



Plains CO₂ Reduction (PCOR) Partnership

Practical, Environmentally Sound CO₂ Sequestration

CO₂ Sequestration Projects



Aquistore

Aquistore Project

Location: Southeastern Saskatchewan, Canada

CO₂ Injection: ~2300 tons (2100 tonnes) a day

This project stores CO₂ from the Boundary Dam Power Station in Estevan in the Basal Cambrian System, a deep saline formation.

Status: Active (as of December 2017).

Bakken CO₂

Bakken CO₂ Injection Test

Location: Bear Creek oil field, North Dakota, United States

CO₂ Injection: ~100 tons (90 tonnes)

This test was conducted to determine if CO₂ can be injected into a Bakken reservoir that has not been hydraulically fractured and whether the injected CO₂ can mobilize oil.

Status: Active (as of December 2017).

Basal Cambrian

Basal Cambrian Characterization Project

Location: 1.34 million km² spanning the U.S. and Canadian border

This collaboration between Canadian and U.S. researchers found excellent potential for long-term CO₂ storage in the deep rock layer known as the Basal Cambrian System.

Status: Completed 2014.

Bell Creek

Bell Creek EOR

Location: Southeastern Montana, United States

CO₂ Injection: ~1.1 million tons (1 million tonnes) a year

This commercial project is setting a new standard for safely and efficiently using CO₂ for enhanced oil recovery with associated CO₂ storage.

Status: Active (as of December 2017).

Boundary Dam

Boundary Dam Carbon Capture Project

Location: Estevan, Saskatchewan, Canada

CO₂ Injection: 1.1 million tons (1 million tonnes) a year

The first of its kind, this SaskPower project has equipped a coal-fired generation unit at the Boundary Dam Power Station with a fully integrated system to capture CO₂ for enhanced oil recovery and permanent storage.

Status: Active (as of December 2017).

CarbonSAFE-NE

Nebraska CCS Pre-Feasibility Study

Location: Western Nebraska, United States

Potential size: 55 million tons (50 million tonnes) of CO₂

This pre-feasibility study investigates the regulatory, socioeconomic, and technical aspects for carbon capture and storage (CCS) potential in Nebraska as a Phase I effort in DOE's nationwide, multiyear CarbonSAFE initiative designed to support the development of commercial-scale CO₂ storage projects by 2025.

Status: End date June 2018.

Fort Nelson

Fort Nelson CCS Feasibility Project

Location: British Columbia, Canada

This feasibility project evaluated the potential for safe, cost-effective geologic storage of CO₂ from a natural gas-processing facility

Status: Completed 2012.

KS–NE CarbonSAFE

Integrated Mid-Continent Carbon Stacked Storage Hub

Location: Kansas and Nebraska, United States

Potential size: 55 million tons (50 million tonnes) of CO₂

The project will concentrate on identifying specific stacked storage sites in southwest Nebraska and central Kansas and assessing their potential as a first step in DOE's nationwide, multiyear CarbonSAFE initiative designed to result in commercial-scale carbon capture and storage (CCS) projects by 2025.

Status: End date June 2018.

Lignite

Lignite Field Validation Test

Location: Northwestern North Dakota, United States

CO₂ Injected: 90 tons (82 tonnes)

This small-scale test demonstrated that unminable lignite coal seams may act as permanent underground storage zones for CO₂.

Status: Completed October 2013.

ND CarbonSAFE

North Dakota CCS Feasibility Study

Location: Central North Dakota, United States

Project size: 55 million tons (50 million tonnes) of CO₂

The 2-year feasibility study focuses on practical aspects of developing a carbon capture and storage (CCS) project in North Dakota as part of DOE's nationwide, multiyear CarbonSAFE initiative designed to result in commercial-scale carbon capture and storage projects by 2025.

Status: End date June 2019.

Northwest McGregor

CO₂ Huff 'n' Puff Field Validation Test

Location: Northwestern North Dakota, United States

CO₂ Injected: 440 tons (400 tonnes)

This small-scale test demonstrated CO₂ huff 'n' puff for enhanced oil recovery and associated CO₂ storage for isolated wells in deep oil-bearing limestone rocks.

Status: Completed 2009.

Quest

Quest CCS Project

Location: Fort Saskatchewan, Alberta, Canada

CO₂ Injection: 1.1 million tons (1 million tonnes) a year

CO₂ from Shell's Scotford Upgrader, which processes heavy oil from the Athabasca oil sands, is transported by pipeline to an injection location north of Shell Scotford.

Status: Active (as of December 2017).

Red Trail

CCS for North Dakota Ethanol Production

Location: Western North Dakota, United States

Potential size: 180,000 tons (160,000 tonnes) of CO₂

This feasibility study examined the technical and economic factors associated with potential commercial deployment of carbon capture and storage (CCS) at a North Dakota ethanol facility.

Status: Phase I completed 2017; Phase II runs 2017 to 2018.

Terrestrial

Terrestrial Field Validation Test

Location: Prairie Pothole Region, United States

CO₂ Storage: 1.1 tons of soil organic carbon per acre per year (0.4 tonnes per hectare)

The diverse activities of this test demonstrated methods to store atmospheric CO₂ in prairie ecosystems as a means to mitigate anthropogenic CO₂ emissions.

Status: Completed 2009.

Weyburn–Midale

Weyburn–Midale CO₂ Project

Location: Saskatchewan, Canada

CO₂ Injection: 2.2 million tons (2 million tonnes) a year

CO₂ captured at Dakota Gasification Company's Great Plains Synfuels Plant in Beulah, North Dakota, is piped 205 miles into the Weyburn and Midale oil fields for enhanced oil recovery with associated CO₂ storage.

Status: Active (as of December 2017).

WY CarbonSAFE

Wyoming CCS Pre-Feasibility Study

Location: Eastern Wyoming, United States

Potential size: 55 million tons (50 million tonnes) of CO₂

This pre-feasibility study looking at large-scale stationary CO₂ sources and potential storage sites is a first step in DOE's nationwide, multiyear CarbonSAFE initiative designed to result in commercial-scale carbon capture and storage (CCS) projects by 2025.

Status: End date June 2018.

Zama

Zama Field Validation Test

Location: Alberta, Canada

CO₂ Injected: 93,000 tons (85,000 tonnes) through May 2012

This project demonstrates that acid gases, obtained during the purification of natural gas, can be safely injected underground to produce additional oil and permanently store CO₂.

Status: Completed 2012.

Last updated 1/1/2018

[HOME](#)

[CONTACT US](#)

[SITE MAP](#)

[DISCLAIMER](#)

Energy & Environmental Research Center • 15 North 23rd Street, Stop 9018 • Grand Forks, ND 58202-9018 • USA
Phone: (701) 777-5000 • Fax: (701) 777-5181

Copyright © 1992-2018 University of North Dakota Energy & Environmental Research Center. All rights reserved.