

# EPA Accounting Framework for Carbon Capture & Storage



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# EPA's GHG Reporting Framework

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- The GHG Reporting Program (GHGRP) requires facilities that emit more than 25,000 tons of CO<sub>2</sub>-equivalent (or other threshold, in some subparts) to report GHG emissions to EPA annually.
- EPA has established industry-specific accounting requirements for over 30 industry sectors.
- Link to the EPA page listing the GHGRP subparts:  
<http://www2.epa.gov/ghgreporting/resources-subpart-ghg-reporting>

# CCS Requirements

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- Accounting requirements for carbon capture and storage facilities are provided in three subparts:
  - Suppliers of Carbon Dioxide (Subpart PP)
  - Geologic storage of Carbon Dioxide (Subpart RR)
  - Injection of Carbon Dioxide (Subpart UU)

# Requirements for Carbon Capture

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- **Subpart PP Applicability:**
  - (1) Facilities with production processes that capture CO<sub>2</sub> in order to sequester it or otherwise inject it underground.
  - (2) Facilities with CO<sub>2</sub> production wells.
  - (3) Importers or exporters of CO<sub>2</sub>, if the amount exceeds 25,000 tons.
- **What is reported under Subpart PP:**
  - The mass of CO<sub>2</sub> captured and supplied for CO<sub>2</sub> storage, either on-site (at the capture facility) or off-site.

# Requirements for Geologic Sequestration of CO<sub>2</sub>

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- **Subpart RR Applicability:**
  - All Class VI wells under EPA's Safe Drinking Water Act Underground Injection Control (UIC) program must report under Subpart RR.
    - ✦ R&D facilities that apply to EPA for an exemption do not have to report.
  - Any Enhanced Oil/Gas Recovery (ER) operator using UIC Class II wells can *opt into* Subpart RR.
- **Requirements:**
  - Development and implementation of an EPA-approved Monitoring, Reporting, and Verification (MRV) plan.
  - Annual reporting of the amount of CO<sub>2</sub> sequestered, along with supporting information.

# Required Elements of EPA MRV Plans

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- Delineation of the maximum monitoring area and the active monitoring areas.
- Identification of potential leakage pathways, and an evaluation of the likelihood, magnitude, and timing of potential leakage.
- A strategy for detecting and quantifying any surface leakage of CO<sub>2</sub>.
- A strategy for establishing the expected baselines for monitoring CO<sub>2</sub> surface leakage.
- A summary of the considerations used to calculate site-specific variables for the mass balance equation.
- For UIC wells, the well identification number used for the UIC permit and the permit class.
- Proposed date on which the site will begin collecting data for calculating the total amount sequestered.

# The Mass-Balance Accounting Approach

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- For sites actively producing oil or natural gas:

Eq. RR-11: Annual mass of CO<sub>2</sub> sequestered = CO<sub>2</sub> injected – CO<sub>2</sub> produced – CO<sub>2</sub> emitted by surface leaks – CO<sub>2</sub> from equipment leaks and venting

- For sites that are not producing oil or natural gas:

Eq. RR-12: Annual mass of CO<sub>2</sub> sequestered = CO<sub>2</sub> injected – CO<sub>2</sub> emitted by surface leakage – CO<sub>2</sub> emitted from equipment leaks and venting

- Requirements for monitoring, QA/QC, and missing data procedures must also be met.

# Key Concepts in EPA's Approach

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- The purpose of Subpart RR is to quantify CO<sub>2</sub> storage and leakage at the injection site.
  - Subpart RR does not require reporting emissions of other GHGs, criteria pollutants, or toxic air pollutants under Subpart RR.
  - Subpart RR does not cover the capture side; Subpart PP accounts for the amount of CO<sub>2</sub> captured.
  - EPA has not promulgated an accounting methodology for quantifying emissions associated with the transport of CO<sub>2</sub> from the capture site to the injection site.
- MRV plans should be tailored to the specific conditions at the site.
  - EPA does not require use of any specific monitoring approaches/techniques in MRV plans.



# Injectors of Carbon Dioxide

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- **Subpart UU Requirements:**
  - **Applicability:** A well or group of wells injecting CO<sub>2</sub> for EOR, including Class II wells and wells with a R&D exemption under Subpart RR.
  - **What is Reported:** Covered facilities must report basic information on the amount of CO<sub>2</sub> injected (including volume and source).
  - Subpart UU is not designed to serve as an accounting framework for CO<sub>2</sub> storage.

# Confidential Business Information

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- Under the GHGRP, all data elements reported to EPA are designated as either “CBI” or “not-CBI”.
- Data that are not CBI include:
  - Emissions data and data used in calculating emissions data.
  - Other non-emissions data that are not business sensitive.
- Data is designated as CBI if release of such data would cause substantial commercial harm. These data are submitted to EPA but not made public.
  - Certain data provided by ER operators to EPA under Subpart RR are considered CBI.

# Questions?

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