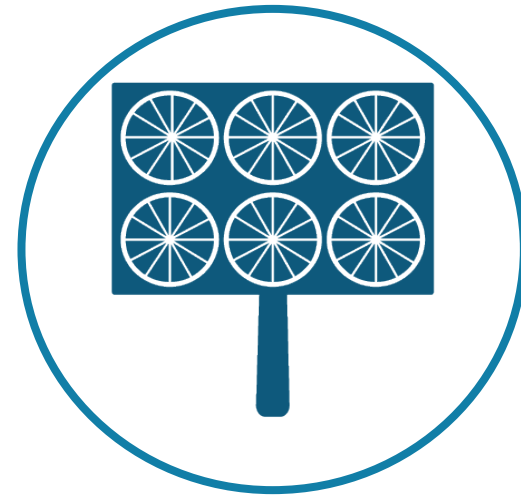
**Continue to reduce
emissions from
sources in the AB 32
GHG Inventory**

±



**Emissions and
sequestration
from natural and
working lands**

-



**Technological
Carbon Dioxide
Removal**

=

**Carbon
Neutral**

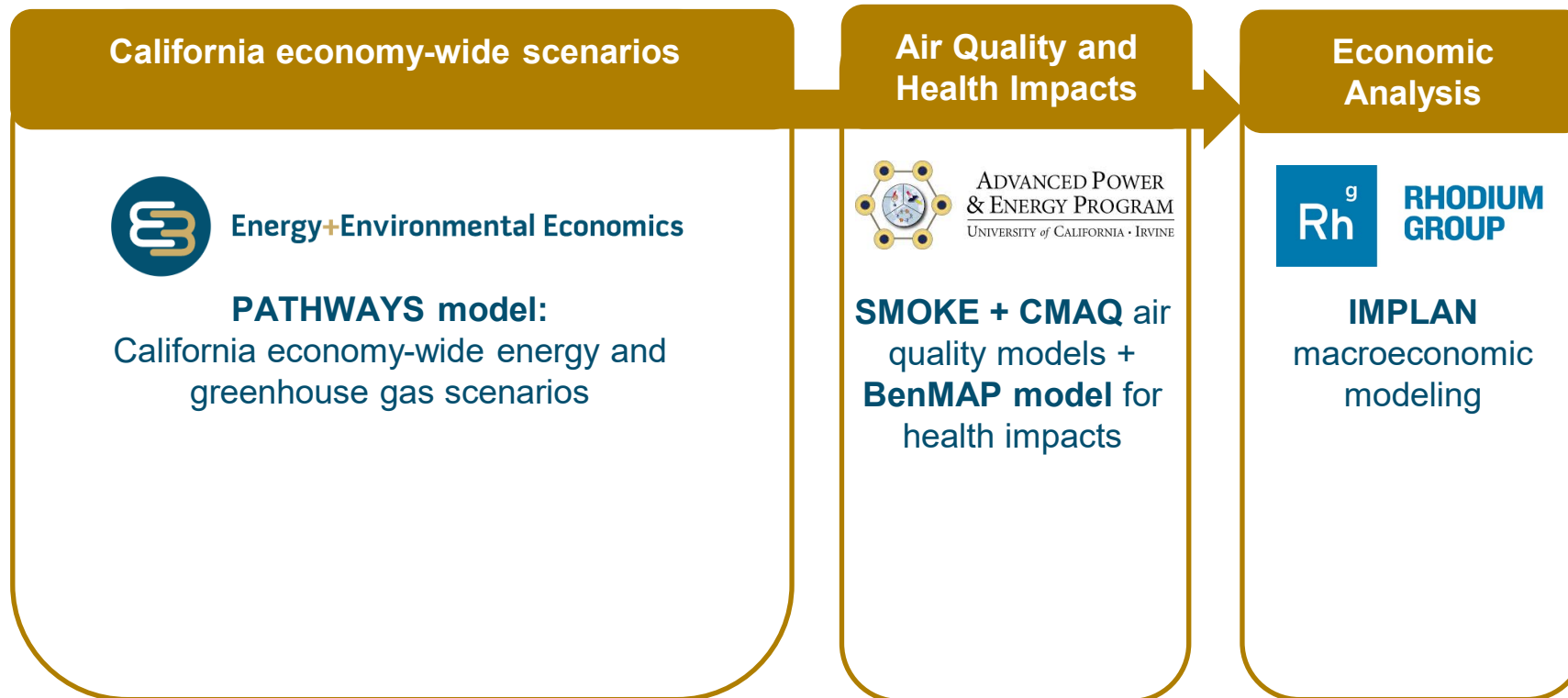
Progress to Date

- 11 Public Workshops with Interagency Coordination
- More than 400 written public comments from individuals, environmental justice organizations, industry groups, and others
- Numerous stakeholder meetings, including 2 Tribal-specific webinars
- 13 Environmental Justice Advisory Committee Meetings
- 1 Board Meeting Informational Update

AB 32 Sources Modeling Scenarios

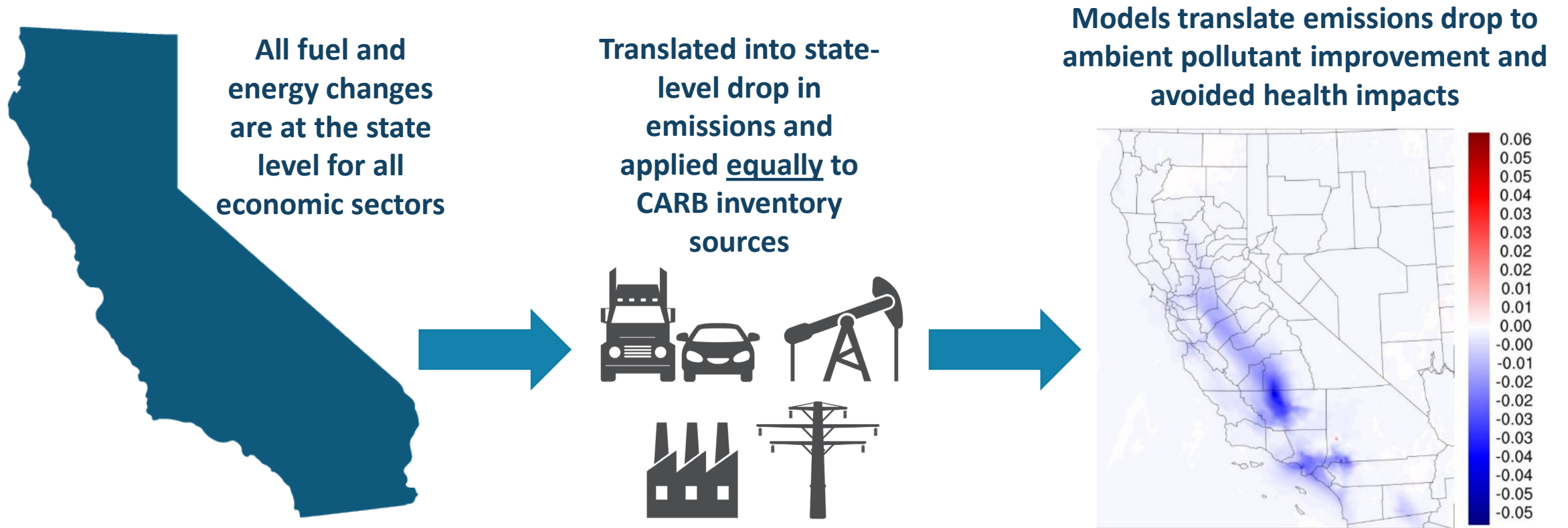
- All scenarios must at least:
 - be consistent with existing Legislative Mandates and Executive Orders
 - meet GHG goals
 - work in concert with existing and emerging air quality programs
 - deliver near-term air quality benefits, especially in heavily burdened communities
- By summer 2022, staff will propose a scenario to the Board based on:
 - Consistency with statutes and EOs
 - Consideration of public, EJ Advisory Committee, and public agency input
 - A balance of several factors including benefits, costs, leakage minimization, technological feasibility, direct emissions reductions in accordance with key statutes

Tools for AB 32 Sources Scenario Analyses



Source: E3. California PATHWAYS: A Tool to Examine Long-Term Greenhouse Gas Reduction Scenarios. August 17, 2021.

Scoping Plan Model Granularity



Expanded Health Analyses for the 2022 Scoping Plan

- Quantitative outcomes
 - Reduced cases of mortality and morbidity
- Qualitative outcomes
 - Directional and scale of effects
 - Broader set of health outcomes
 - Health disparities
- Status quo versus action



Overview: Key Health Analysis Elements

Analysis Type	2017 SP	2022 SP
Quantitative Analysis	# cases and value statewide PM	#cases and value state and local PM and Ozone
Health Overview	Literature review	Literature review
Qualitative Analysis	Not included	Included
Health Endpoints	3	Proposing 11
Physical Activity – Chronic Illness and Mortality	# cases; 2030 estimate	# of cases; Date of estimate TBD
Wildfire Analysis	Not included	#cases and value for selected years
Heat Mortality Analysis	Not included	Under review

AB 32 Sources Scenarios Overview

2035

Alternative 1: Nearly complete phaseout of combustion, limited reliance on engineered carbon removal, restricted applications for biomass derived fuels

2035

Alternative 2: Use full suite of technology options, including engineered carbon removal

2045

Alternative 3: Use a broad portfolio of existing and emerging fossil fuel alternatives and alignment with statutes and Executive Orders

2045

Alternative 4: Use existing and emerging technologies, slower rate of clean technology and fuel deployment and consumer adoption

AB 32 Sources Scenarios Comparison

SIMILARITIES

Drastic reductions in fossil fuel dependence, but some demand remains

Ambitious deployment of efficient and non-combustion technologies

Ambitious production and distribution of clean energy

Managed phasedown of fossil fuel as transitioning to clean energy

No scenario eliminates all emissions from AB 32 sources, SLCPs remain

Carbon dioxide removal of residual emissions

DIFFERENCES

Speed of transition to carbon neutrality goal

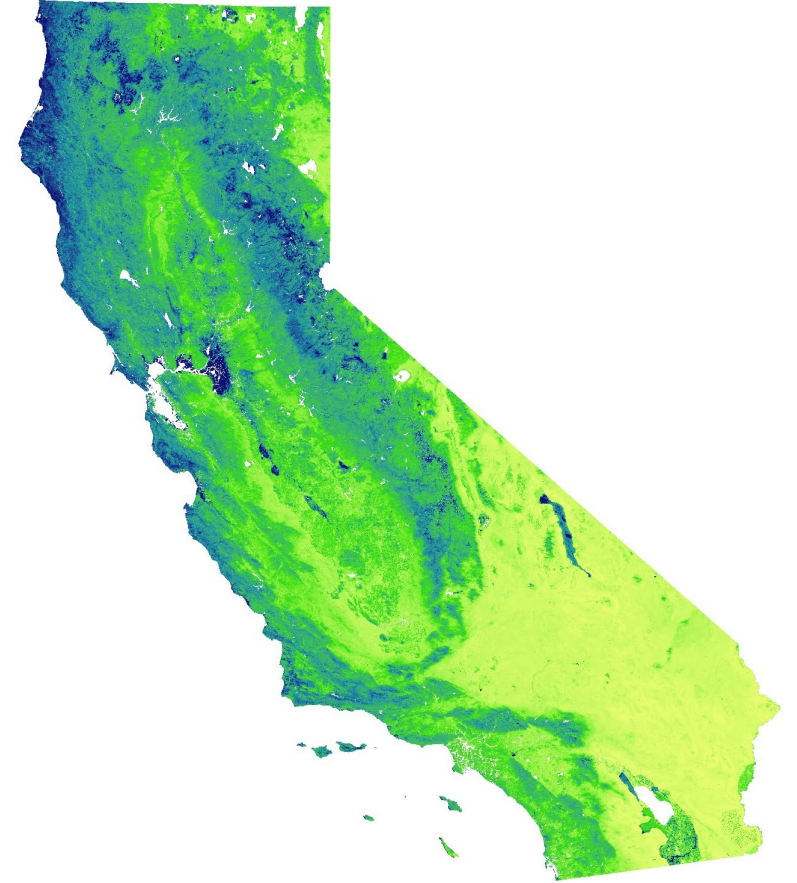
Amount of fossil fuel remaining by end of scenario

Constraints on technology and fuels deployed in certain sectors

*Detailed PATHWAYS modeling assumptions available at:
https://ww2.arb.ca.gov/sites/default/files/2021-12/Revised_2022SP_ScenarioAssumptions_15Dec.pdf*

NWL Scoping Plan History

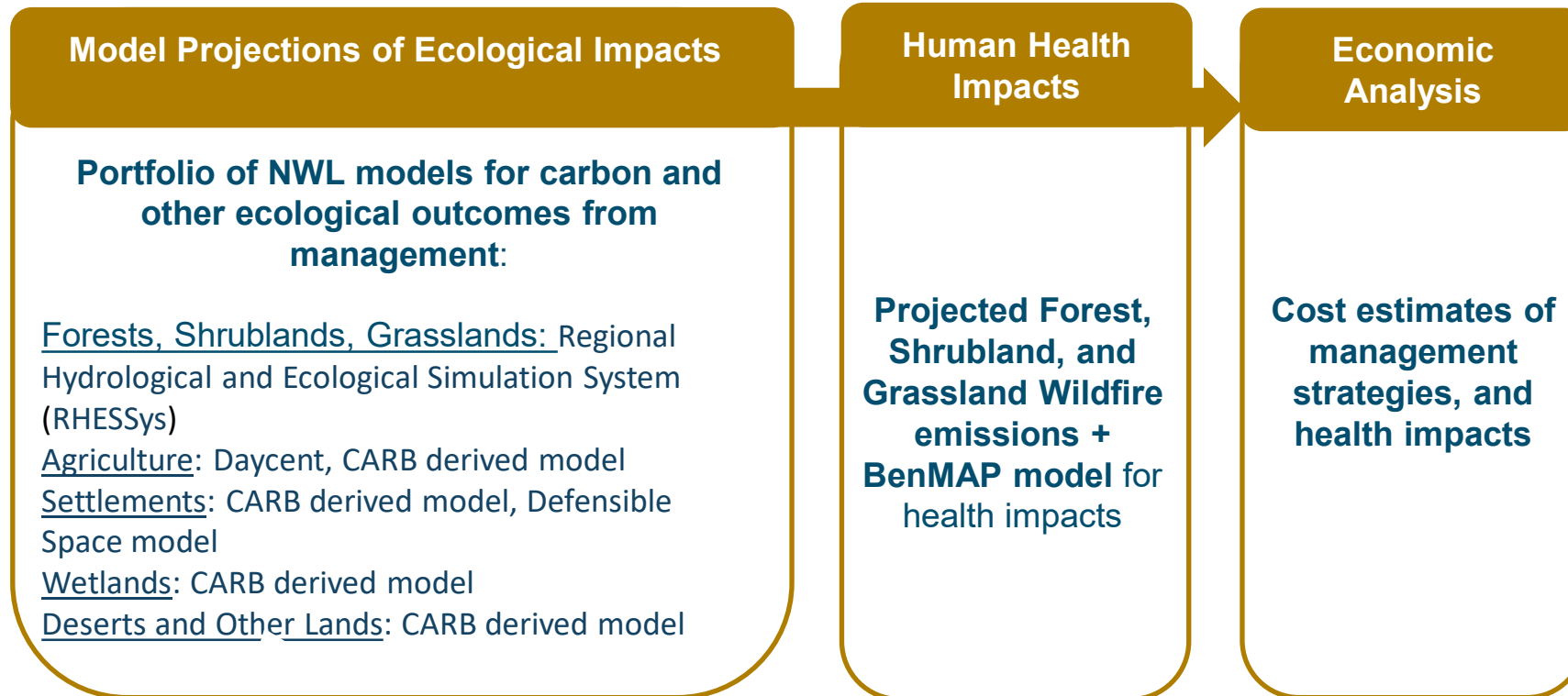
- 2008 Scoping Plan
 - Forests only
 - 5MMT sequestration by 2030
- 2013 Scoping Plan
 - Natural and Working Lands
 - Forest Carbon Plan
- 2017 Scoping Plan
 - Reduce NWL emissions 15-20 MMT
 - NWL Climate Change Implementation Plan



Designing NWL Scenarios

- Scenarios explore different visions for how California lands can be managed into the future, with an eye toward 2045 and beyond
- Scenarios set objectives and management strategies to reach those objectives
 - Each NWL type, ownership, and region have varying levels of management
- Developed in response to public comment, stakeholder outreach, and through state and federal government collaboration
- Factors to be weighed in staff proposed scenario for CARB Board consideration:
 - Identify trade-offs for balancing several factors including: ecosystem co-benefits, economic costs, technical feasibility

Tools for NWL Scenario Analysis



NWL Models


NWL Categories						
Forests	Shrublands	Grasslands	Agriculture	Settlements	Wetlands	Deserts and other lands

- Models project carbon stock and flux change over time
 - Under climate change
 - With different management practices based on NWL scenarios
- Additional ecological outcomes (e.g., wildfire activity, water dynamics) depending on NWL category

Natural and Working Lands Carbon Alternatives




NWL Alternative 1: Prioritize maximizing short term carbon stock at 2045



NWL Alternative 2: Balanced mix of strategies from current commitments/plans



NWL Alternative 3: Prioritize restoration and climate resilience



NWL Alternative 4: Prioritize forest wildfire and other fuel reduction efforts

Next Steps – Prior to Release of the Draft 2022 Scoping Plan Update



Workshops

Modeling results workshops (March/April)
Transportation sector workshop (March)



Board Engagement

2 Board informational updates (Feb., March)
Board-EJAC meeting (March)
1st Board meeting (June)



Environmental Justice Advisory Committee

2 standing meetings per month
Topical Workgroup meetings as needed



Community Meetings

EJAC-led community meetings with CARB staff assistance

2022 Scoping Plan Update Schedule

