

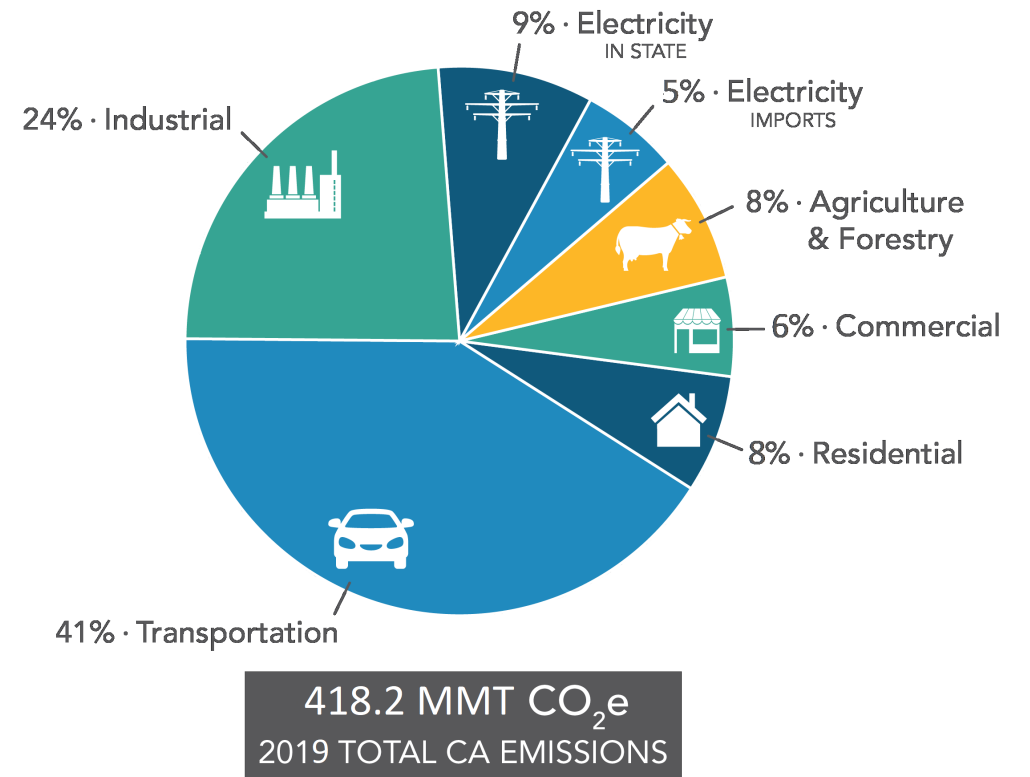
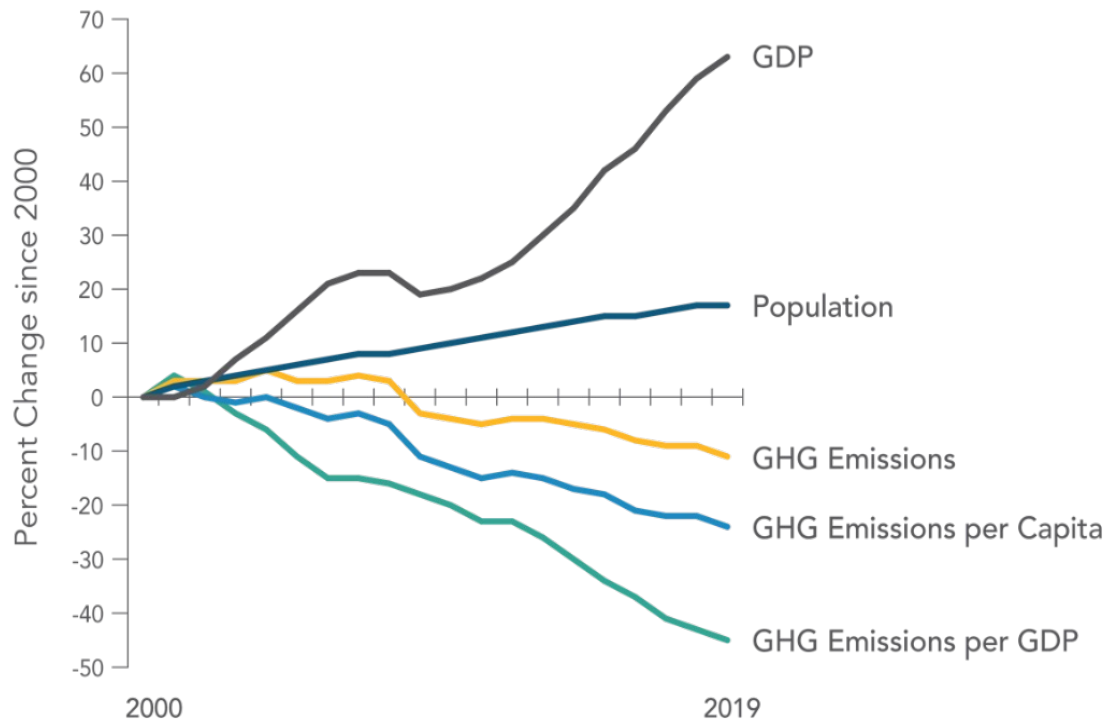
# Draft 2022 Scoping Plan



A DISCUSSION WITH WASHINGTON STATE

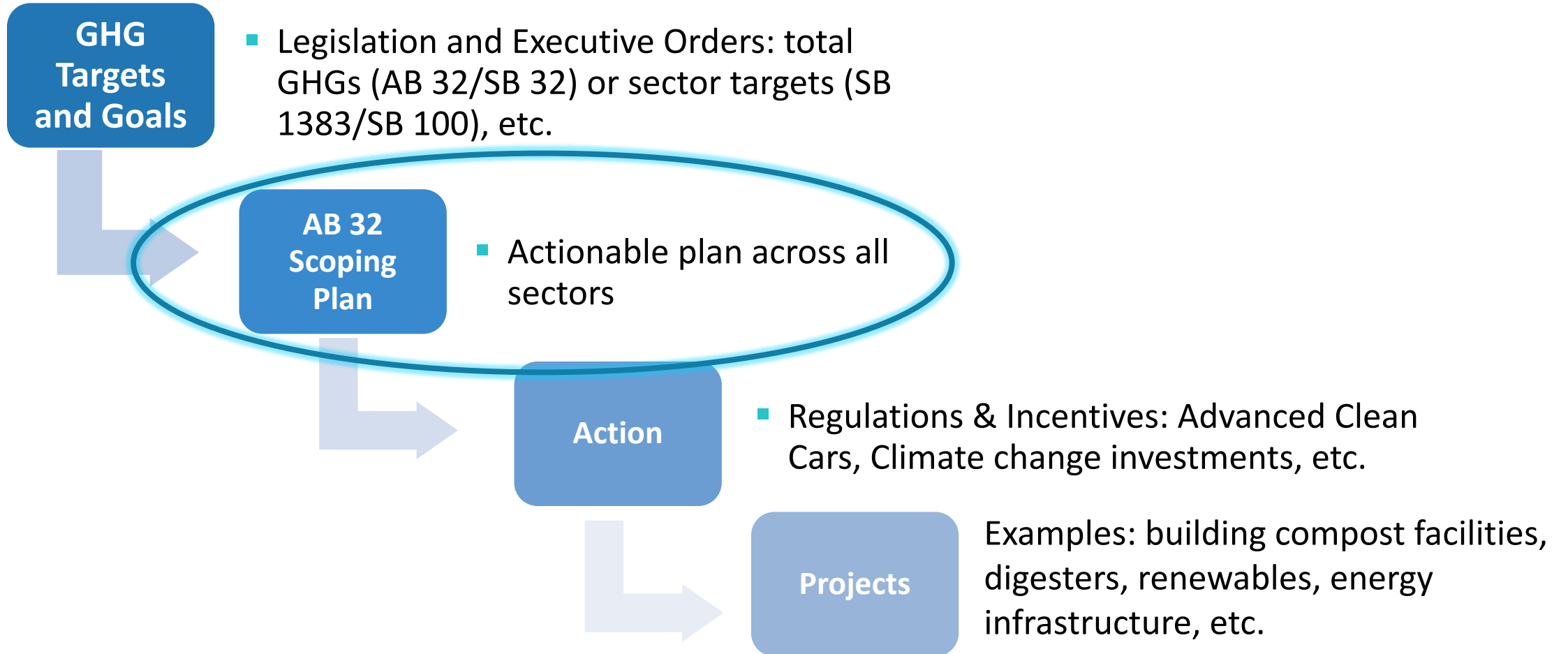
JUNE 2022

# California's GHG Trends



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

# California's Climate Policy Framework



# 2017 Scoping Plan Portfolio

*40% below 1990 levels by 2030 (incentives, regs, carbon pricing)*

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Double building efficiency



60% renewable power



More clean, renewable fuels



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



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



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



Walkable/bikeable communities with transit



Invest in communities to reduce emissions



Cleaner freight and goods movement



Protect and manage natural and working lands

# Climate Mitigation and Racial Equity

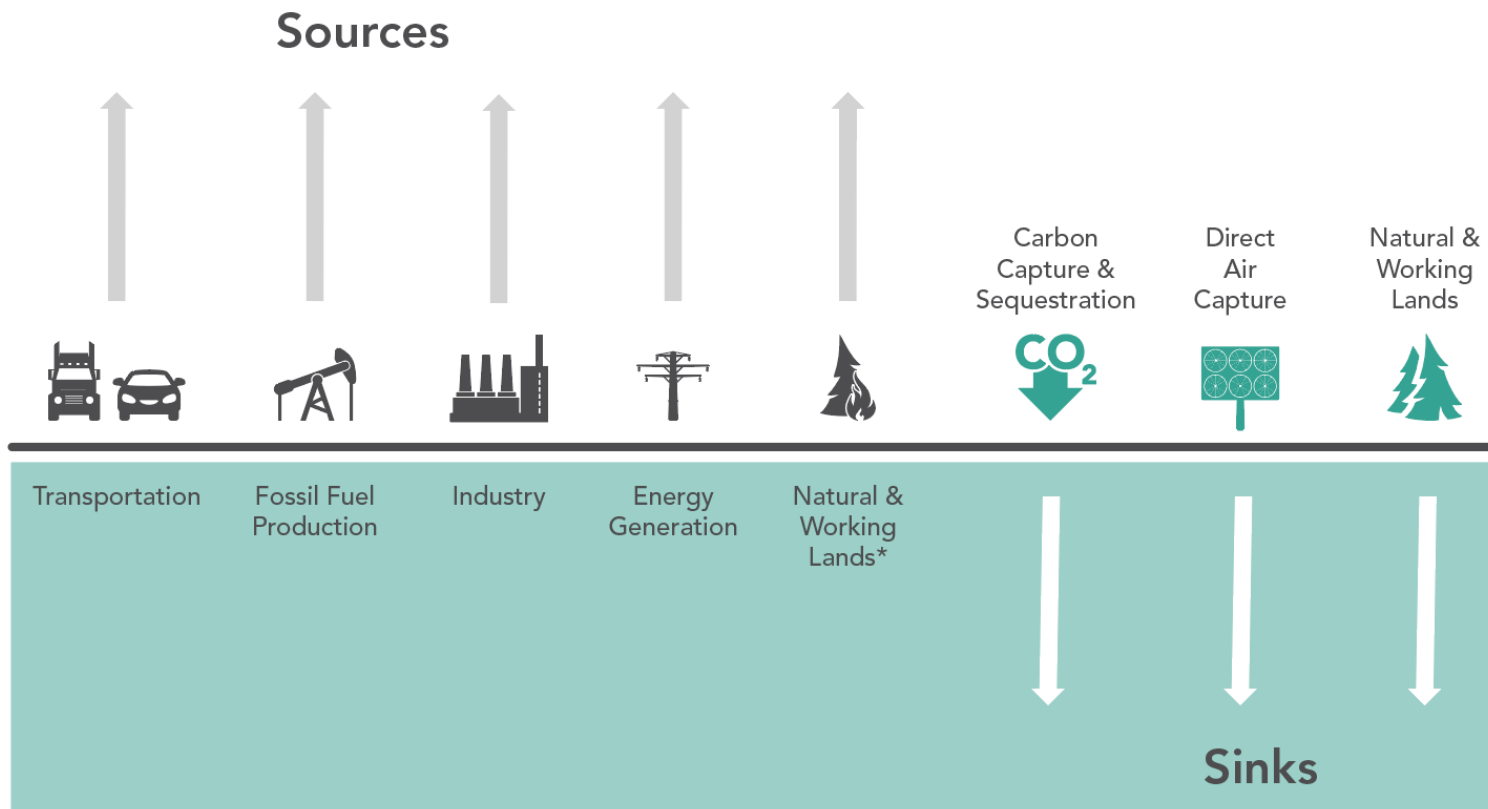
- Actions must protect public health and address opportunity gaps
- Residents in heavily burdened communities must be first to benefit from climate action
- Carbon pricing funds must be reinvested to benefit burdened communities
- >50% of Cap-and-Trade Revenue reinvested to provide benefits



“The greatest beneficiaries of reduced emissions from both HDVs and facilities subject to the Cap-and-Trade Program have been in communities of color and in disadvantaged communities in California, as identified by CalEnviroScreen (CES). This has reduced the emission gap between communities with high and low CES scores, but a wide gap still remains.”

# Science-based Target: Achieve Carbon Neutrality (CO<sub>2</sub>e) Mid-Century

## Sources equal Sinks



- Include NWL emission sources and sinks
- Prioritize minimizing emissions from sources
- Maximize sinks

\*Natural and working land emissions come from wildfires, disease, land and ag management practices, and others

# 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, and ambitious innovation in electric technology and aggressive consumer adoption trends (e.g., electric aviation adoption and 100% electrification by 2035).

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 (staff is recommending this scenario)

2045

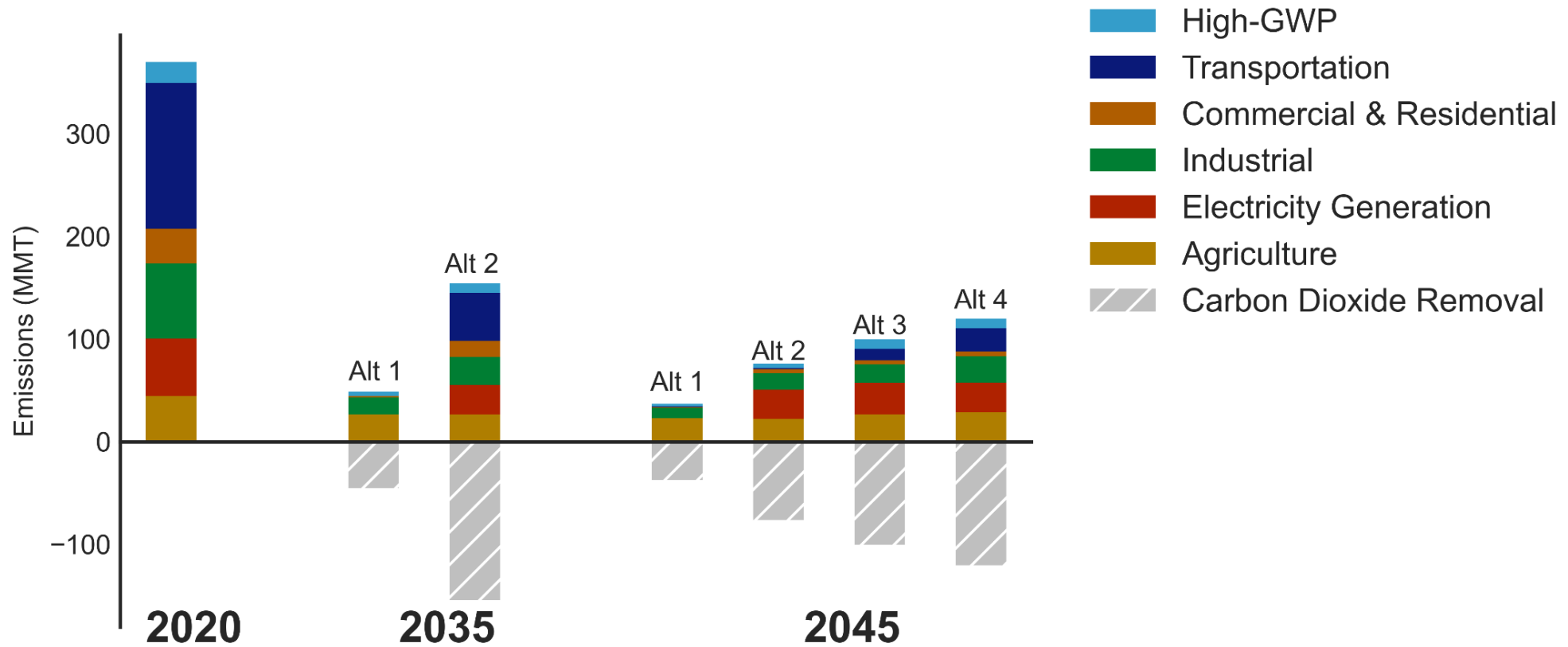
Alternative 4: Use existing and emerging technologies, slower rate of clean technology and fuel deployment and consumer adoption.

# Key Metrics

	Alternative 1	Alternative 2	Alternative 3	Alternative 4
<b>Annual Build Rates</b> Historic Max Builds: Solar: 2.7GW Battery: 0.3GW	Solar: 10GW Battery: 5GW	Solar: 5GW Battery: 3GW	Solar: 7GW Battery: 2GW	Solar: 6GW Battery: 2GW
<b>Vehicle Early Retirements</b> US-wide Cash for Clunkers \$3B and 690k vehicles	LDV: 16M 5-16 yr. old MHDV: 1.4M 5-16 yr. old	LDV: 0 MHDV: 0.6M 10-20 yr. old		
<b>Residential Early Retirements</b>	7M electric homes. Appliances 5-16 yr old			
<b>Hydrogen Demand &amp; Electrolysis Need</b> Total CA Capacity: 83GW	Percent 2020 US: 19% Solar: 47GW	Percent 2020 US: 18% Solar: 44GW	Percent 2020 US: 17% Solar: 41GW	Percent 2020 US: 13% Solar: 31GW
<b>Petroleum Refining Remaining</b>	2035: 0% 2045: 0%	2035: 25% 2045: 8%	2035: 33% 2045: 13%	2035: 39% 2045: 18%
<b>Total CCS Needs</b> Industrial & Refining	2035: <1MMT 2045: <1MMT	2035: 8MMT 2045: 2.4MMT	2035: 10MMT 2045: 4MMT	2035: 11MMT 2045: 5MMT
<b>Residual Emissions</b> Current global DAC 0.01 MT/year	2035: 30MMT 2045: 22MMT	2035: 123MMT 2045: 60MMT	2035: 0MMT 2045: 80MMT	2035: 0MMT 2045: 99MMT



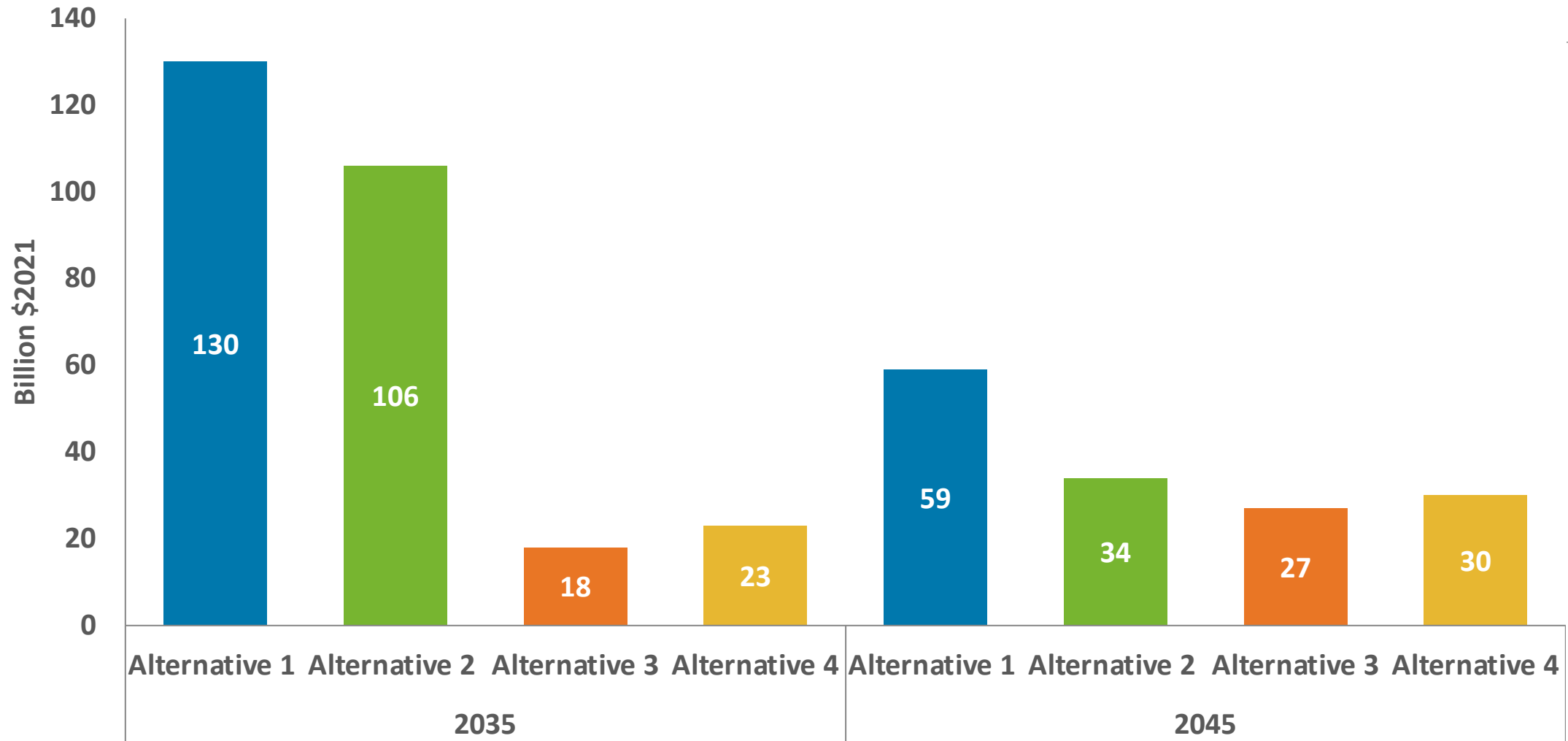
# Scenario Emissions Modeling



*Emissions shown after CCS, before CDR*

# Direct Cost by Scenario, 2035 and 2045

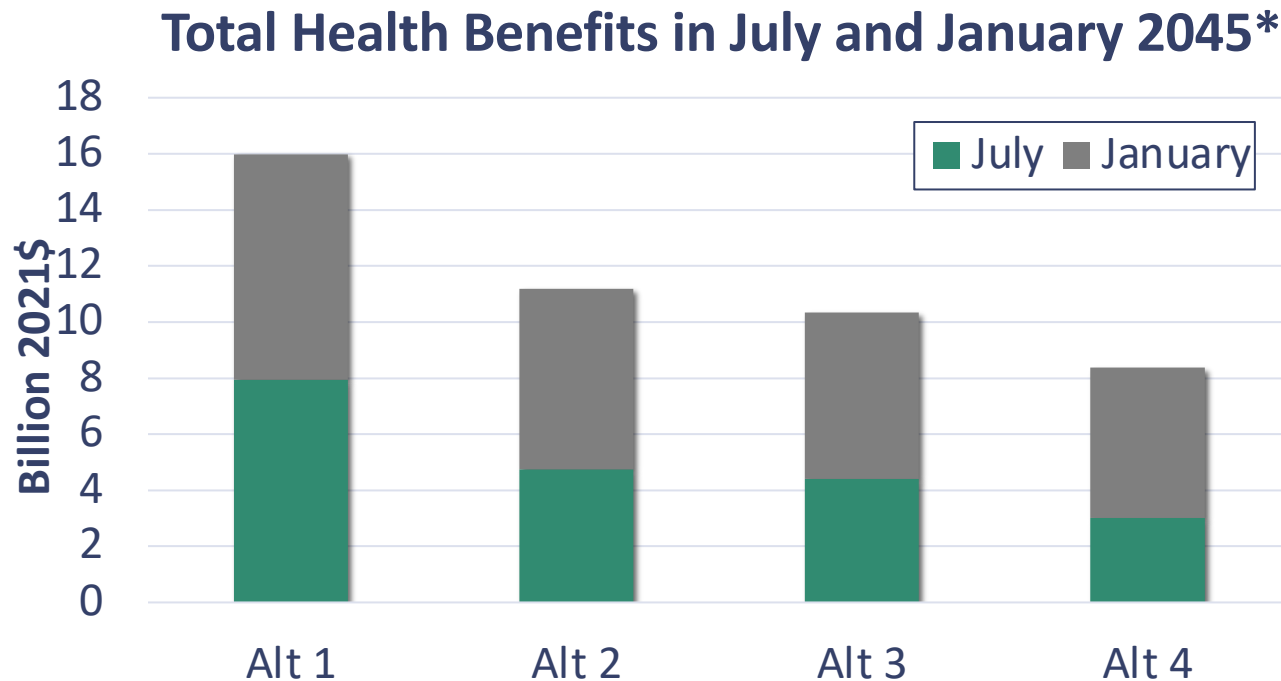
Costs from PATHWAYS in a single year compared to California economy that is expected to grow from \$3.2 trillion in 2021 to \$5.1 trillion in 2045.



# Health Impact Results

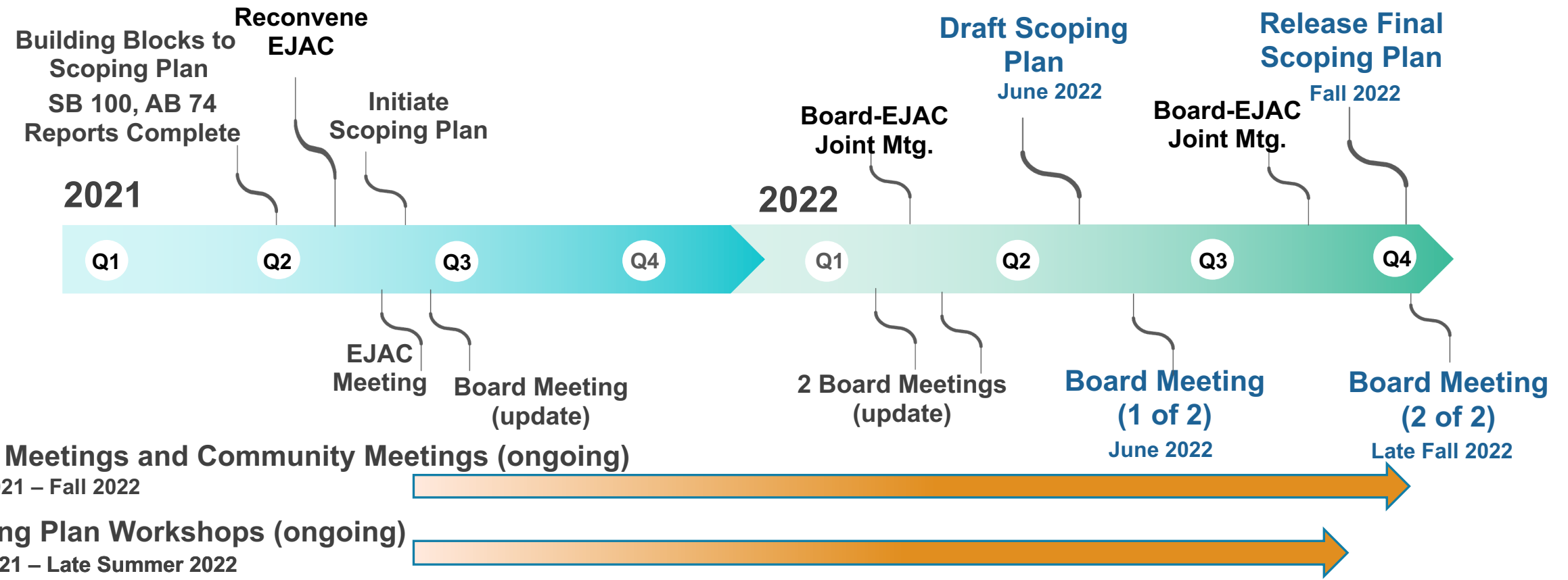
The implementation of the Scoping Plan scenarios achieves notable public health benefits relative to the Reference Scenario

- Total combined benefits range from \$8.3 billion in Alt 4 to \$15.9 billion in Alt 1 in Improvements in winter PM<sub>2.5</sub> provide significant benefits



\*Represents the mean value reported by BenMAP

# 2022 Scoping Plan Update Schedule



# Thank You

