

CarbonSAFE Rocky Mountain Phase I: Ensuring Safe Subsurface Storage of Carbon Dioxide in the Intermountain West

Award Number: DE-FE0029280

Project Summary:

This project conducted an investigation in Emery County, Utah to identify potential carbon dioxide (CO₂) sources and storage opportunities for a future 50-plus million metric ton (MMT) carbon storage project. The project team identified the Hunter Power Plant in central Utah as the primary source of CO₂ and the nearby Huntington Power Plant as the secondary source of CO₂. A high-level technical sub-basinal evaluation was performed on the area surrounding the power plants to verify CO₂ storage capacity and integrity. In addition, a non-technical assessment of a potential commercial-scale CO₂ storage facility in central Utah was conducted.

Prime Performer:
University of Utah

Principal Investigator:
Brian McPherson

Project Duration:
3/1/2017 – 8/31/2018

Performer Location:
Salt Lake City, Utah

Program:
Carbon Storage

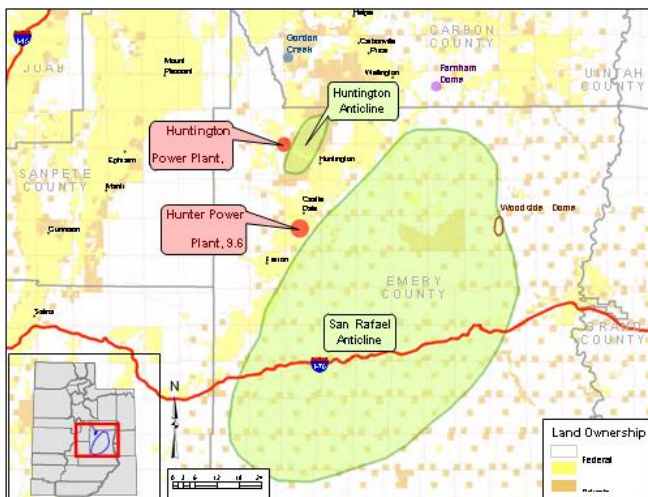


Figure 1: Map detailing locations of the Hunter Power Plant, the proposed primary CO₂ source and injection site and the Huntington Power Plant, the secondary CO₂ source and injection site. Also shown is the proposed storage complex, comprising the San Rafael Anticline and the adjacent Huntington Anticline, and surface land ownership.

Project Outcomes:

This study analyzed scenarios for a commercial-scale carbon capture and storage (CCS) complex in the Rocky Mountains. Cost analysis supports the primary scenario of capturing CO₂ from the Hunter Power Plant and transporting and injecting it into saline aquifers below Buzzards Bench. Selling CO₂ to oil fields in the Uintah Basin for enhanced oil recovery applications, offsetting CO₂ mined from McElmo Dome, and 45Q tax credits provide enticing economic opportunities to offset the costs of capture and transport. This area is a prime candidate for staged deployments, where pipeline infrastructure is initially overbuilt in anticipation of future capture sites coming online at a later date. This project supported the Carbon Storage Program's mission to develop and advance CCS technologies for widespread commercial deployment in the 2025 to 2035 timeframe that will ensure safe, secure, efficient, and cost-effective CO₂ containment in diverse geologic formations.

Presentations, Papers, and Publications

Final Report: [CarbonSAFE Rocky Mountain Phase I: Ensuring Safe Subsurface Storage of Carbon Dioxide in the Intermountain West](#) (August 2018) Brian McPherson, Martha Cather, Richard Middleton, Tom Chidsey, Jason Heath, Michael Saunders, Si-Yong Lee