

# Carbon Neutrality In California Context Webinar

JANUARY 23, 2019

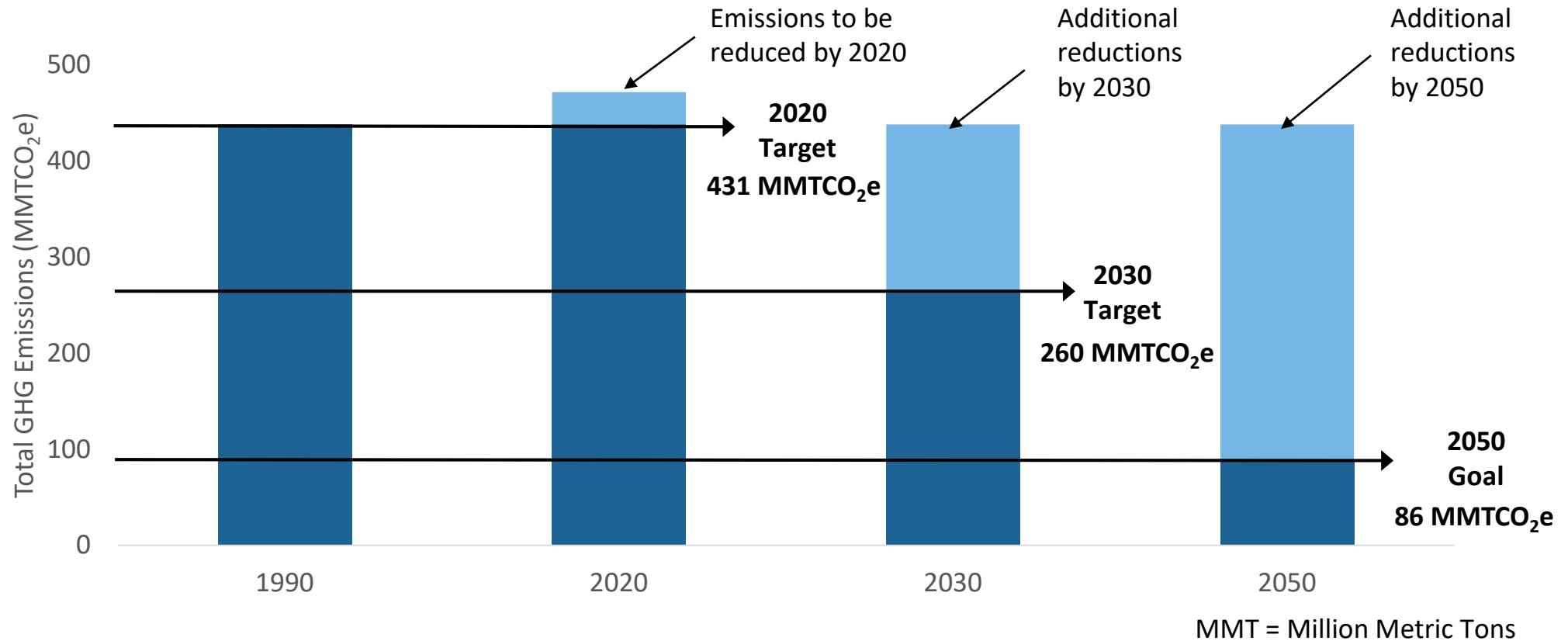


# Webinar Logistics

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- 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

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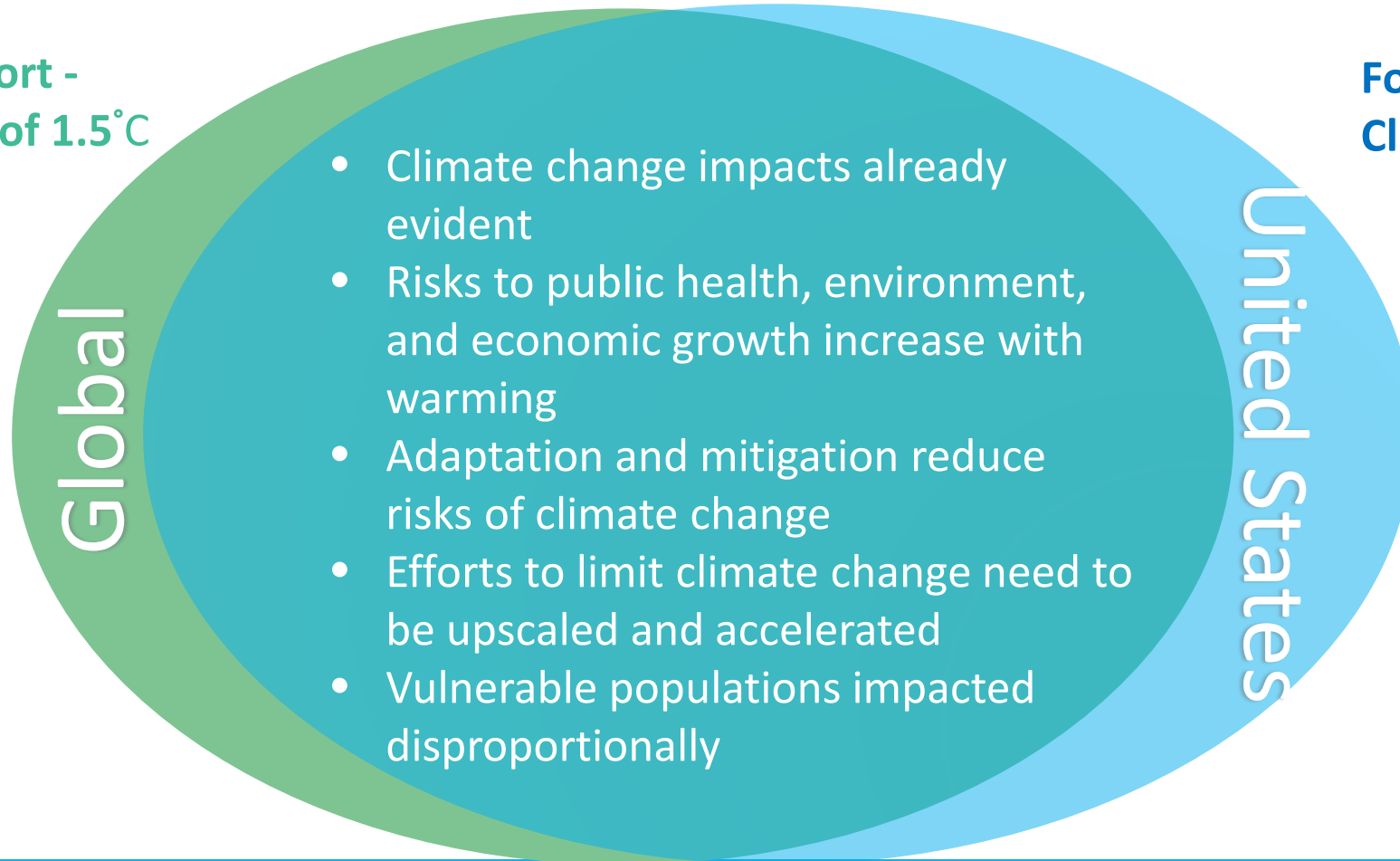
- SB 100 (De León, Chapter 312, Statutes of 2018) California Renewables Portfolio Standard Program: emissions of greenhouse gases
  - Increase Renewables Portfolio Standard to 50% renewable resources by December 31, 2026, and to 60% by December 31, 2030.
  - Establish policy that renewable energy resources 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

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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

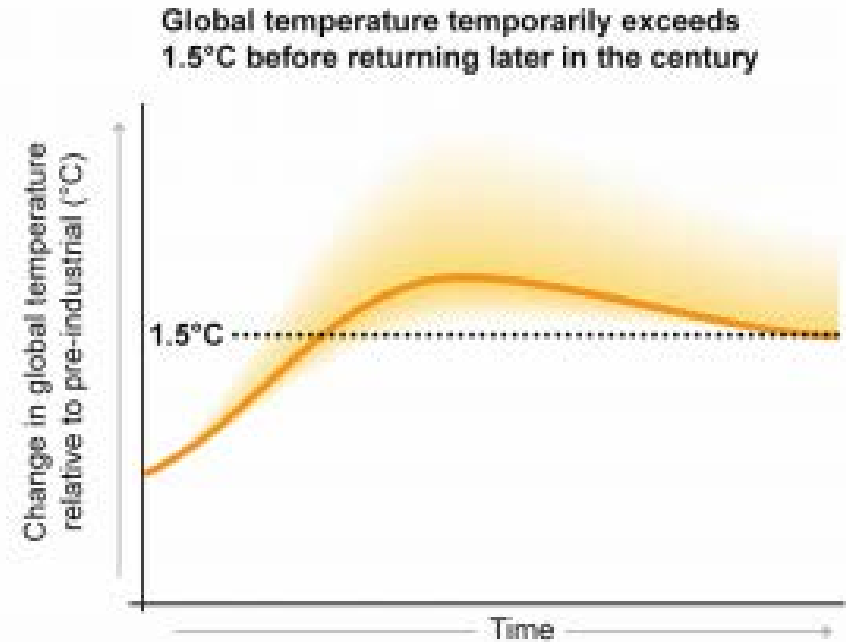
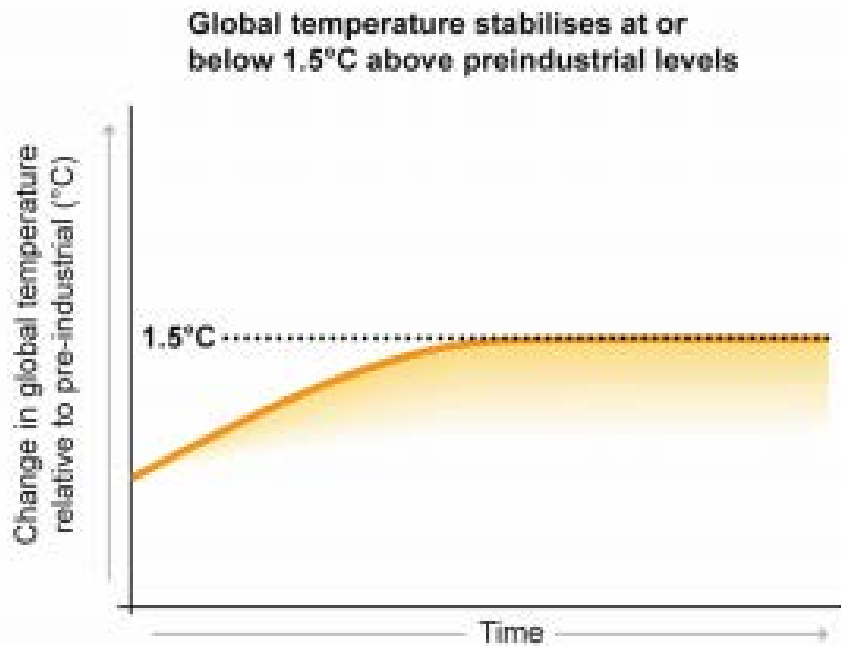


Carbon Neutrality by 2045



Reduce fossil energy and NWL emissions; evaluate potential sinks

# Global Warming Limit

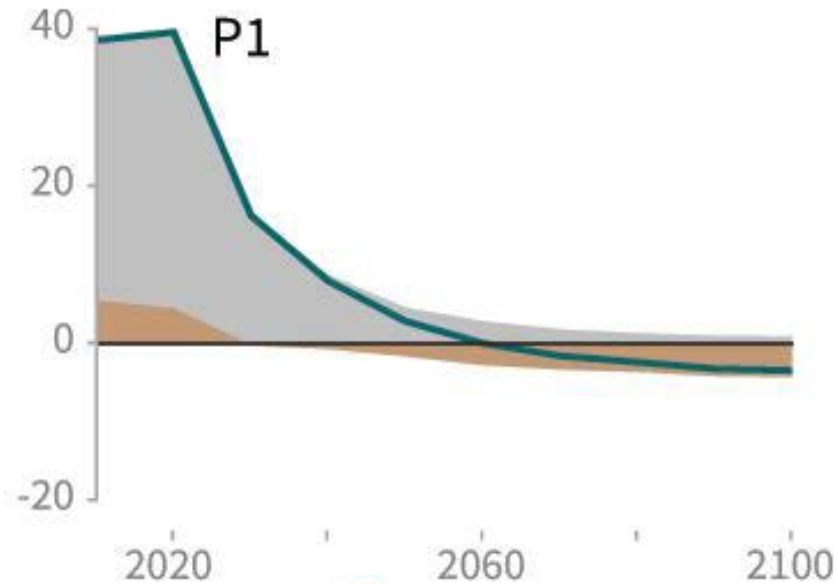


Source: IPCC, 2018: *Global Warming of 1.5°C*

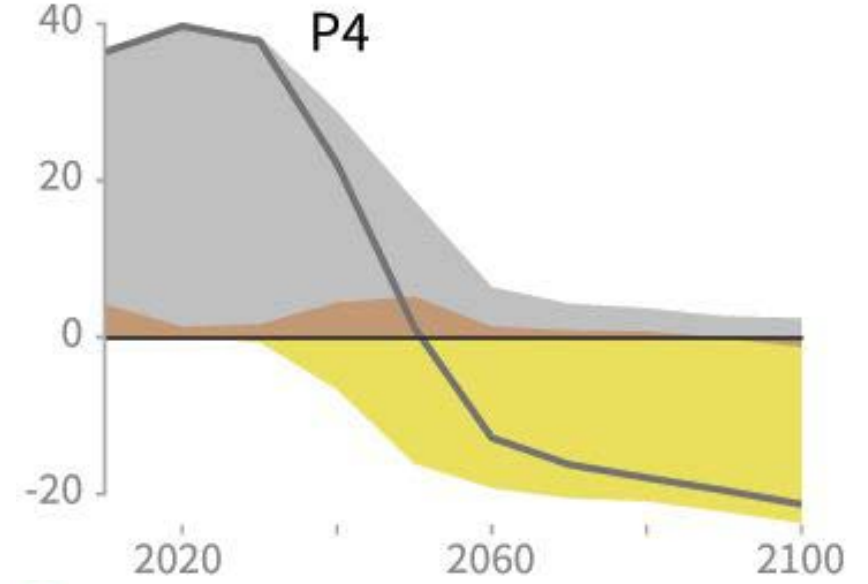
- Pathways to limit global warming:
  - Reduce net global emissions to zero before the carbon budget is reached (left)
  - Extract carbon such that there are net negative global emissions after the carbon budget is exceeded (right)

# Global Carbon Neutrality

Billion tonnes CO<sub>2</sub> per year (GtCO<sub>2</sub>/yr)



Billion tonnes CO<sub>2</sub> per year (GtCO<sub>2</sub>/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

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## 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

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- 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 (CO<sub>2</sub>e)

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

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- 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

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- 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

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- 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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