

Carbon Neutrality – Role of Industrial Sector

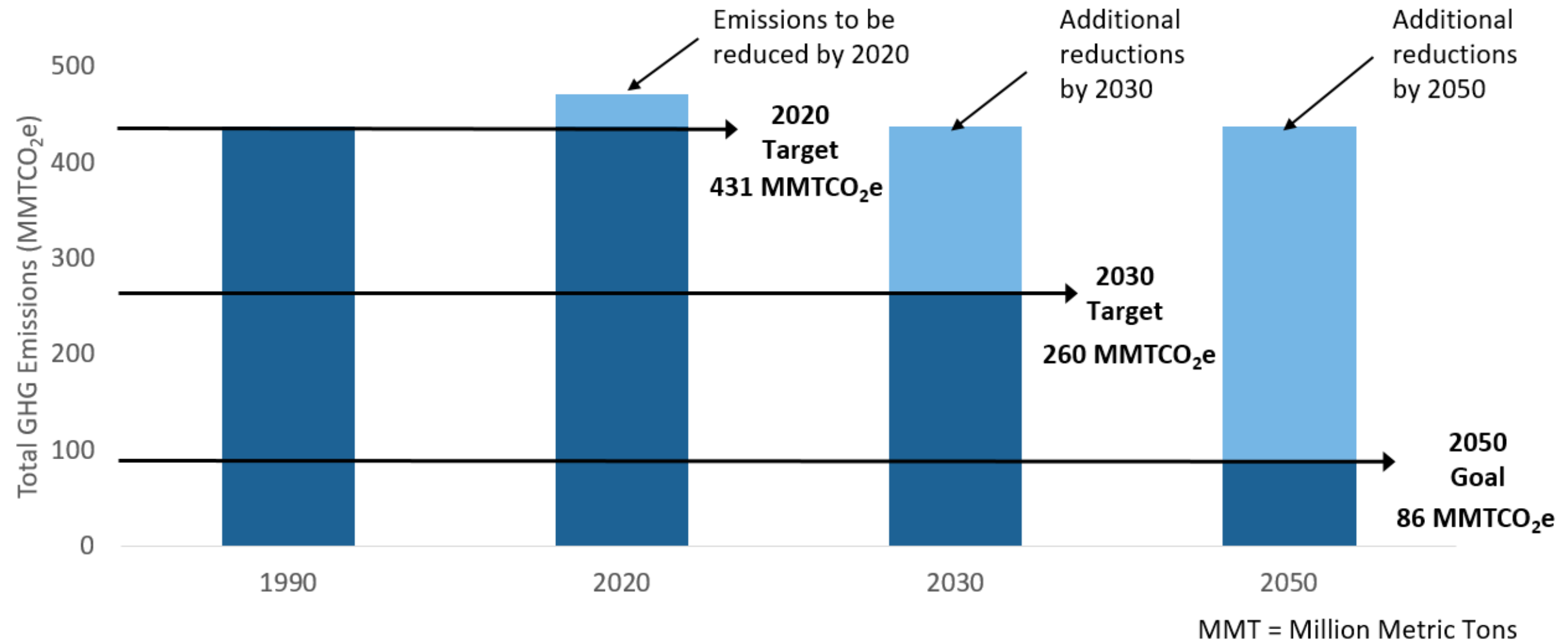
JULY 8, 2019



Webinar Logistics

- Presentation and link to submit and view informal comments: <https://ww3.arb.ca.gov/cc/scopingplan/meetings/meetings.htm>
- Webcast available: <https://video.calepa.ca.gov/>

California's GHG Emissions Reduction Targets



Source: CARB, 2018

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

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

California Carbon Neutrality (CO₂e)

Today



AB 32 GHG Inventory



Conversion

Natural & Working
Lands Inventory

Minimize emissions

Transition from source to sink

Mid-century



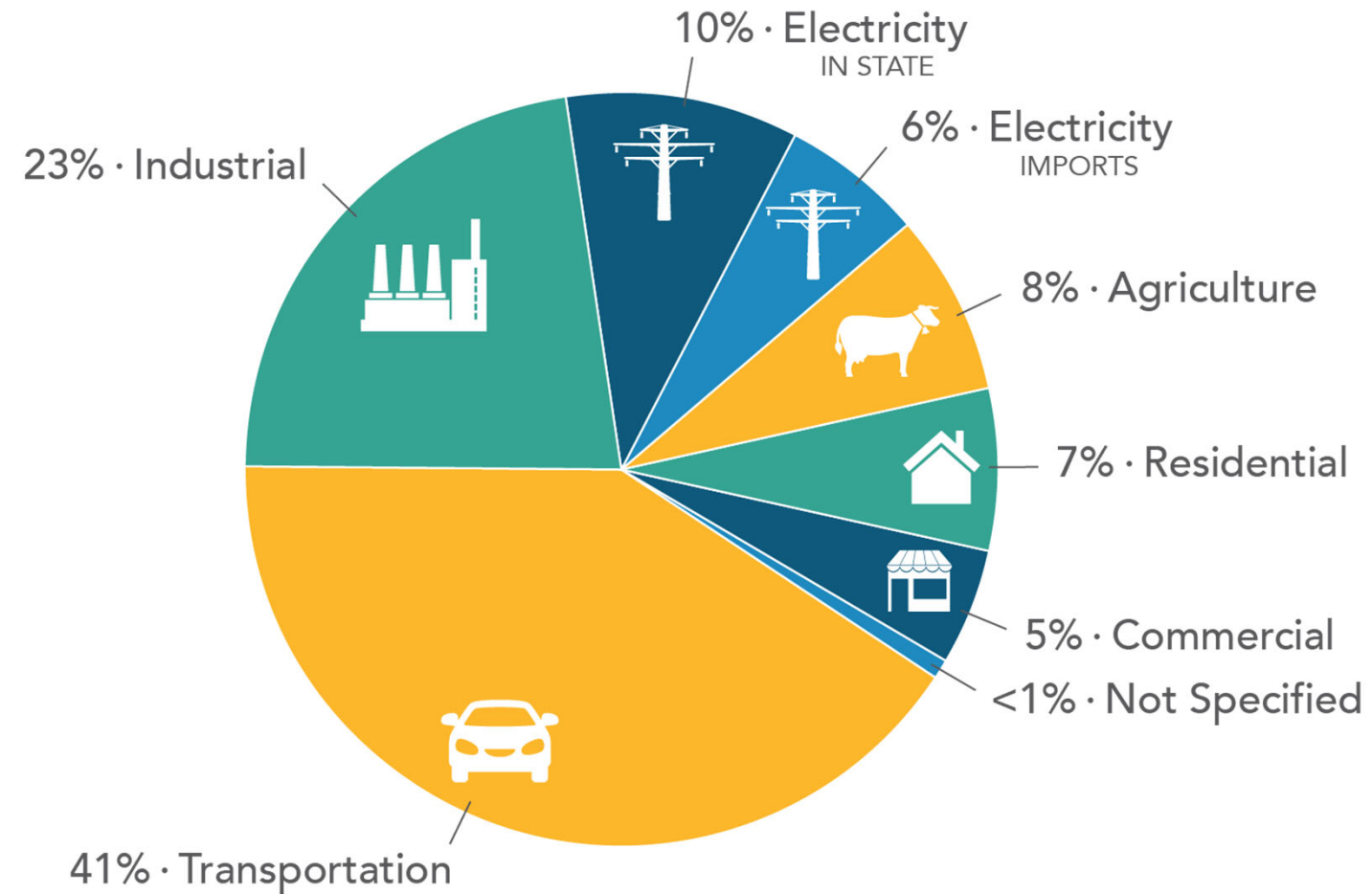
Both categories emit GHGs

No net GHG emissions

2019 Engagement

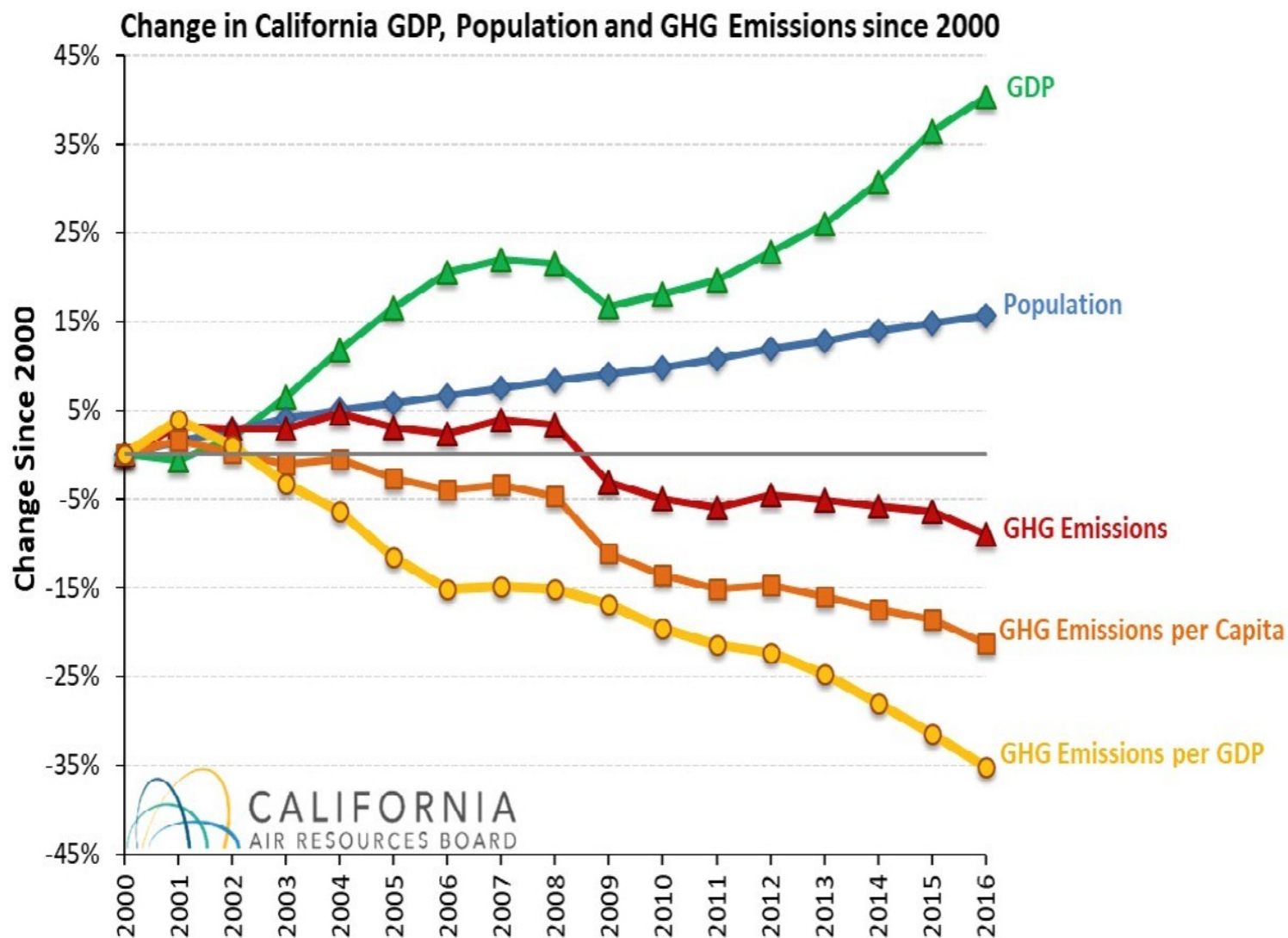
- Technical workshops to explore topic areas on achieving carbon neutrality
 - Energy demand and supply
 - Transformation across economic sectors (i.e., transportation, industrial)
 - Options and support for sequestration activities
- Continued collaboration
 - State and local agencies
 - Academics and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

California Carbon Emissions by Economic Sector



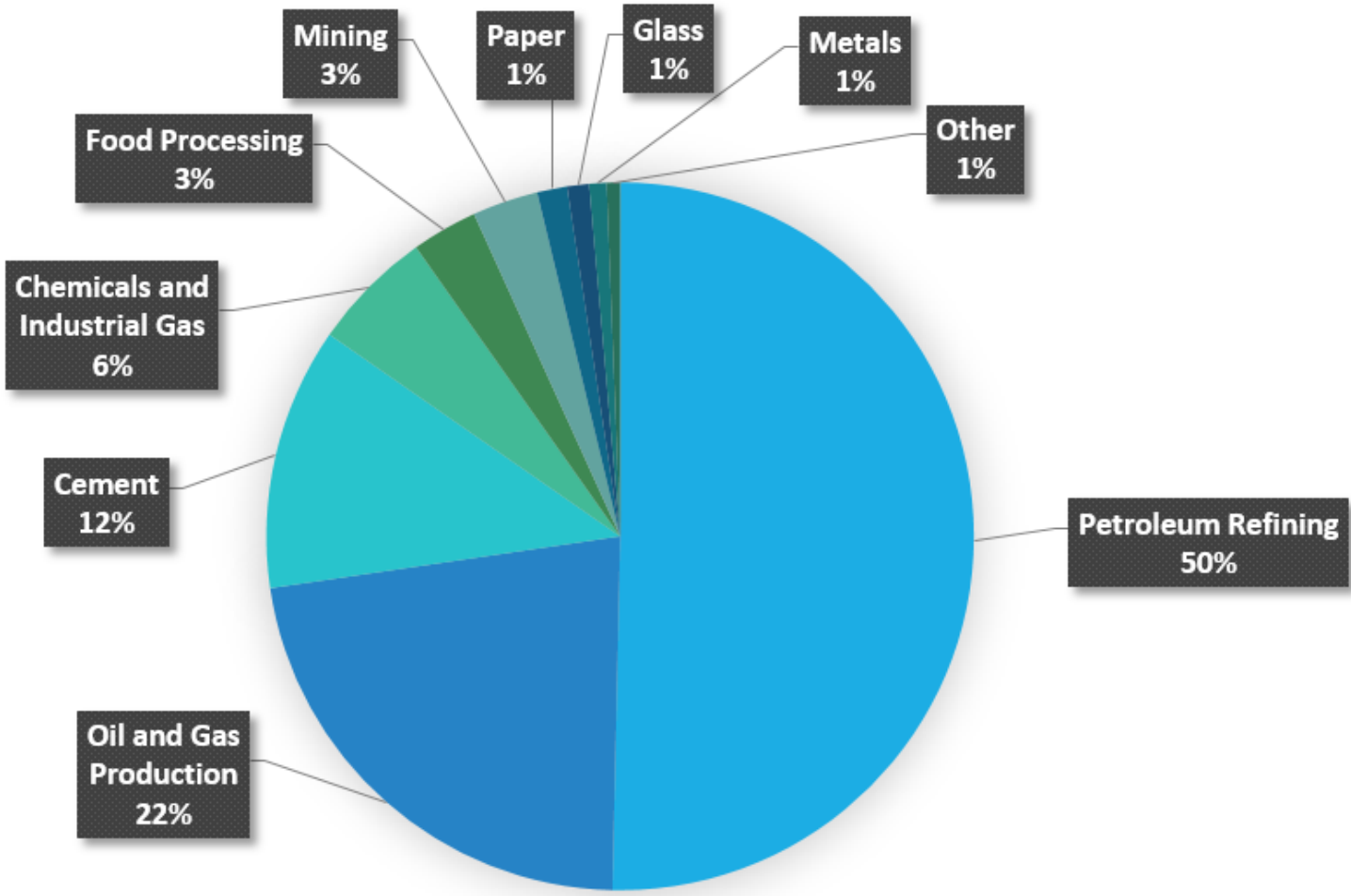
429.4 MMTCO₂e
2016 TOTAL CA EMISSIONS

California GDP, Population, and GHG Emissions Trends



Metric	Associated 2016 Value
GDP	2.3 trillion (2009 \$)
Population	39.3 million
GHG Emissions	429.35 MMTCO₂e
GHG Emissions per Capita	10.8 metric tons CO₂e per person
GHG Emissions per GDP	187 metric tons CO₂e per million dollars

Industrial Sector – Emitter Covered Emissions



Total = 63.3 MMTCO₂e

2016 Mandatory GHG Reporting

Trends in California's Industrial Sector

- Production, jobs, emissions trends in the industrial sector correlate closely with the overall economy
- Population—and therefore demand for manufactured goods—continues to grow, and this demand must be met
- California's manufacturing and industrial efficiency continues to improve
- Board Resolution 17-46 directs staff "...to continue to evaluate and explore opportunities to achieve significant cuts in greenhouse gas emissions from all sources..."

CARB Regulations

- Cap-and-Trade Regulation
 - Economy-wide carbon pricing
 - Incentivizes covered entities to reduce emissions through a steadily increasing price signal
- Low Carbon Fuel Standard Regulation
 - Reduce carbon intensity of transportation fuel pool
 - Incentivizes efficiency in the production of traditional fuels
- Oil and Gas Regulation
 - Reduces methane emissions from oil and gas production, processing, storage, and transmission
 - Requires regulated entities to limit intentional (vented) and unintentional (leaked or fugitive) emissions
- Regulation for Energy Efficiency and Co-Benefits Assessment of Large Industrial Facilities
 - One-time energy efficiency assessment of the largest industrial sources to determine potential GHG, criteria, and toxic emissions reduction opportunities

Incentive Mechanisms

- Cap-and-Trade Program industrial allowance allocation incentivizes more efficient production
- California Climate Investments (CCI)
 - Food Processor Investment Program
- Utility programs to reduce industrial GHG emissions
 - Equipment upgrades
 - Energy efficiency programs
 - Custom rebates

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
