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

- **1990**: Total GHG Emissions (MMTCO₂e)
- **2020**: Target 431 MMTCO₂e
- **2030**: Target 260 MMTCO₂e
- **2050**: Goal 86 MMTCO₂e

**Emissions to be reduced by 2020**

**Additional reductions by 2030**

**Additional reductions by 2050**

**Source**: CARB, 2018

**MMT = Million Metric Tons**
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

Sources = Sinks

Carbon Neutrality by 2045

Reduce fossil energy and NWL emissions; evaluate potential sinks
Importance of 1.5 °C

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

Source: CARB, 2017: California’s 2017 Climate Change Scoping Plan
California Carbon Neutrality (CO$_2$e)

**Today**
- AB 32 GHG Inventory
- Conversion: Natural & Working Lands Inventory

Both categories emit GHGs

**Minimize emissions**

**Mid-century**
- No net GHG emissions

**Transition from source to sink**
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

- 23% · Industrial
- 22% · Residential
- 10% · Electricity IN STATE
- 6% · Electricity IMPORTS
- 8% · Agriculture
- 7% · Commercial
- <1% · Not Specified
- 41% · Transportation

429.4 MMTCO$_2$e
2016 TOTAL CA EMISSIONS
California GDP, Population, and GHG Emissions Trends

Change in California GDP, Population and GHG Emissions since 2000

<table>
<thead>
<tr>
<th>Metric</th>
<th>Associated 2016 Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
<td>2.3 trillion (2009 $)</td>
</tr>
<tr>
<td>Population</td>
<td>39.3 million</td>
</tr>
<tr>
<td>GHG Emissions</td>
<td>429.35 MMTCO₂e</td>
</tr>
<tr>
<td>GHG Emissions per Capita</td>
<td>10.8 metric tons CO₂e per person</td>
</tr>
<tr>
<td>GHG Emissions per GDP</td>
<td>187 metric tons CO₂e per million dollars</td>
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</tbody>
</table>
Industrial Sector – Emitter Covered Emissions

Total = 63.3 MMTCO$_2$e

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
Thank You