Session 1: Statutory Requirements for Dairy Methane Emissions Reductions

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Short-Lived Climate Pollutants (SLCP)

- SLCPs include potent greenhouse gases (methane and hydrofluorocarbons) and black carbon, all of which have relatively short atmospheric lifetimes.

- Major methane sources in California
  - Dairy and livestock
  - Landfilled organic waste
  - Oil and gas operations
Short-Lived Climate Pollutants Policy Framework: Methane Emissions Reductions

- Senate Bill (SB) 605 (Lara, 2014) required CARB to develop a comprehensive SLCP Reduction Strategy, and SB 1383 (Lara, 2016) required CARB to adopt and begin implementing the Strategy.

- SB 1383 also requires the State to reduce methane emissions:
  - Reduce total methane emissions 40 percent below 2013 levels by 2030.
  - Reduce dairy and livestock methane emissions 40 percent below 2013 levels by 2030.

- The SLCP Reduction Strategy is California's plan to reduce SLCP emissions while providing environmental & economic benefits.
California Greenhouse Gas and Methane Emissions

2013 Total GHG Emissions: ~460 MMTCO₂e

2013 Emissions* by Greenhouse Gas
- Carbon Dioxide - 84%
- Methane - 9%
- Nitrous Oxide - 3%
- High Global Warming Potential Gases - 4%

2013 Methane* Emissions
- 25% Dairy Manure (10 MMTCO₂e)
- 20% Dairy Enteric (8 MMTCO₂e)
- 10% Non-Dairy Livestock (primarily enteric) (4 MMTCO₂e)
- 45% All Other Sources (18 MMTCO₂e)

*100-yr global warming potential
Additional SB 1383 Dairy and Livestock Requirements

• Work with stakeholders to address technical, market, and other barriers to development of dairy methane emissions reduction projects; and conduct research on dairy methane emissions reductions (achieved through Working Group process)

• Develop Low Carbon Fuel Standard Pilot Financial Mechanism and environmental credit generation guidance

• Consider emissions reduction protocols

• Select at least 5 dairy biomethane pipeline injection pilot projects (California Public Utilities Commission)

• Report on Analysis of Progress toward Achieving the 2030 Dairy and Livestock Sector Methane Emissions Target

• Develop and begin implementing manure methane regulation on or after January 1, 2024
At current project levels, the State is not on track to achieve the 40 percent reduction by 2030.
SB 1383 2030 Emissions Reduction Targets May Require More Aggressive Action

- Methane Reductions
- HFC Reductions
- Anthropogenic Black Carbon

GHG Emissions (MMTCO$_2$e)

- 2013 Baseline
- 2030 Target
- 2030 Current Trajectory (estimate)
Methane Reductions Important for California Climate Strategy

*Preliminary modeling results from 2022 Scoping Plan Process

Emissions shown after CCS, before CDR
Manure Management Regulation Must:

- Be technically feasible
- Be economically feasible
- Consider electrical interconnection and access to natural gas pipelines
- Be cost effective
- Minimize emissions leakage
- Evaluate incentive-based achievements

Enteric Fermentation Emissions Reductions Must:

Be incentive-based unless...

- Cost effective
- Scientifically proven
- Do not damage animal productivity, animal and public health, and consumer acceptance