

Carbon Neutrality In California Context Webinar

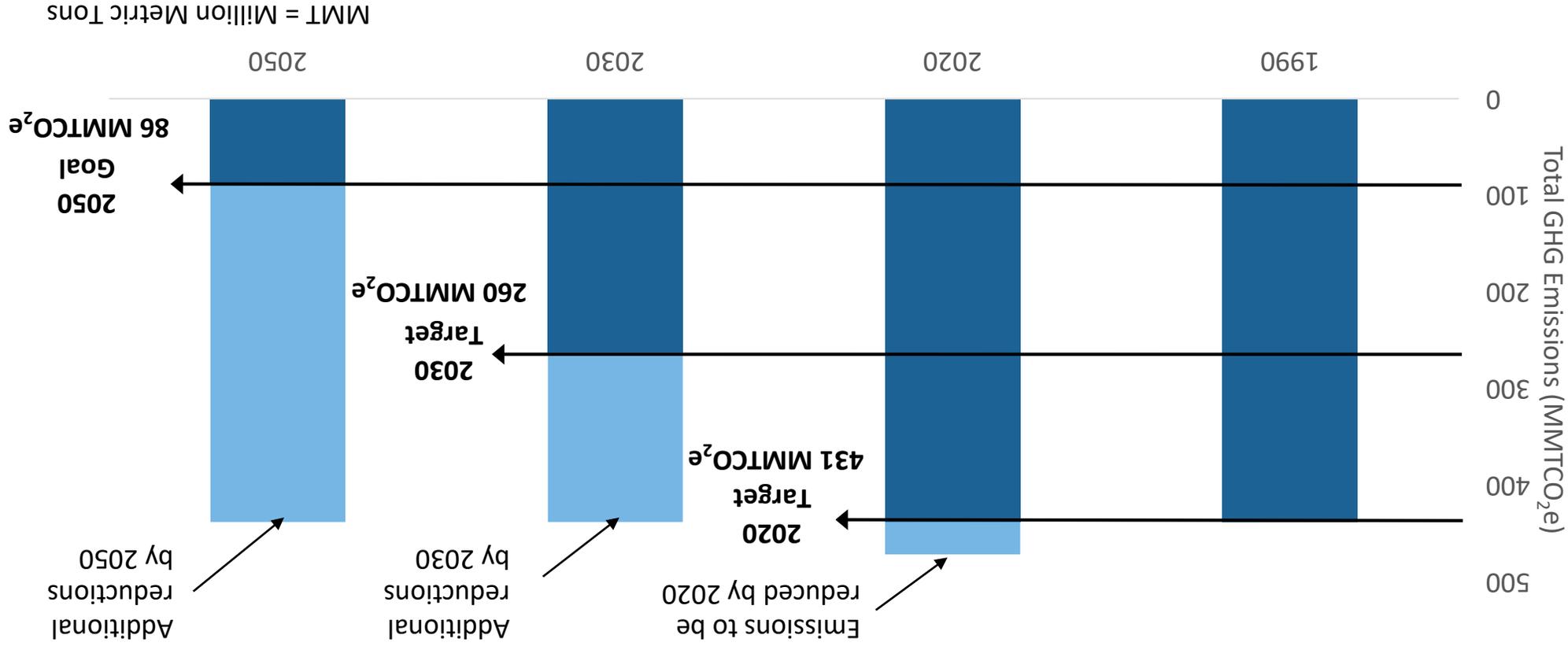
JANUARY 23, 2019



Webinar Logistics

- Presentation posted here:
<https://www.arb.ca.gov/cc/scopingplan/meetings/meetings.htm>
- Submit questions using the Questions/Chat box in the Control Panel

California's GHG Emissions Reduction Targets



Source: CARB, 2018

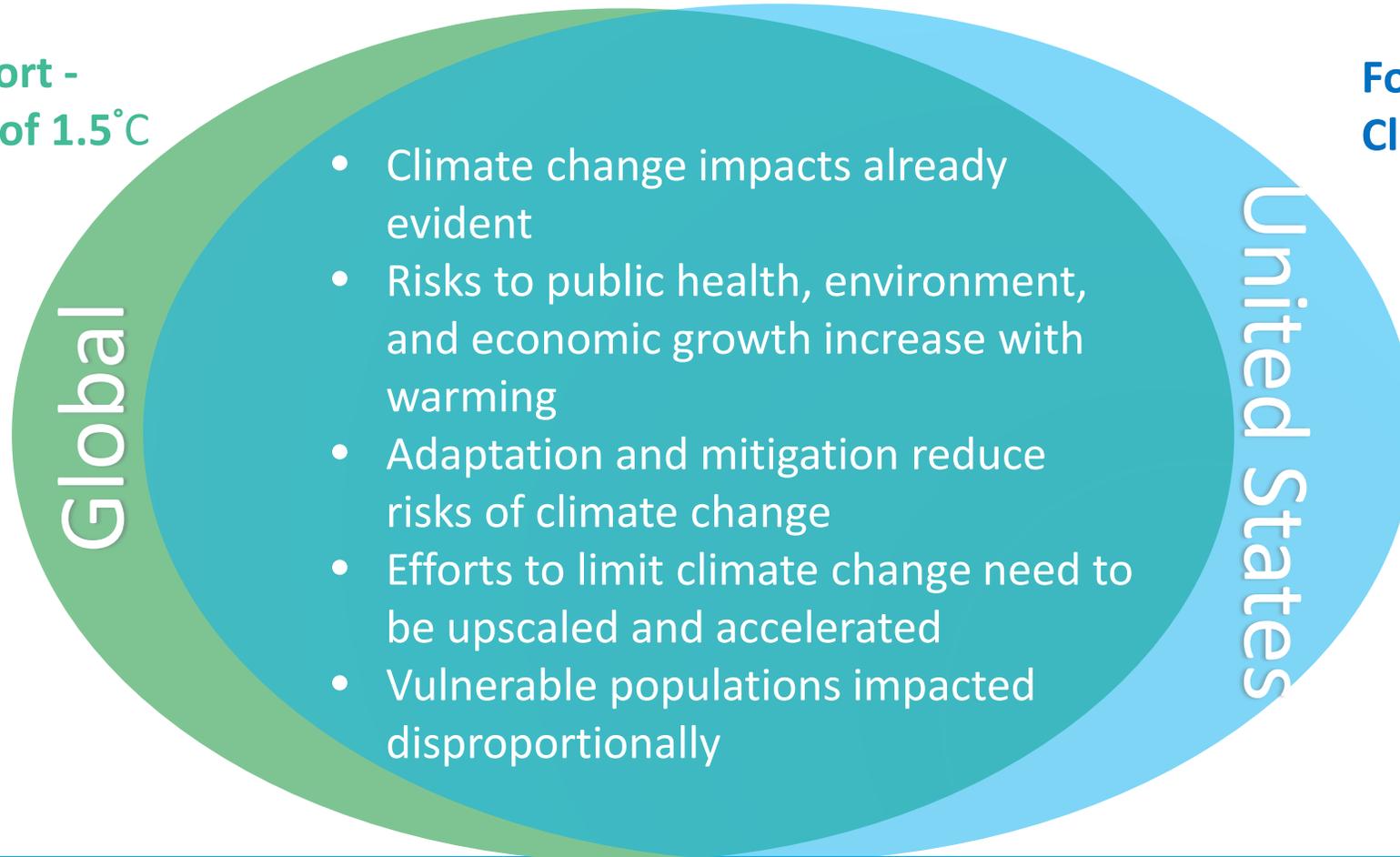
2018 Legislation

- SB 100 (De León, Chapter 312, Statutes of 2018) California Renewables Portfolio Standard Program: emissions of greenhouse gases
 - Increase Renewables Portfolio Standard to 50% renewable resources by December 31, 2026, and to 60% by December 31, 2030.
 - Establish policy that renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity by December 31, 2045
- SB 901 (Dodd, Chapter 626, Statutes of 2018) Wildfire Protection and Forest Health
 - Establishes mechanisms to increase the pace and scale of fuel reduction, thinning, and the use of prescribed fire
 - Provides \$200 million per year for 5 years for fire prevention and forest health activities

2018 Climate Change Reports

IPCC Special Report -
Global Warming of 1.5°C

Fourth National
Climate Assessment



Framing the Path Forward

IPCC Report – Carbon neutrality by 2045 may hold global warming to 1.5°C



Some regions are net emitters; others are sinks

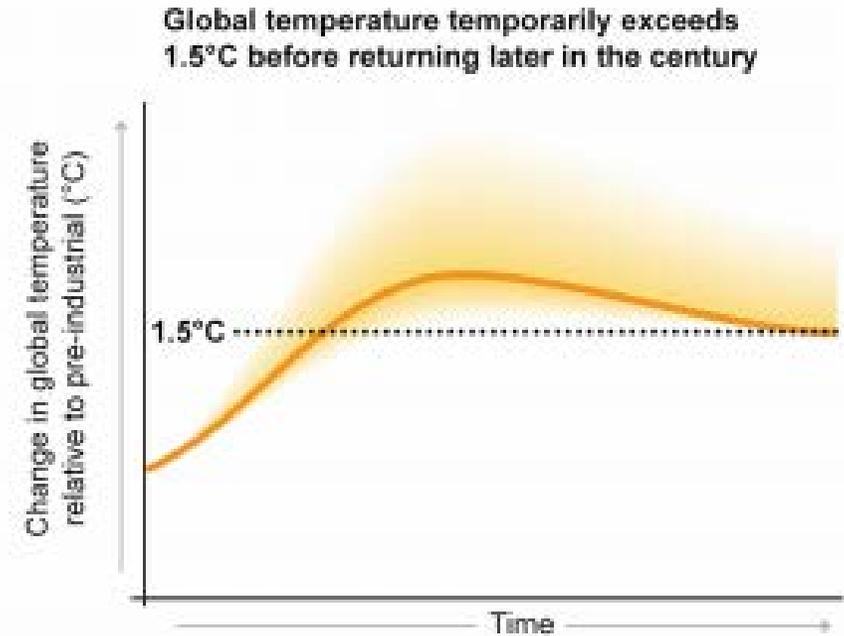
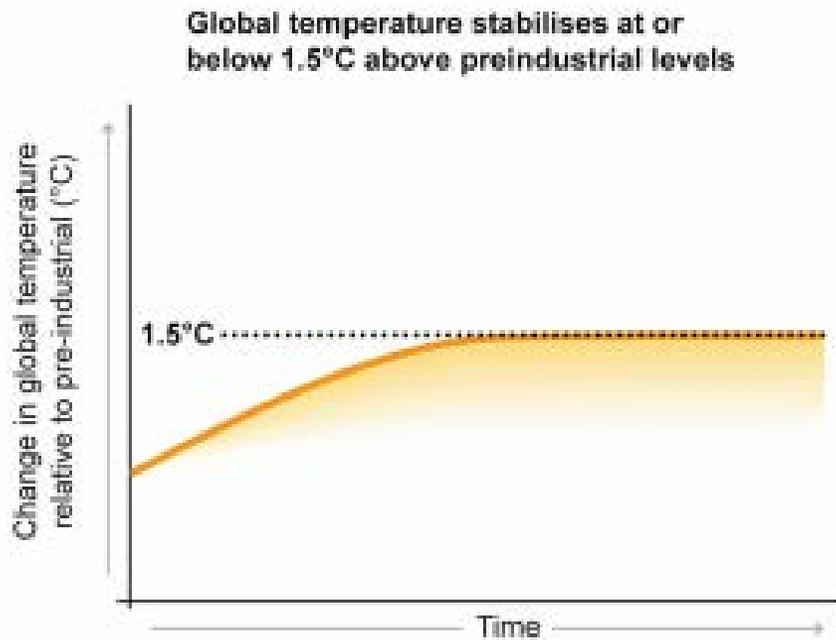


Carbon Neutrality by 2045



Reduce fossil energy and NWL emissions; evaluate potential sinks

Global Warming Limit

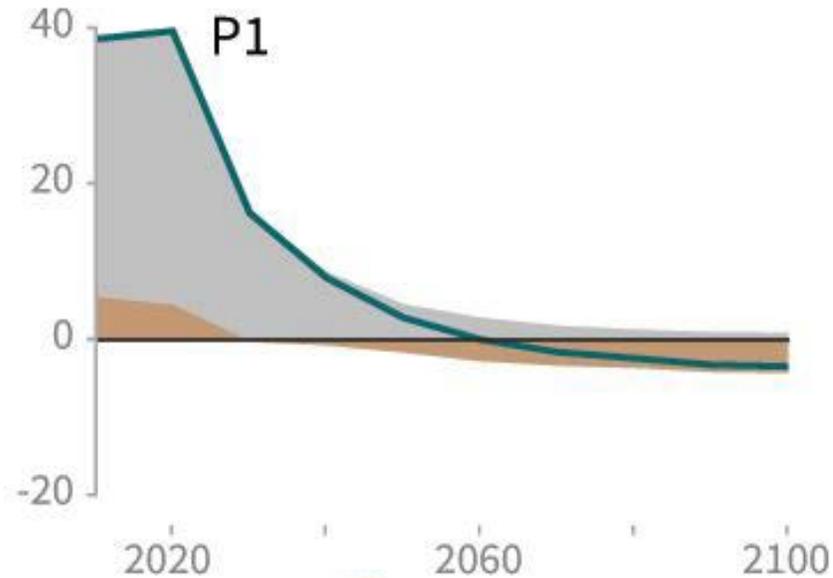


Source: IPCC, 2018: *Global Warming of 1.5°C*

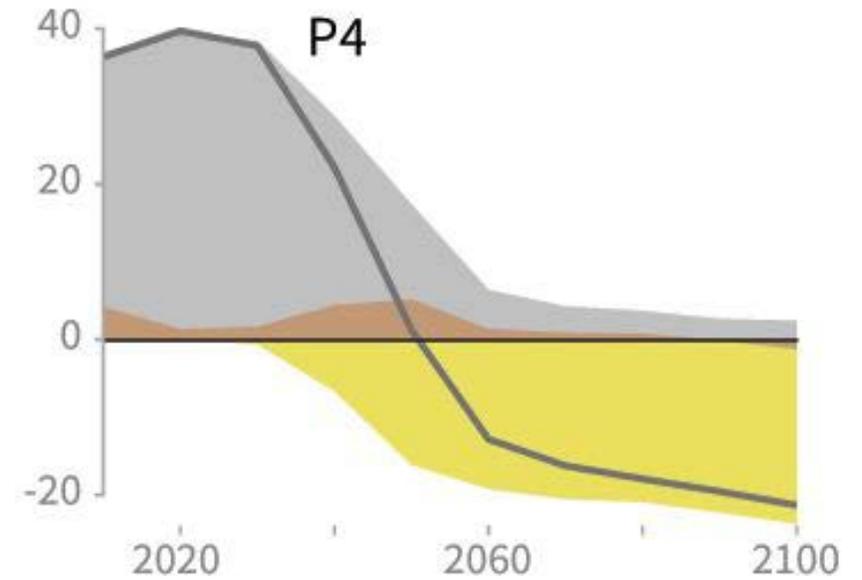
- Pathways to limit global warming:
 - Reduce net global emissions to zero before the carbon budget is reached (left)
 - Extract carbon such that there are net negative global emissions after the carbon budget is exceeded (right)

Global Carbon Neutrality

Billion tonnes CO₂ per year (GtCO₂/yr)



Billion tonnes CO₂ per year (GtCO₂/yr)



● Fossil Fuel and Industry ● Agriculture, Forestry and Other Land Use ● Bioenergy with Carbon Capture and Storage

Source: IPCC, 2018: Global Warming of 1.5°C

- Reduced energy demand combined with steep, near-term emission reductions reduces the need for carbon dioxide removal.

Importance of 1.5°C

Anticipated California Climate Change Impacts



Source: CARB, 2017: *California's 2017 Climate Change Scoping Plan*

- Limiting global warming to 1.5°C compared to 2°C is projected to:
 - Slow the rate of sea level rise
 - Reduce climate-related risks to health, livelihoods, food security, water supply, human security, and economic growth
 - Reduce most adaptation needs
 - Increase potential to reduce climate related inequities for vulnerable populations

Portfolio Approach and Ambition

IPCC

- Carbon pricing needs to be complemented with other policies
- Innovation policies and international cooperation can contribute to the development, commercialization, and widespread adoption of new and possibly disruptive technologies and practices
- Education, information, and community approaches, when combined with other policies, are more effective in accelerating wide-scale behavior changes

California

- Since the 2008 Scoping Plan, California has deployed a portfolio of incentives, prescriptive regulations, and carbon pricing

International Carbon Neutrality Efforts

- European Union
 - strategic long-term vision climate-neutral economy by 2050
 - aggregate goal over a region of 28 member states
- Sweden
 - goal of net zero emissions of greenhouse gases by 2045, negative thereafter
 - 85 percent reductions achieved in-jurisdiction, balance remaining 15 percent with investments abroad
- Costa Rica
 - aims to achieve carbon neutrality by 2021

California Carbon Neutrality (CO₂e)

Today



AB 32 GHG Inventory



Conversion

Natural & Working
Lands Inventory

Minimize emissions

Transition from source to sink

Mid-century



Both categories emit GHGs

Net negative GHG emissions

Carbon Neutrality: Key Questions for California

- Pathways to minimize emissions in fossil energy and industrial sectors by mid-century?
- Maximum potential of NWL to sequester carbon and timing to transition from emissions source to sink?
- Options for additional mechanical sequestration technologies?
- Optimal mix of carbon pricing with complementary policies?
- Tools to assess economic and environmental outcomes of achieving carbon neutrality under different scenarios at multiple levels (e.g., state economy, jobs, households and small businesses)?

2019 Engagement

- Workshops to explore topic areas on achieving carbon neutrality
 - Energy demand and supply
 - Transformation across economic sectors (i.e. transportation, industrial)
 - Options and support for sequestration activities
- Continued collaboration
 - State and local agencies
 - Academics and researchers
 - International partners

Resources

- CARB, 2017: California's 2017 Climate Change Scoping Plan
- IPCC, 2018: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty
- USGCRP, 2018: Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II

Thank You

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- Contact Information

- Maureen Hand (Maureen.Hand@arb.ca.gov)
- Rajinder Sahota (Rajinder.Sahota@arb.ca.gov)