

Video Location

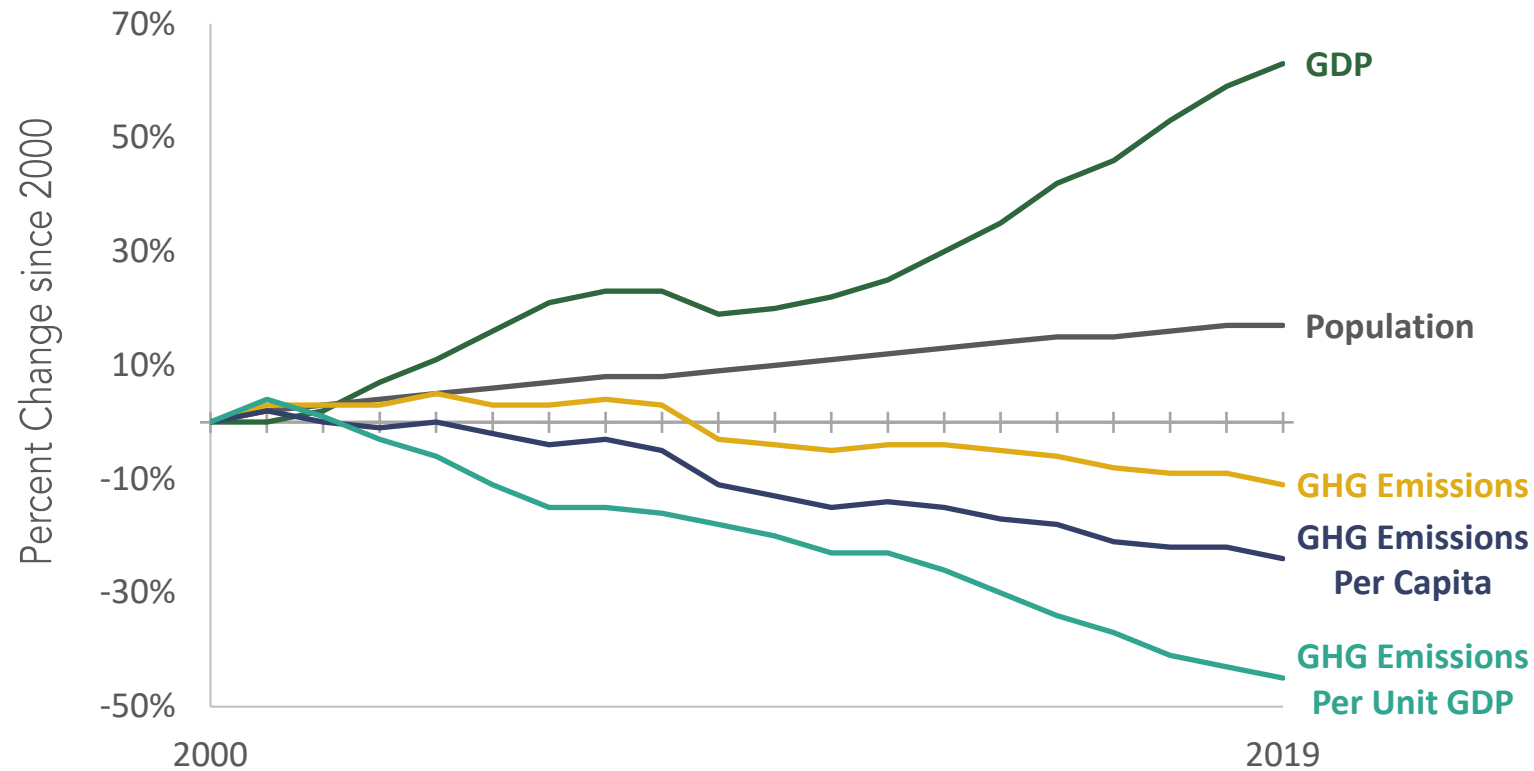
CALIFORNIA'S LOW CARBON FUEL STANDARD



Cheryl Laskowski
August 25, 2021

The California context

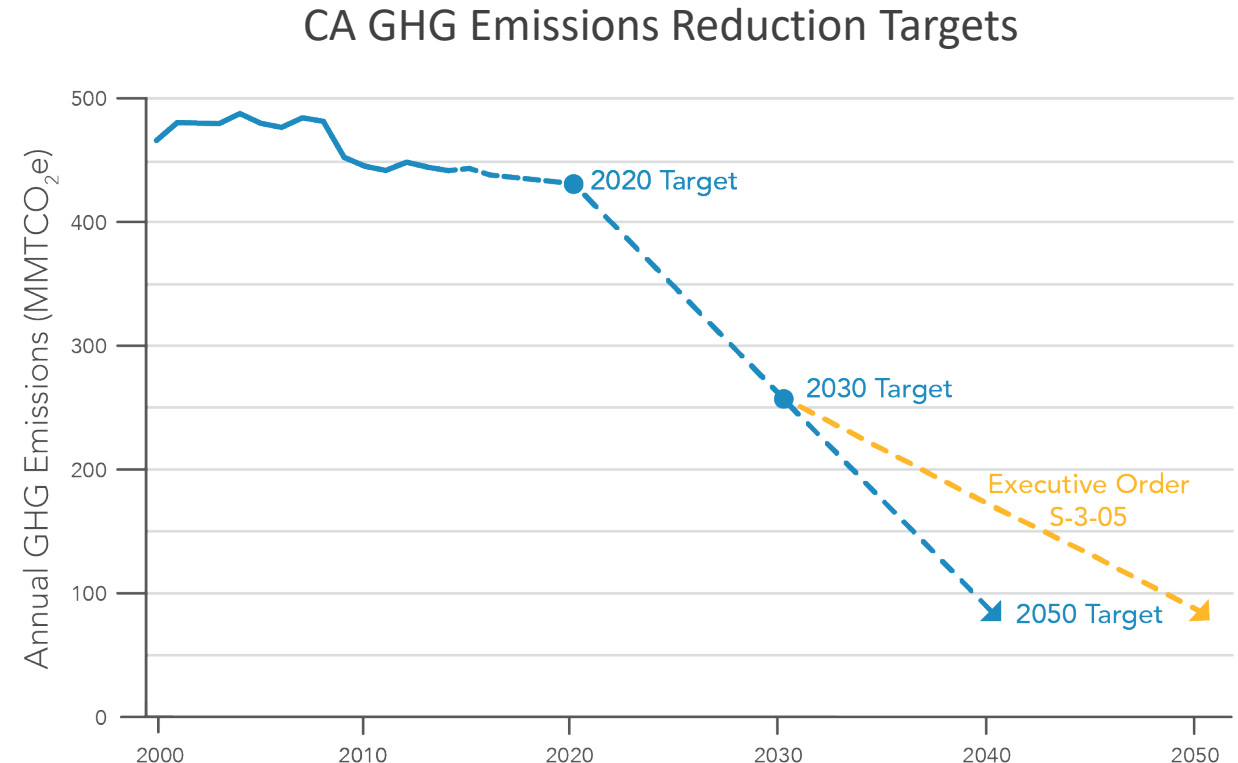
California's Trends



Source: 2021 Edition, California Greenhouse Gas Emission Inventory: 2000-2019

Taking Action on Climate Change

- California legislation requires GHG emission reductions in CA
- Scoping Plans are action plans to ensure CA meets statewide GHG reduction targets
- Next Scoping Plan will chart path to carbon neutrality by 2045
- CARB develops and implements programs identified in the Scoping Plan to reduce GHGs emissions



CARB's Climate Portfolio for 2030 Target



Double building efficiency



More clean, renewable fuels



Cleaner zero or near-zero emission cars, trucks, and buses



Walkable/bikeable communities with transit



Cleaner freight and goods movement



60% renewable power



Slash potent "super-pollutants" from dairies, landfills and refrigerants



Cap emissions from transportation, industry, natural gas, and electricity

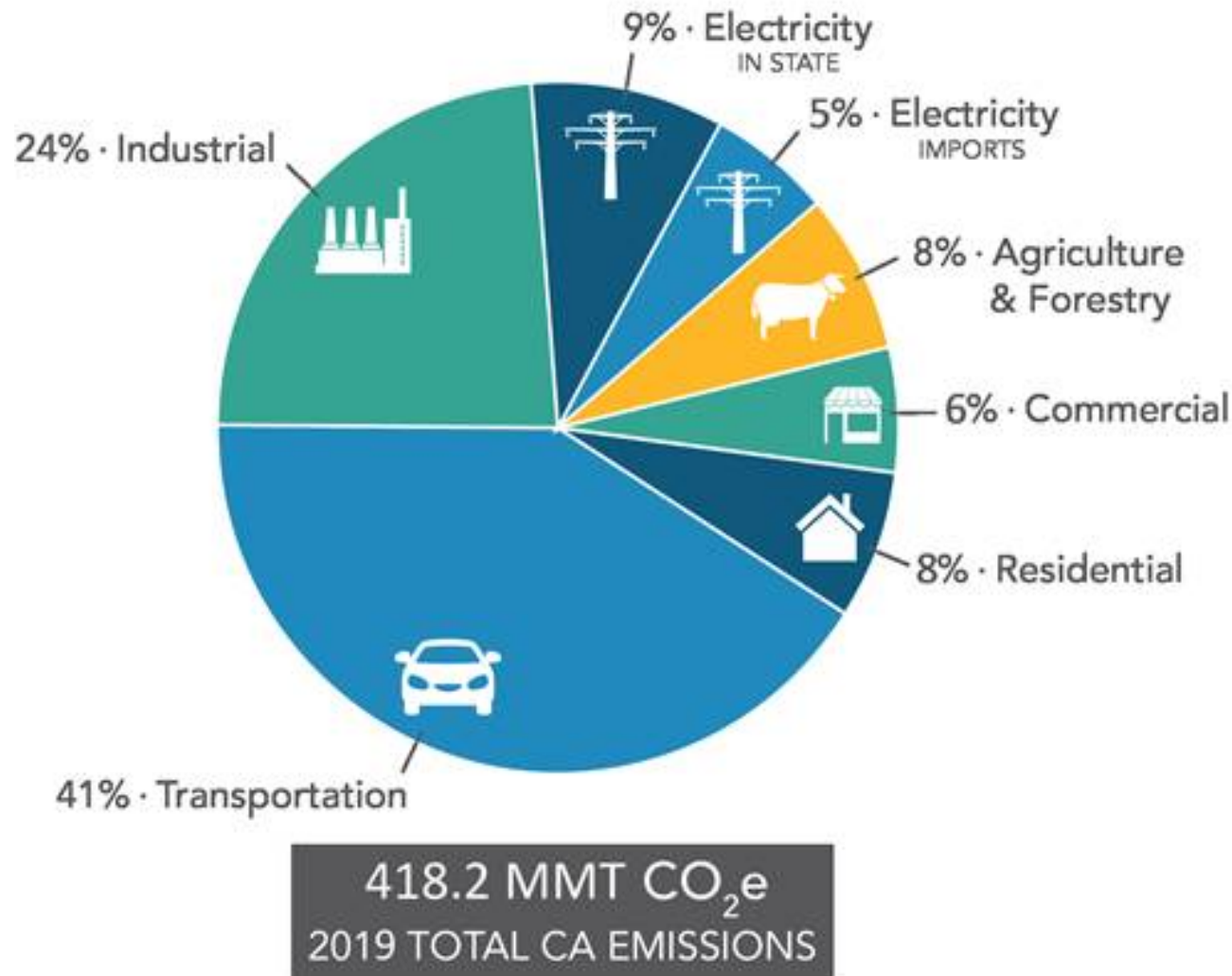


Invest in communities to reduce emissions



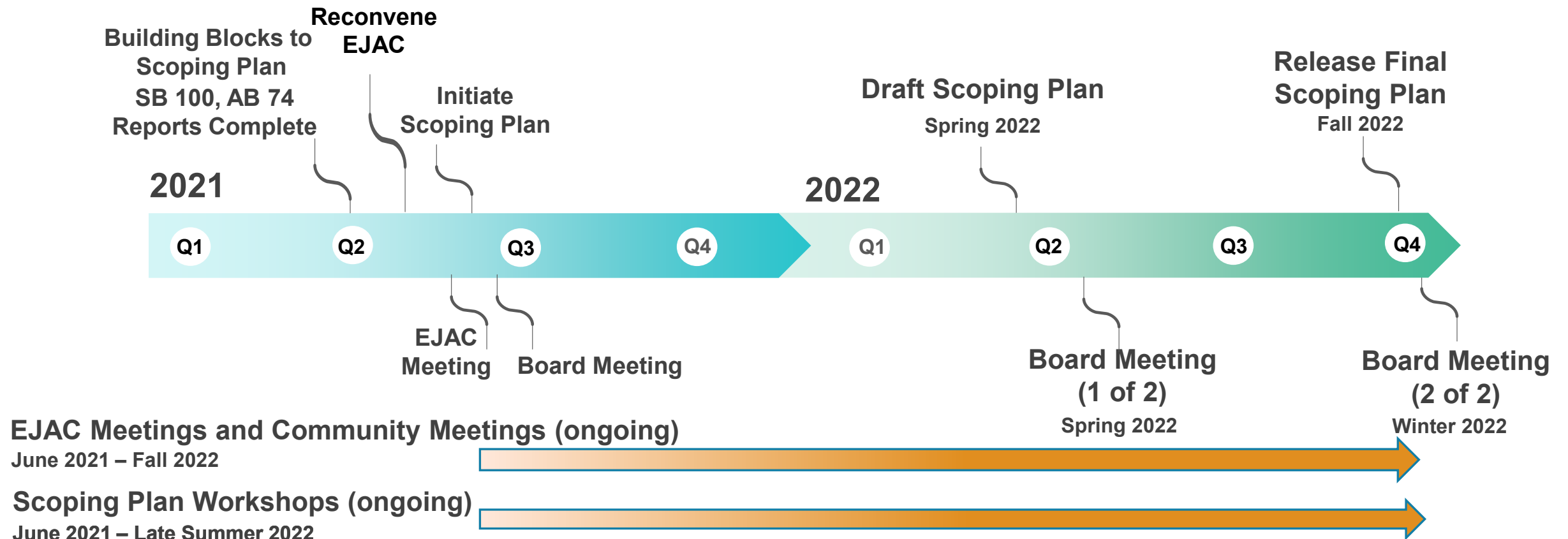
Protect and manage natural and working lands

California's GHG Emissions



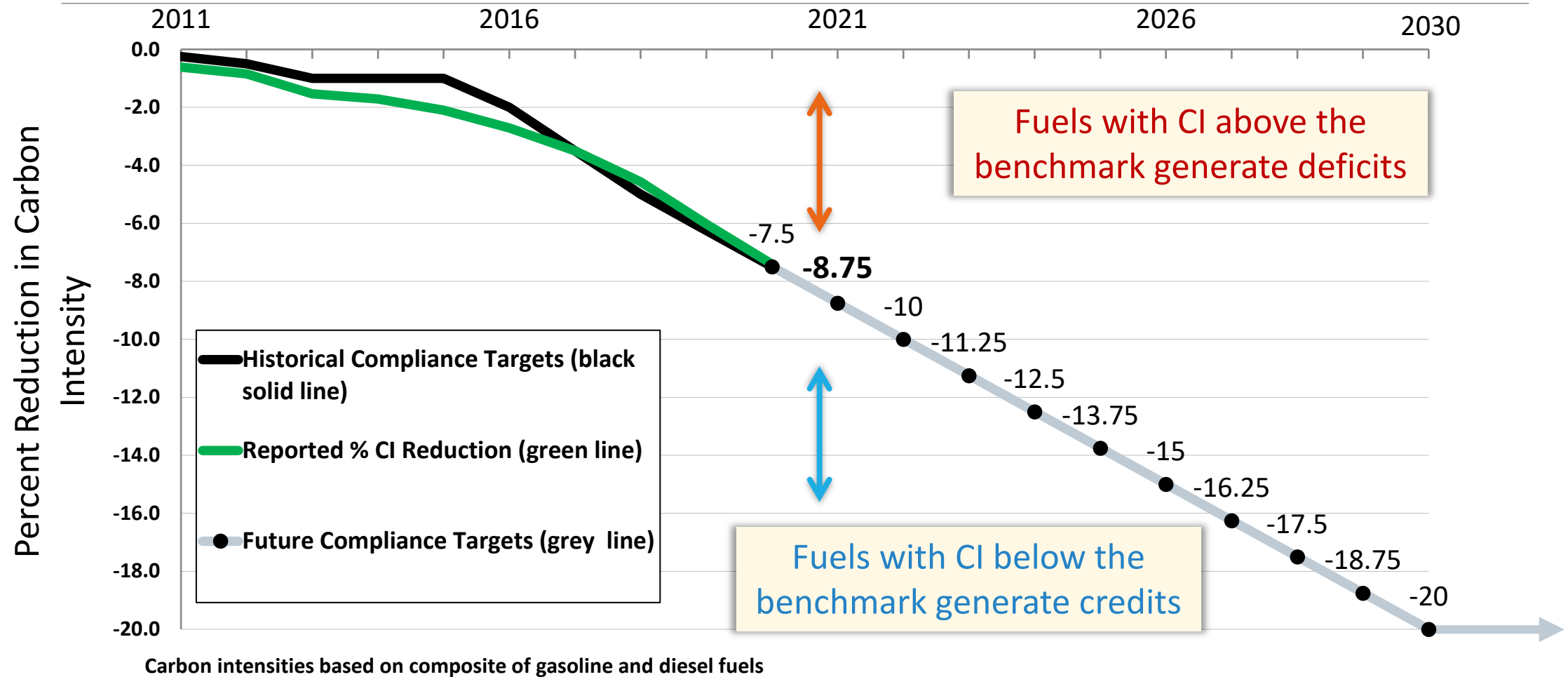
Transportation sector accounts for 50% of State's GHG inventory when industrial emissions from refining and oil production are included

2022 Scoping Plan Update Schedule



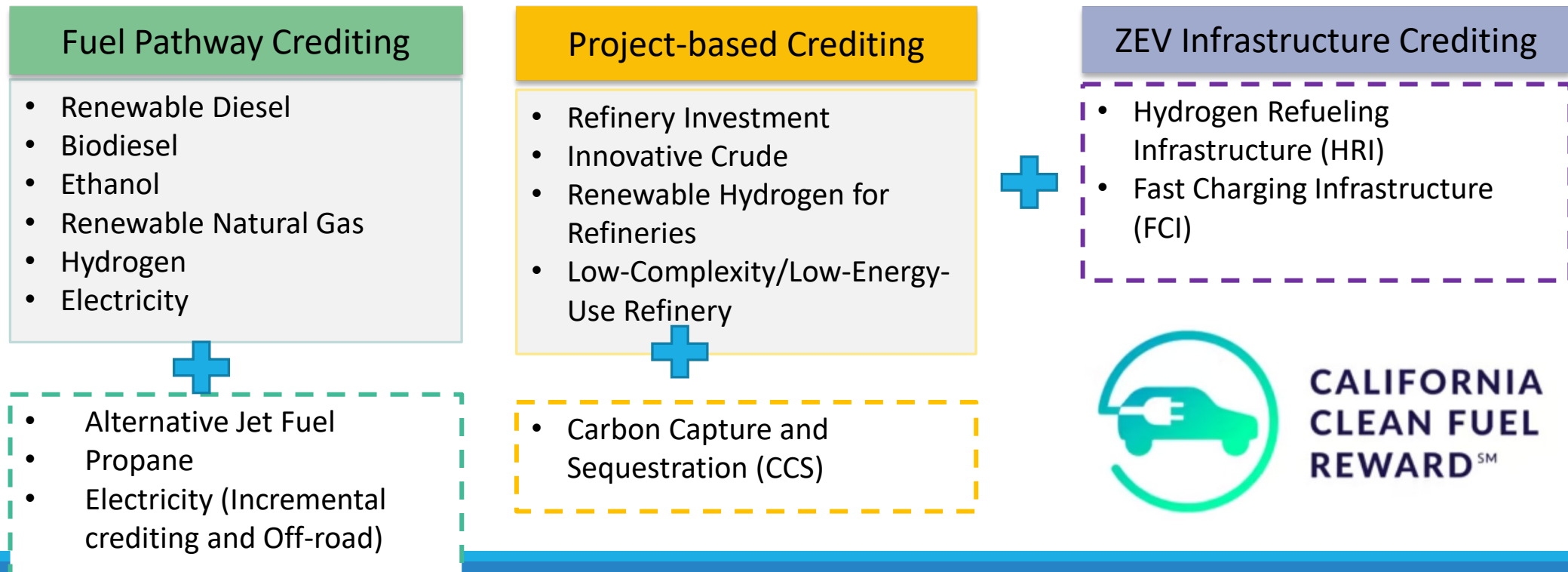
LCFS history and mechanics

How LCFS Works – Credit and Deficit Generation



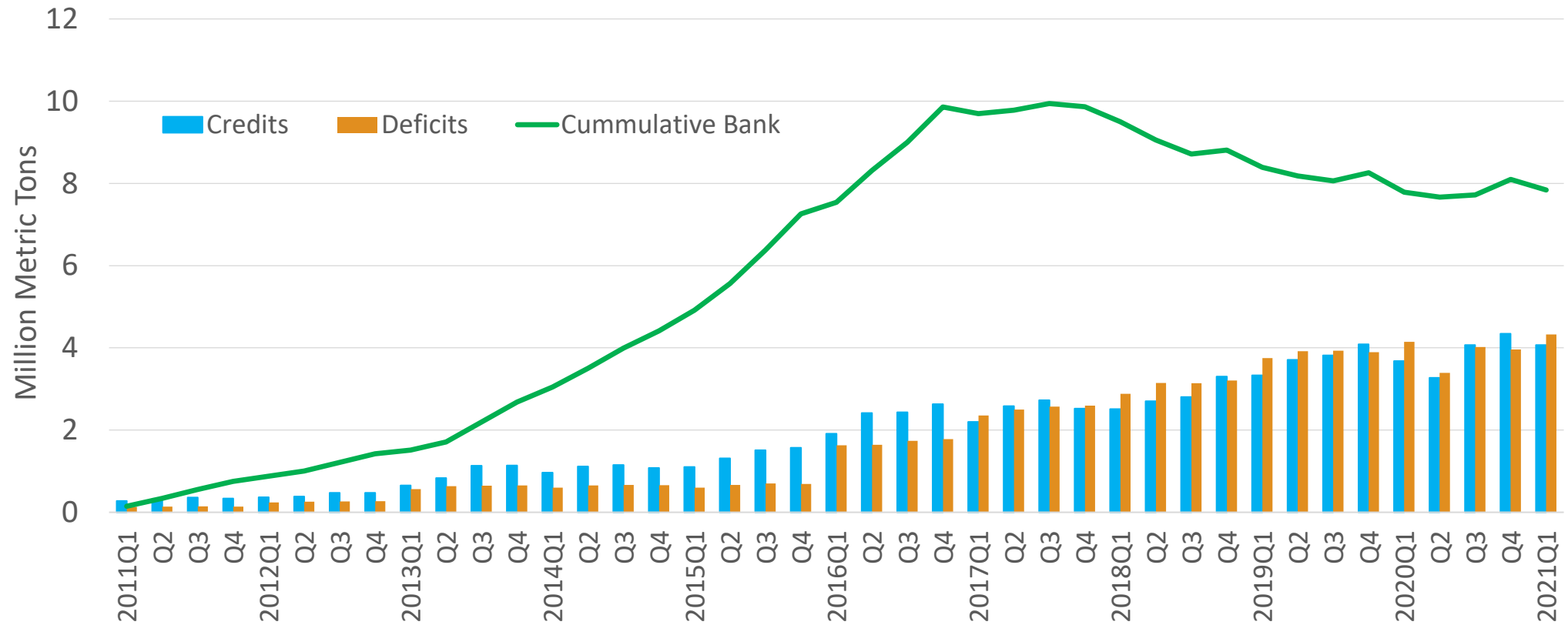
LCFS Program – Updates to Reflect Progress

- Established a 2030 target of 20% reduction in carbon intensity
- LCA models revised; third-party verification requirements added
- Additional crediting opportunities, price cap

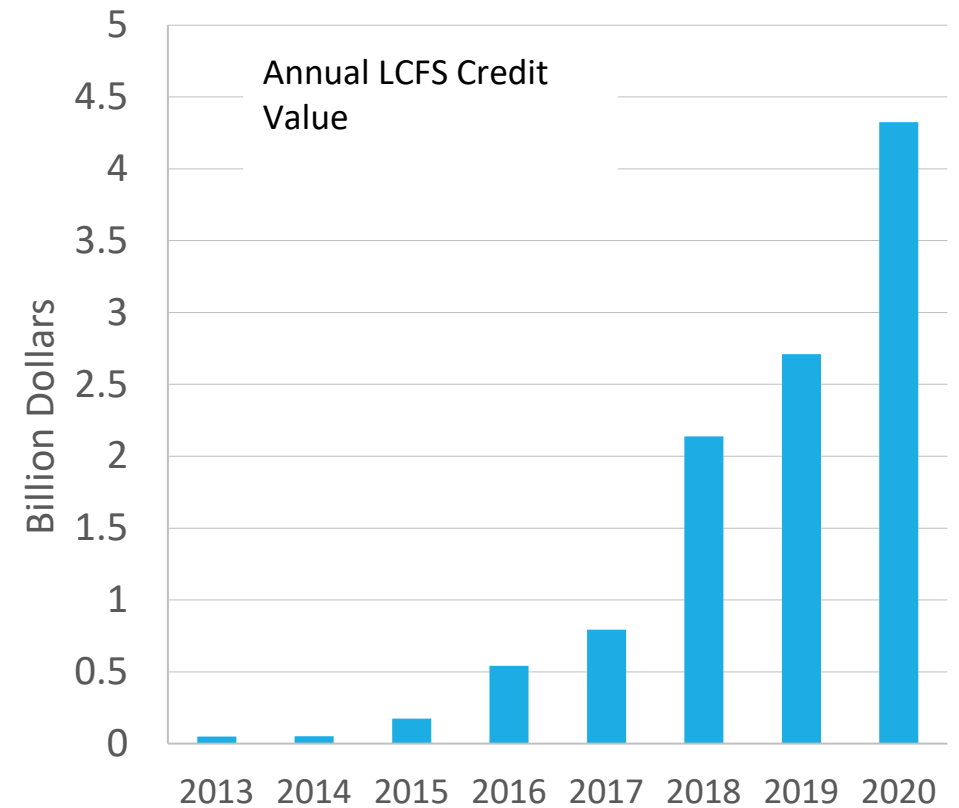
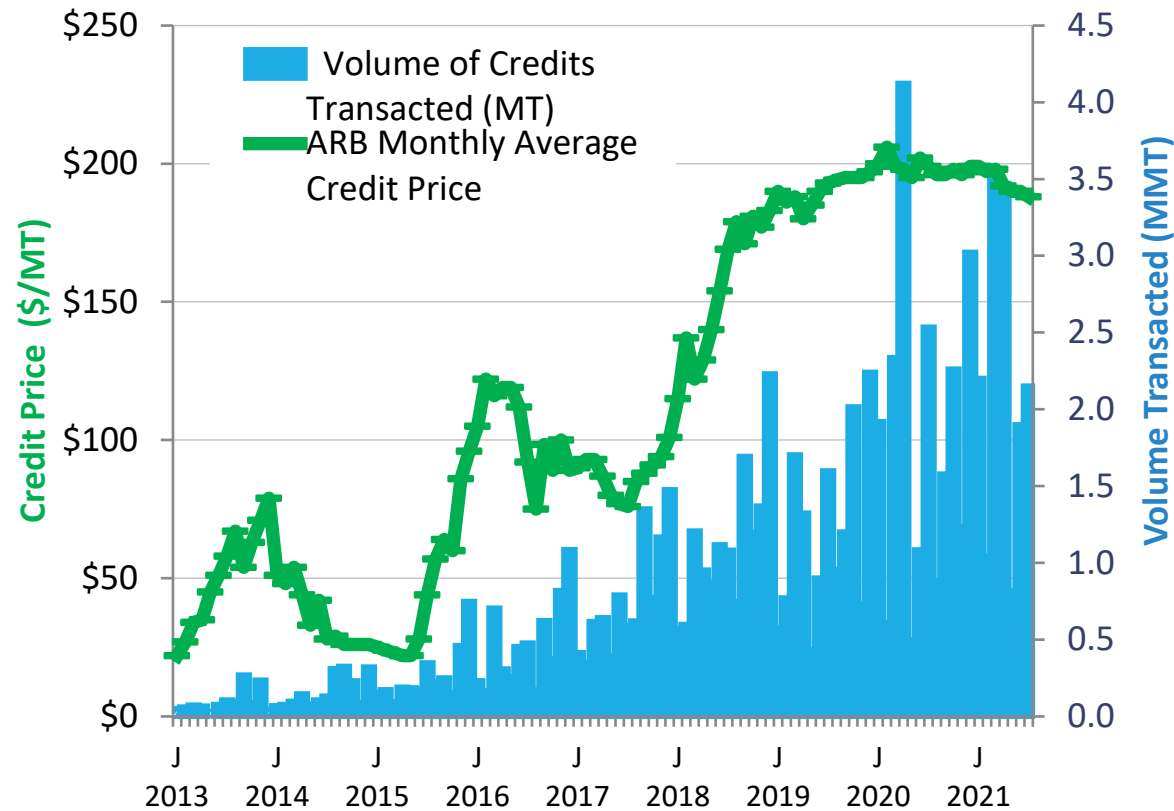


Progress to date

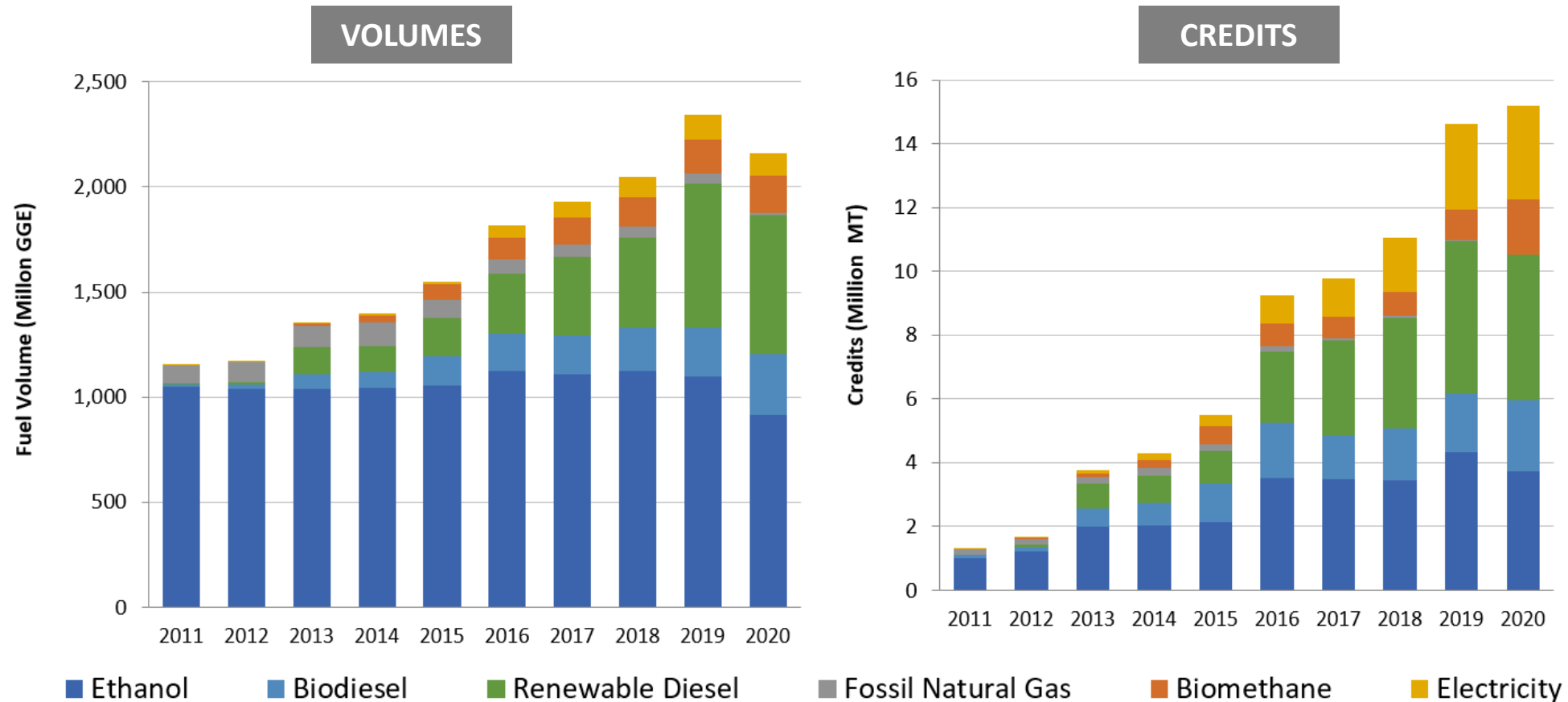
LCFS Credits and Deficits



LCFS Promotes Investment in Low Carbon Fuels



Alternative Fuel Volumes and Credits



LCFS Supports Zero Emission Transportation

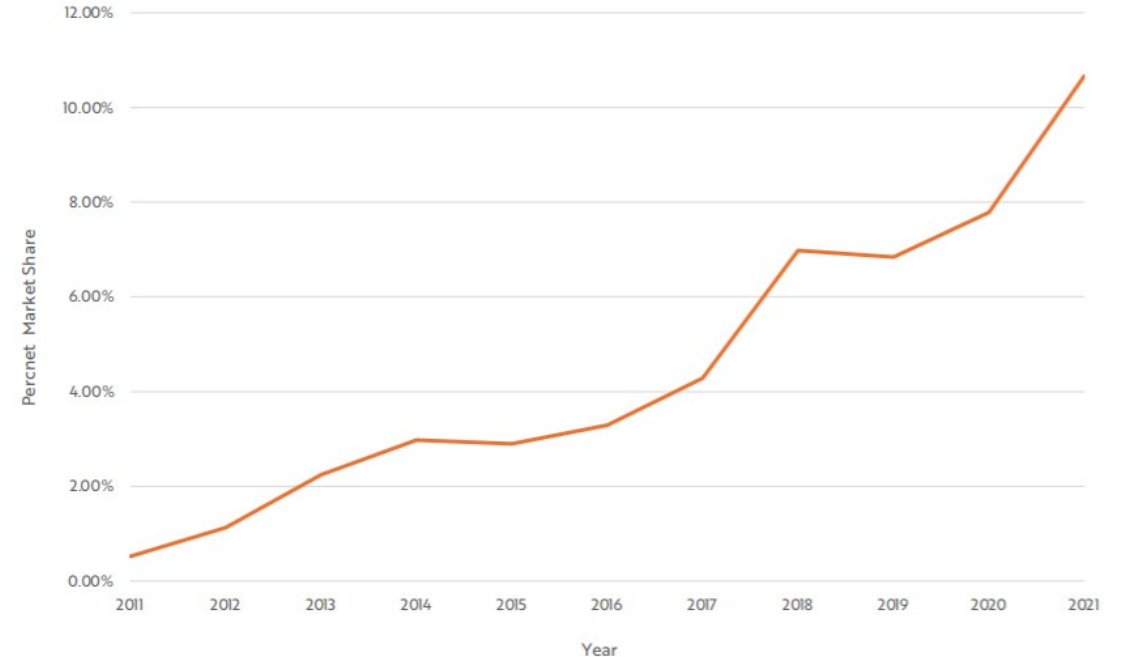
On-road and off-road crediting

Vehicle electrification is accelerating

- Executive Order N-79-20
 - LDV: 100% ZEV sales by 2035
 - MDV/HDV: 100% ZEV fleets by 2045
 - Off-road: 100% ZEV fleets by 2045, where feasible

VELOZ®

California Electric Vehicle Market Share Increases Over Time



Note: CA sales are 39% of national sales.
Data Source: California Energy Commission (2021).
Retrieved August 3, 2021 from <http://www.energy.ca.gov/zevstats>

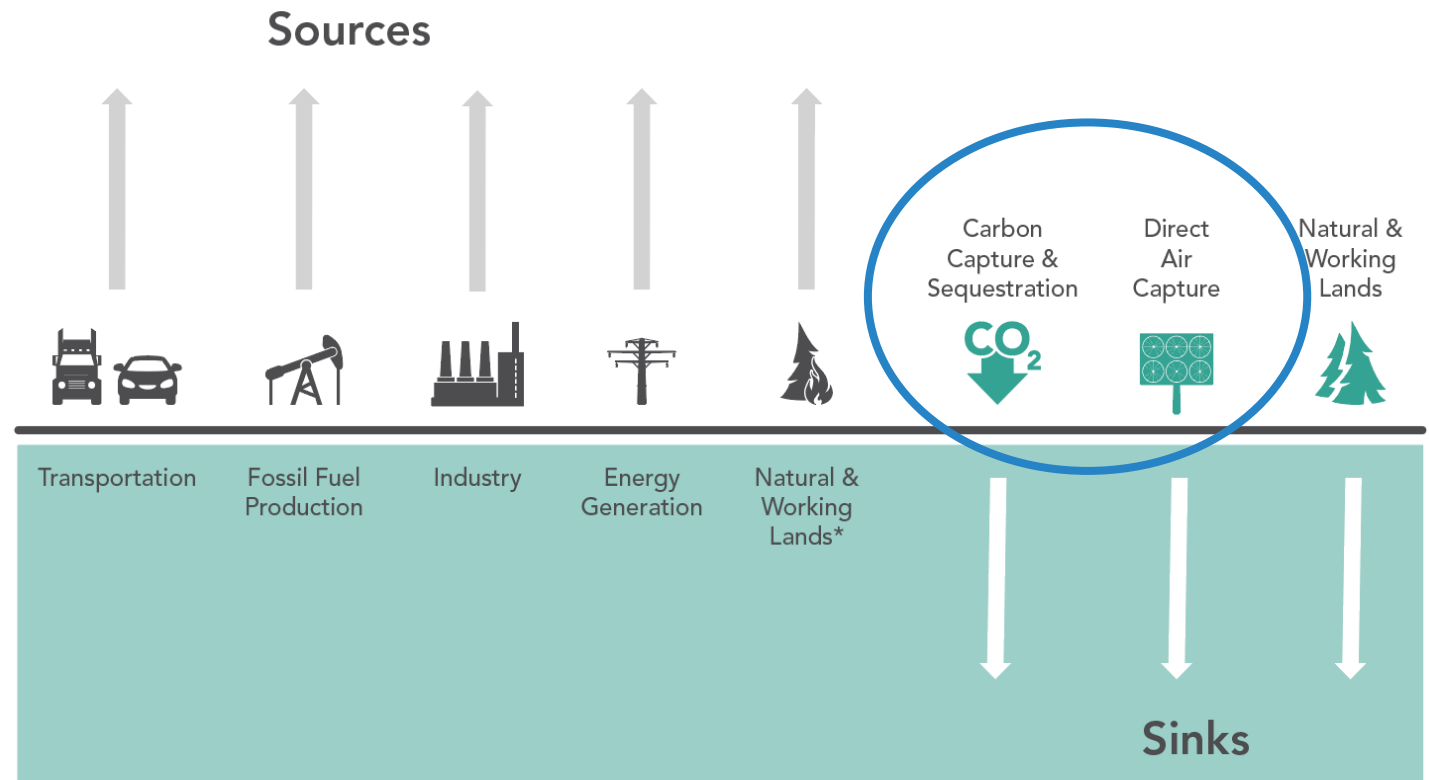
Q2 2021 Data Update.

Carbon Capture and Sequestration (CCS)

CCS is critical to achieve Carbon Neutrality

CCS Protocol allows LCFS credit generation for:

- Production of low-carbon alternative fuels (e.g. hydrogen, ethanol)
- Projects at crude oil extraction operations and refineries
- Direct air capture and sequestration projects



*Natural and working land emissions come from wildfires, disease, land and ag management practices, and others

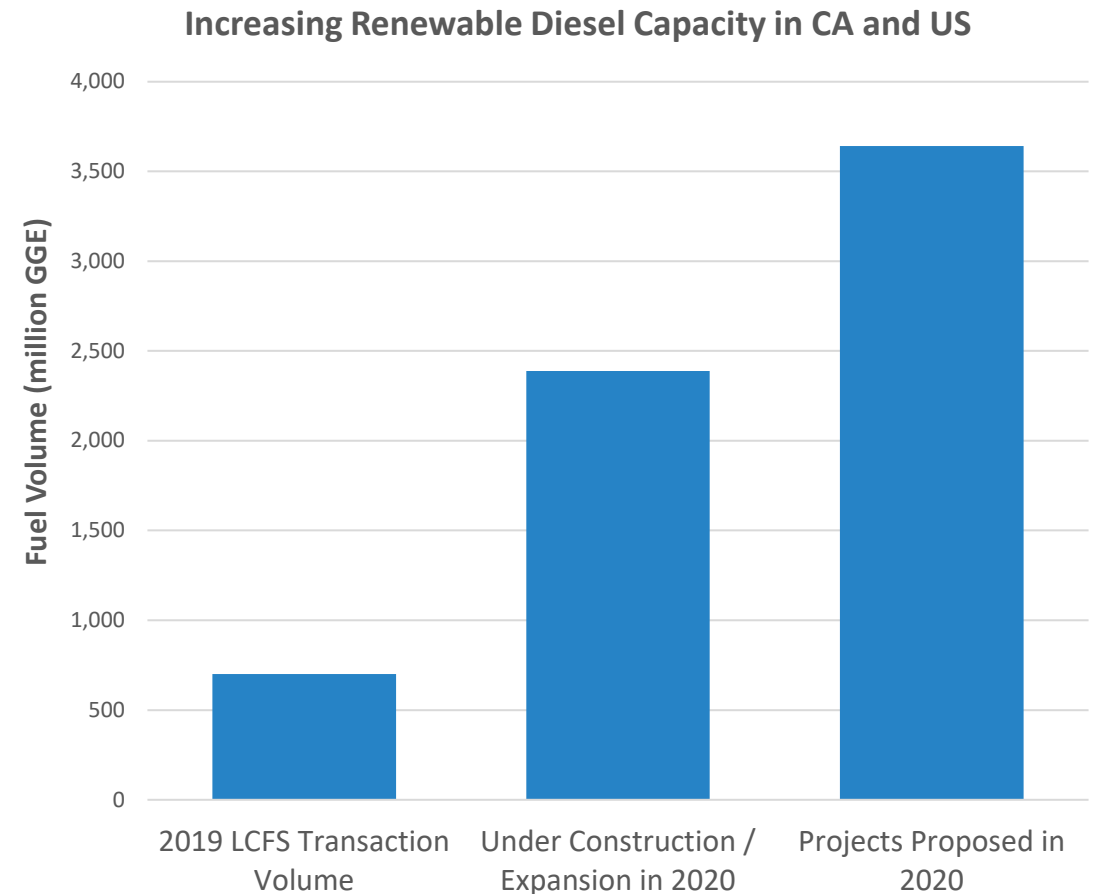
Alternative Jet Fuel

- Alternative Jet Fuel added as an opt-in fuel and starting 2019 eligible for LCFS credits
- Fossil-based conventional jet fuel not subject to the LCFS and does not accrue deficits
- Investment and interest in alternative jet fuel is increasing

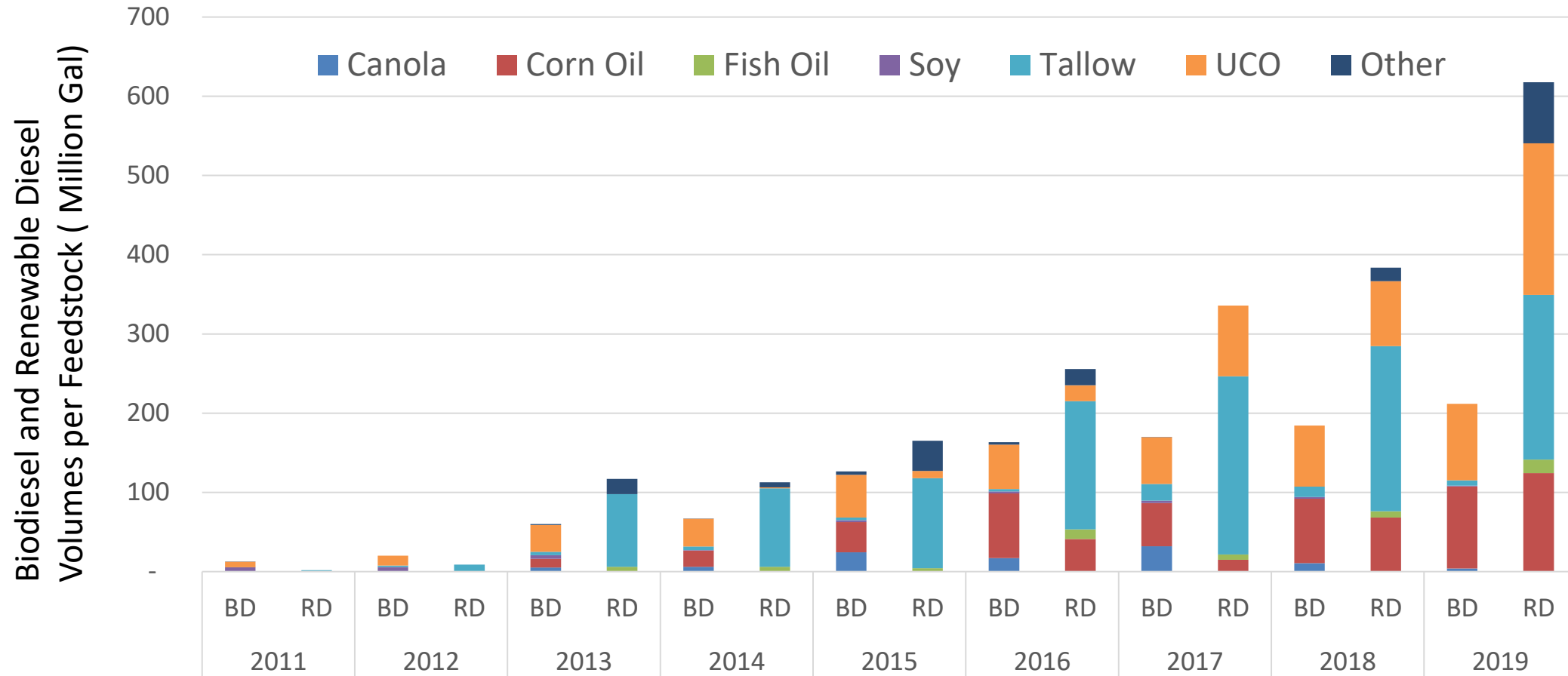


Rapid Rise of Renewable Diesel

- In 2019, LCFS reported ~700 million gallons gas equivalents (MGGE) of renewable diesel.
- A huge number of new US projects were announced in 2020, including:
 - 2,400 MGGE currently under construction or expansion
 - 3,600 MMGE of proposed facilities



Low-CI Feedstocks Dominate for Biomass-based Diesel



Diverse and Growing Stakeholder Base

Fuel	Certified Pathways (2019-2020)
Low-CI Electricity	66
Hydrogen	41
RNG (gaseous and liquid)	87
Renewable diesel / biodiesel	61
Ethanol	189
Alternative Jet Fuel	5
Renewable Naphtha	5
Total	454

California Leading Other LCFS Programs

CA was first state in US to adopt LCFS program, looked to globally as a model for other programs, including:

- [Oregon Clean Fuels Program \(2016\)](#)
- [British Columbia LCFS \(2008\)](#)
- [Canada Clean Fuel Standard \(2022\)](#)
- [Brazil RenovaBio \(2019\)](#)
- [Washington \(2023\)](#)

Resources

CARB LCFS Website

<https://ww2.arb.ca.gov/our-work/programs/low-carbon-fuel-standard>

CARB Data Dashboard

<https://ww3.arb.ca.gov/fuels/lcfs/dashboard/dashboard.htm>

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