

Overview: Carbon Sequestration: Carbon Capture, Removal, Utilization, and Storage Program (SB 905, Caballero)



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Rajinder Sahota, Deputy Executive Officer for Climate Change & Research
Rajinder.Sahota@arb.ca.gov

Recent Climate Legislation

AB 1279

- 2045 carbon neutrality target , anthropogenic emissions to be reduced by 85% by 2045 relative to 1990 levels

SB 905

- Establishes a Carbon Capture, Removal, Utilization and Storage Program

California's Climate Policy Framework



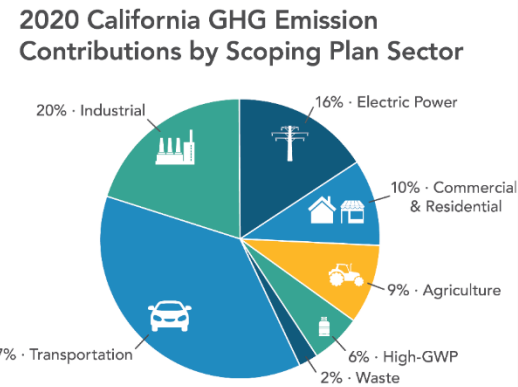
GHG Targets & Goals

Legislation & Executive Orders: Total GHGs (AB 32/SB 32/AB 1279) or sector targets (SB 1383/SB 100), etc.



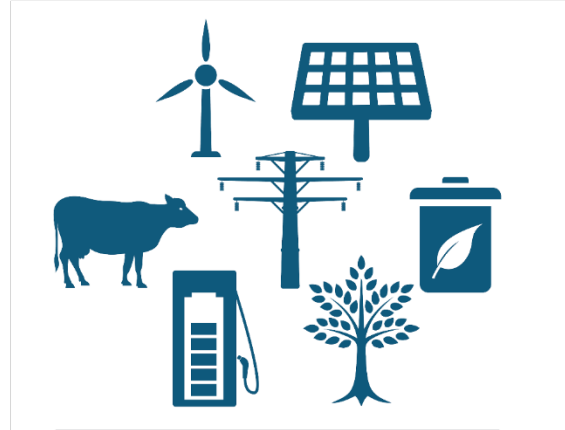
Scoping Plan

Actionable plan across all sectors



Action

Regulations & Incentives: Advanced Clean Cars, climate change investments, etc.



Projects

Examples: Zero-emission trucks, energy infrastructure and renewables, compost facilities, digesters, etc.

2022 Scoping Plan Update

The path to build our way out of over a 100 years of existing fossil energy and the built environment landscapes

AB 32 GHG
Inventory Sectors

Carbon neutrality by 2045, deploy a broad portfolio of existing and emerging fossil fuel alternatives and clean technologies, and align with statutes and Executive Orders

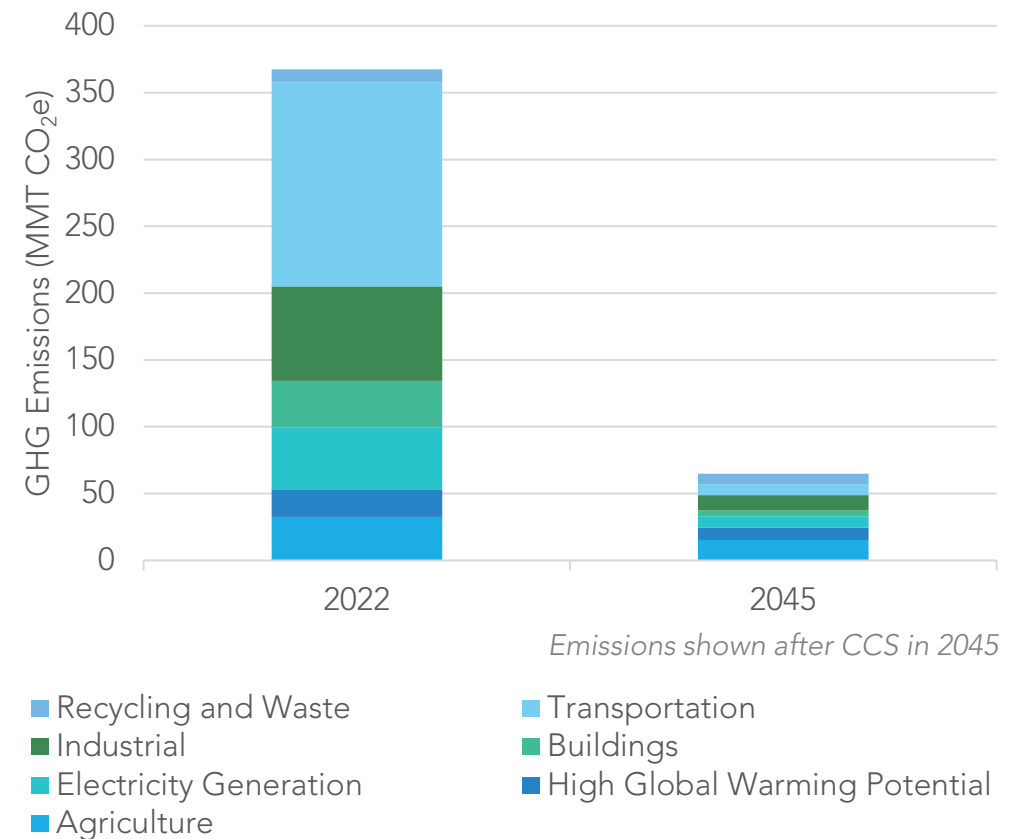
Natural and
Working Lands
(NWL)

Land management activities that prioritize restoration and enhancement of ecosystem functions to improve resilience to climate change impacts, including more stable carbon stocks

Anthropogenic GHGs

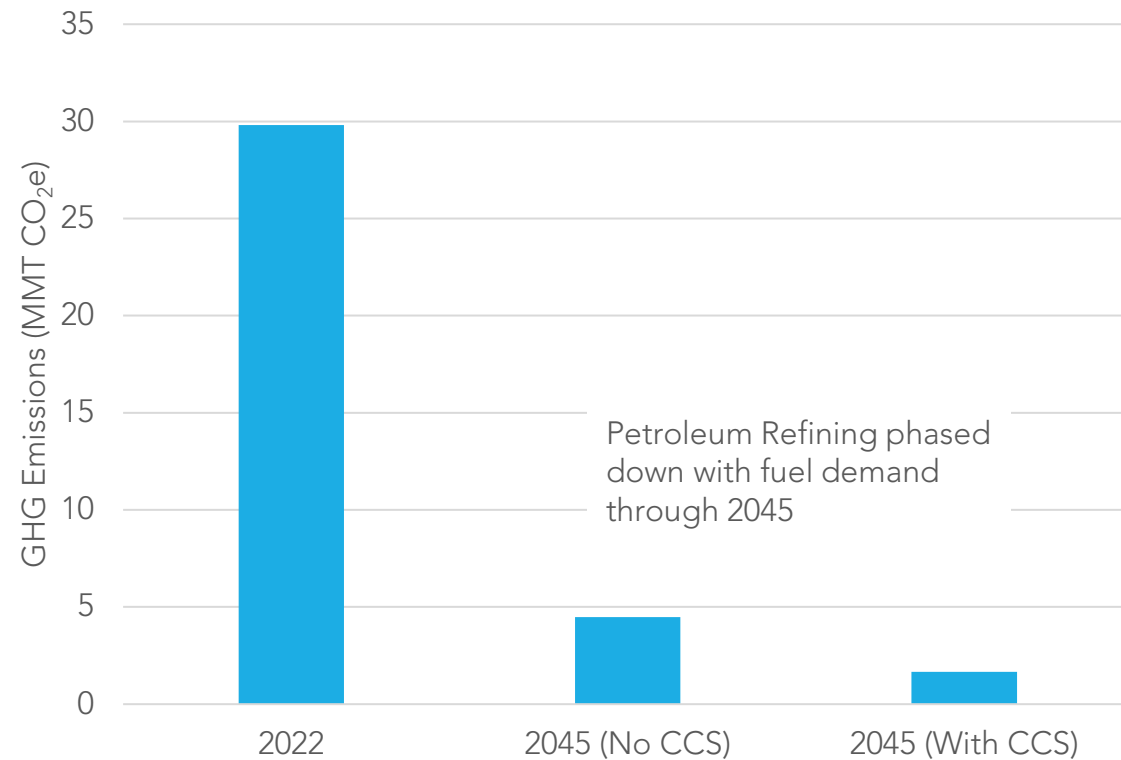
Target 2045: 85% Reduction below 1990

- AB 1279
 - CN by 2045
 - 85% reduction by 2045
 - CARB to implement policies/strategies to deploy CCUS/CDR
- SB 905
 - CCUS Program at CARB, support from CNRA/DOC
- CARB has existing CCS Protocol for permanence certification; allows crediting for CCS/DAC projects in LCFS
- Need to start today to deploy and scale in this decade



Reducing Refinery Sector Emissions and Applying CCS

85% reduction in Petroleum Refining GHGs without CCS and 94% with CCS



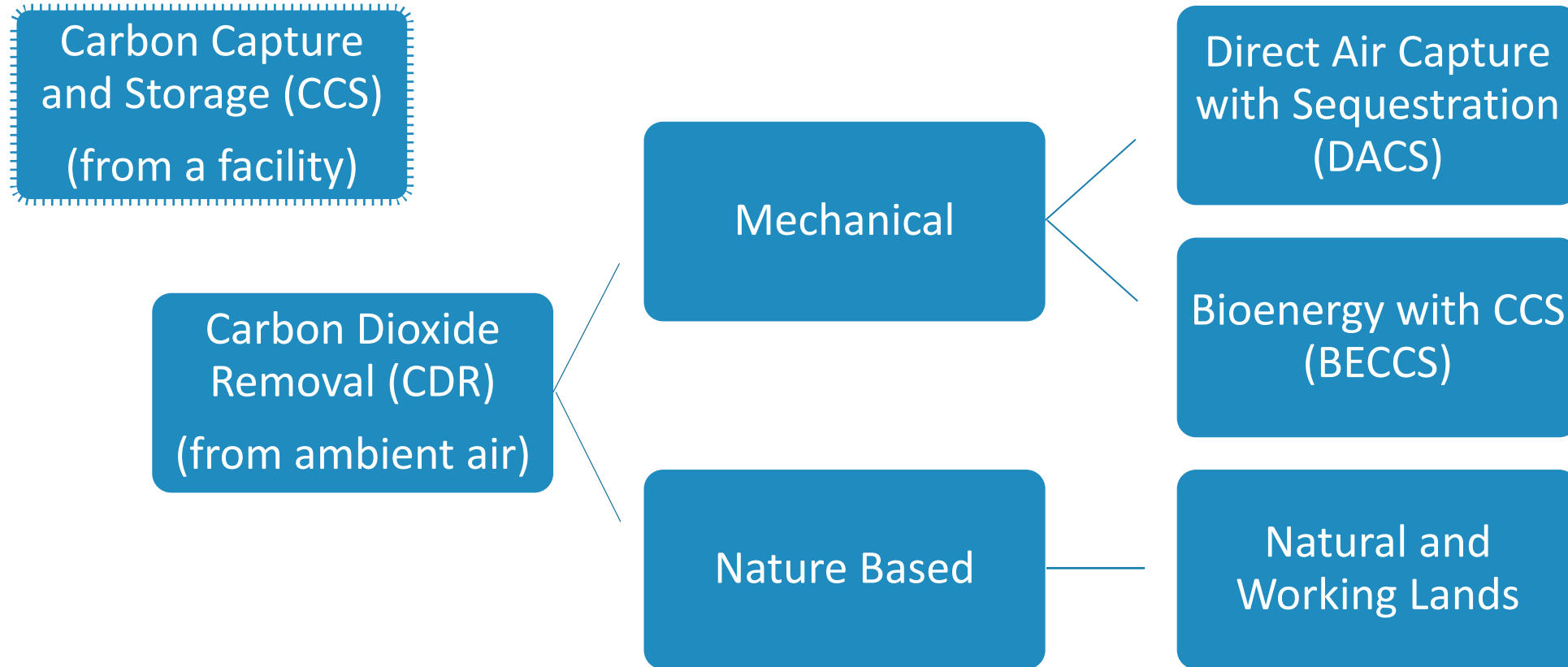
Policy-based Role of Carbon Dioxide Removal

- Governor Newsom has called for:
 - 20 MMT CO₂e removal by 2030
 - 100 MMT CO₂e removal by 2045
- 2022 Scoping Plan showed need for CCS/CDR to achieve AB 1279
- IRA provides significant ongoing federal incentives for CCS/CDR
- Federal proposed power plant rule includes CCS
- Nature-based solutions, in addition to mechanical, are necessary

Science-based Role of Carbon Dioxide Removal

- CDR can also help address legacy emissions in atmosphere
- Some emissions sources have limited/no GHG abatement options
- CCS technology demonstrated and in-use across US and Europe, proven technology to support low/zero-carbon energy supplies
- Carbon dioxide removal called for by hundreds of scientists, in addition to reducing emissions---need both

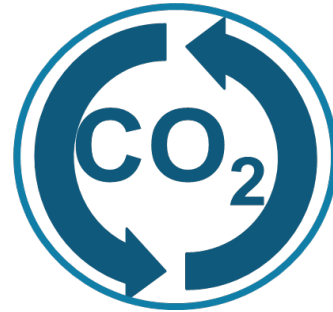
Carbon Dioxide Removal and Sequestration



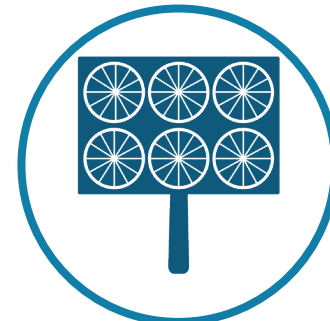
Role and Scaling of Carbon Dioxide Removal (CDR)



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**Carbon
Neutral**

**AB 32 GHG Inventory
Sectors: Significantly
reduced, but some
emissions remain
even with CCS**

**NWL a modest
source**

**Need carbon dioxide
removal to
compensate for
AB 32 GHG Inventory
and NWL sectors**

- **Role of CDR is reduced if:**
 - We reduce the emissions from the AB 32 GHG Inventory Sectors faster
 - NWL are able to become a sink

CARB Legislative Direction: SB 905 - Carbon Capture, Removal, Utilization and Storage Program

January 1, 2024

- **adopt protocols** to support additional methods of utilization or storage of captured carbon dioxide, including carbon capture for use in products

January 1, 2025

- **adopt regulations** for a unified permit application for the construction and operation of carbon dioxide capture, removal, or sequestration projects to expedite the issuance of permits or other authorizations for the construction and operation of those projects, financial risk management, and requirements for monitoring for project operators
- develop a **centralized public database** to track the deployment of CCUS and CDR technologies and the development of carbon dioxide capture, removal, and sequestration projects throughout the state

Key Air Protection Provisions for Projects

(c) Create an air monitoring and mitigation plan to measure, track, and minimize potential toxic air contaminants and criteria air pollutants from the site of the carbon dioxide capture, removal, or sequestration project and submit the plan to the state board.

(d) Avoid any significant impact on residents in communities affected by a high-cumulative exposure burden caused by a potential net-increase in air, water, and soil pollution emanating from the site of the carbon dioxide capture, removal, or sequestration project in accordance with all applicable local, state, and federal laws and requirements, including requirements to use best available control technology, as defined in Section 40405 of the Health and Safety Code.

(e) Comply with Section 39741.1 of the Health and Safety Code and the regulations adopted by the state board pursuant to that section.

(f) Where avoidance of increased air pollution on site from such a project is not feasible, invest in mitigation in the community location adjacent to where the carbon dioxide capture, removal, or sequestration project is located which would be exposed to or impacted by any potential increased air pollution if mitigation measures are required pursuant to the California Environmental Quality Act (Division 13 (commencing with Section 21000)) for the project to address significant impacts in local air pollution.

CALIFORNIA'S CLIMATE PLAN LAYS THE ROADMAP TO 2045



CUT AIR POLLUTION **71%**



SLASH GREENHOUSE GAS
EMISSIONS **85%**



DROP GAS CONSUMPTION **94%**



CREATE **4 MILLION** NEW JOBS



SAVE CALIFORNIANS **\$200 BILLION**
IN HEALTH COSTS DUE TO
POLLUTION

