Session 1: Statutory Requirements for Dairy Methane Emissions Reductions

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Short-Lived Climate Pollutants (SLCP)

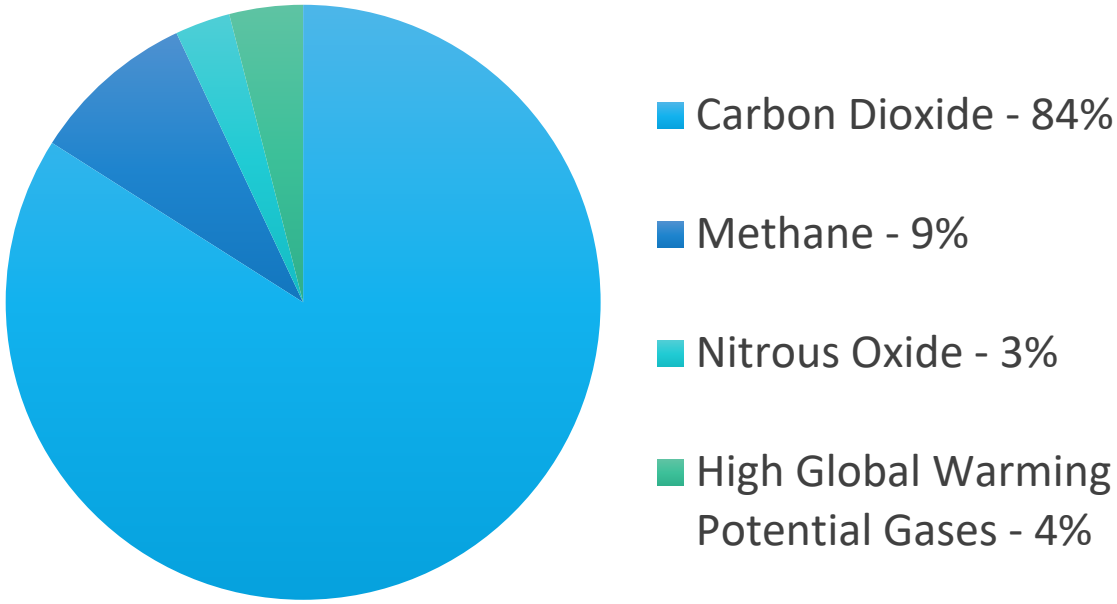
- SLCPs include potent greenhouse gases (methane and hydrofluorocarbons) and black carbon, all of which have relatively short atmospheric lifetimes.
  - Major methane sources in California
    - Dairy and livestock
    - Landfilled organic waste
    - Oil and gas operations

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

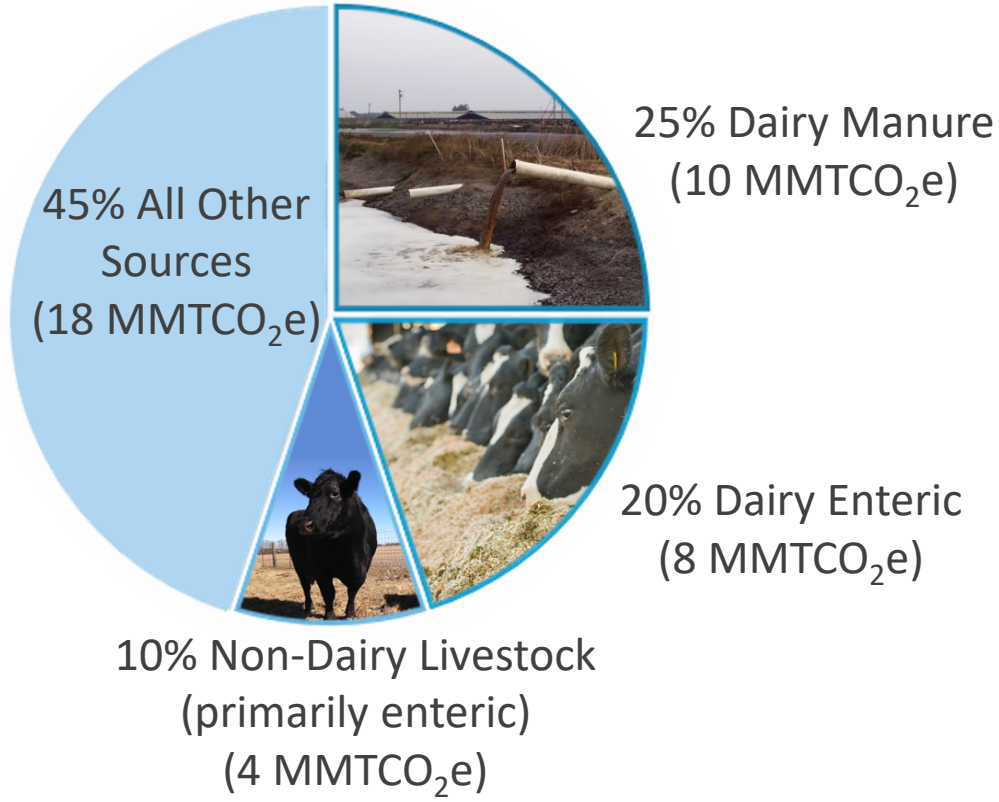
California Greenhouse Gas and Methane Emissions

2013 Emissions* by Greenhouse Gas



2013 Total GHG Emissions: ~460 $MMTCO_2e$

2013 Methane* Emissions

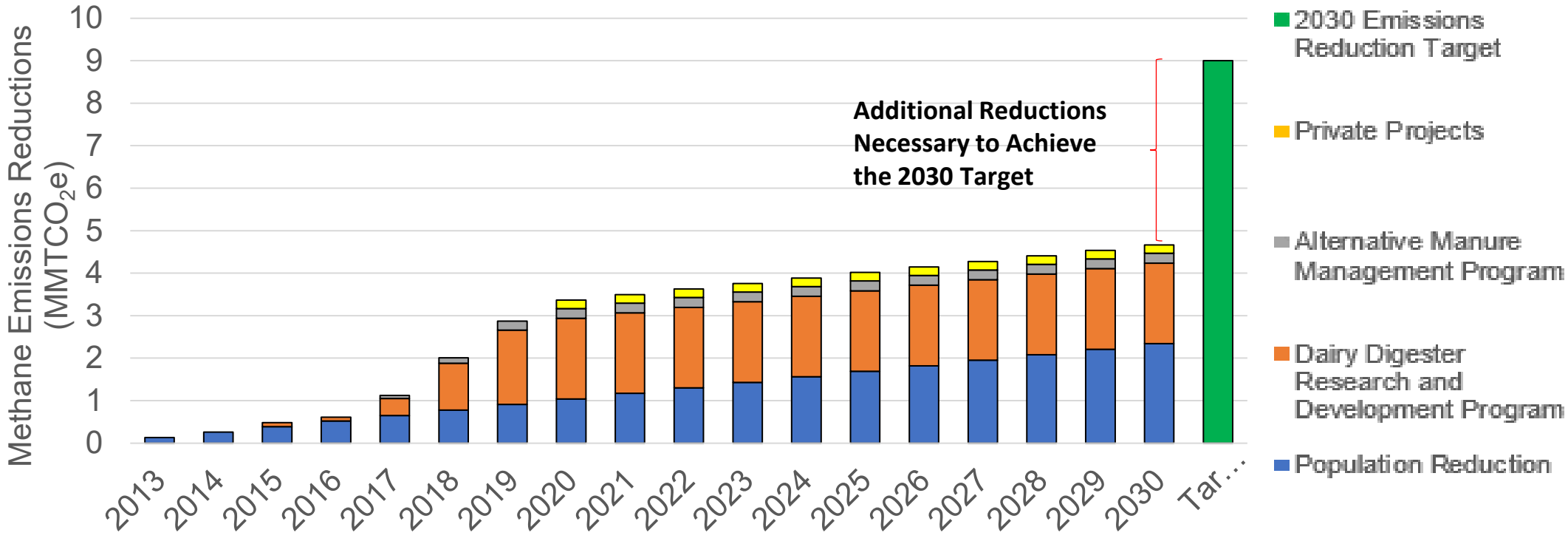


**100-yr global warming potential*

Additional SB 1383 Dairy and Livestock Requirements

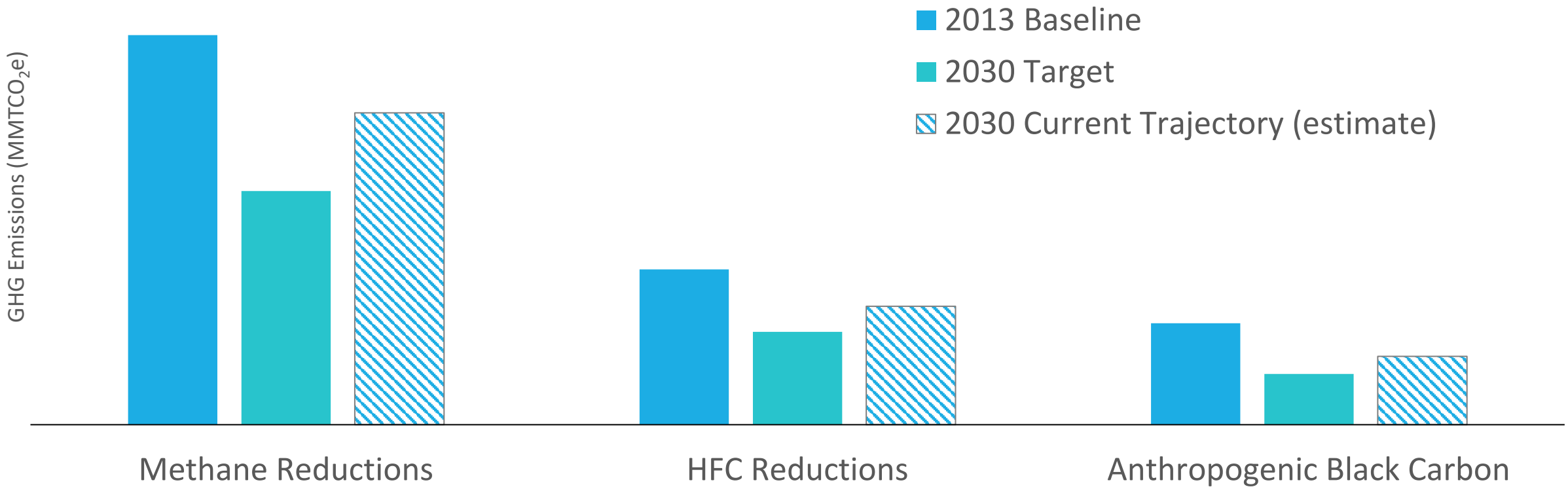
- Work with stakeholders to addresses technical, market, and other barriers to development of dairy methane emissions reduction projects; and conduct research on dairy methane emissions reductions (achieved through Working Group process)
- Develop Low Carbon Fuel Standard Pilot Financial Mechanism and 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

Analysis of Progress toward the 2030 Dairy and Livestock Emissions Target

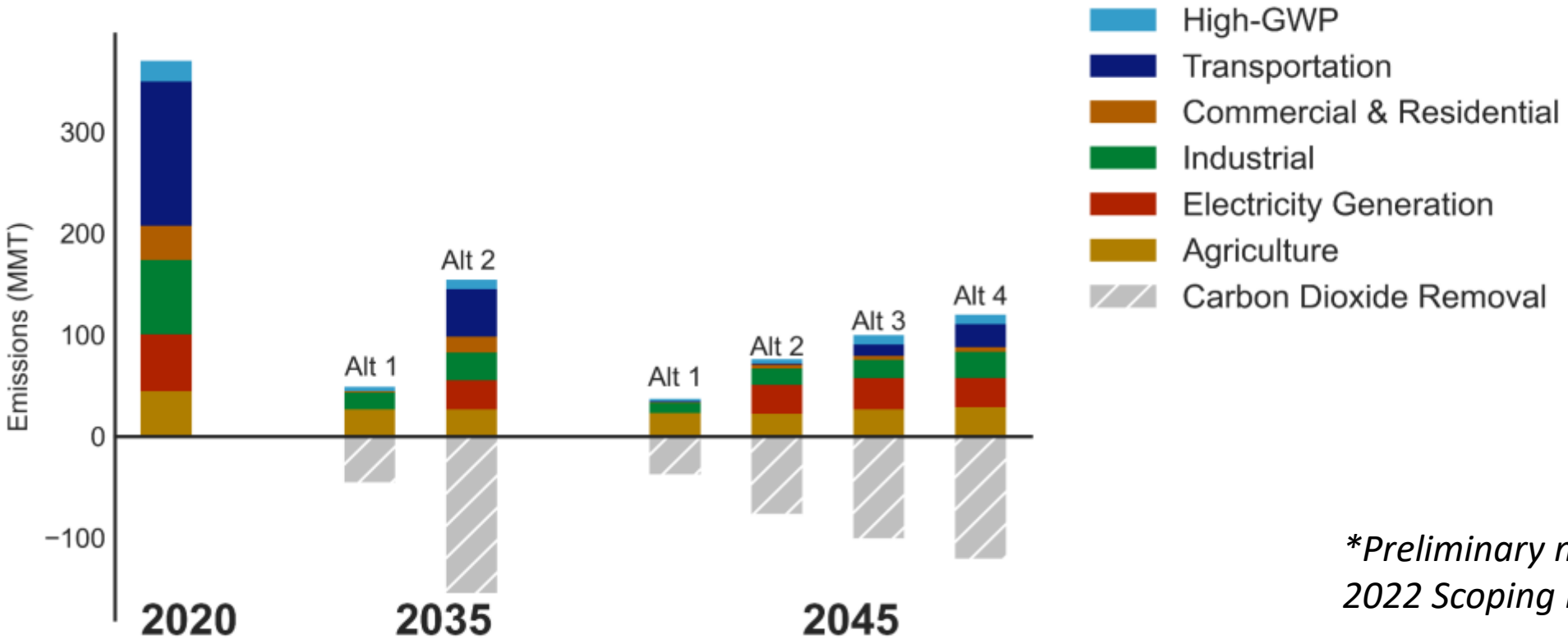


At current project levels, the State is not on track to achieve the 40 percent reduction by 2030

SB 1383 2030 Emissions Reduction Targets May Require More Aggressive Action



Methane Reductions Important for California Climate Strategy



**Preliminary modeling results from 2022 Scoping Plan Process*

Emissions shown after CCS, before CDR

SB 1383 Requirements for Dairy and Livestock Sector Methane Emissions Reductions/Regulations

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