

Integrated Commercial Carbon Capture and Storage Pre-Feasibility Study at Dry Fork Station, Wyoming

Award Number: DE-FE0029375

Project Summary:

As part of the Integrated CCS Pre-Feasibility phase of the Carbon Storage Assurance Facility Enterprise (CarbonSAFE) Initiative, the University of Wyoming identified saline storage opportunities proximal to the Dry Fork Station (DFS) power plant in the Powder River Basin. The project established a carbon capture and storage (CCS) coordination team capable of achieving successful commercial-scale CCS for the Dry Fork Station power plant, developed site-specific business and execution strategies, and identified and described promising saline storage sites capable of storing 50 million metric tons (MMT) of carbon dioxide (CO₂). Project tasks included scenario generation, regional and stakeholder analysis, geologic evaluation, geologic model development and simulation, and National Risk Assessment Partnership modeling and validation.

Prime Performer:

University of Wyoming

Principal Investigator:

Scott Quillinan

Project Duration:

3/1/2017 – 2/28/2019

Performer Location:

Laramie, Wyoming

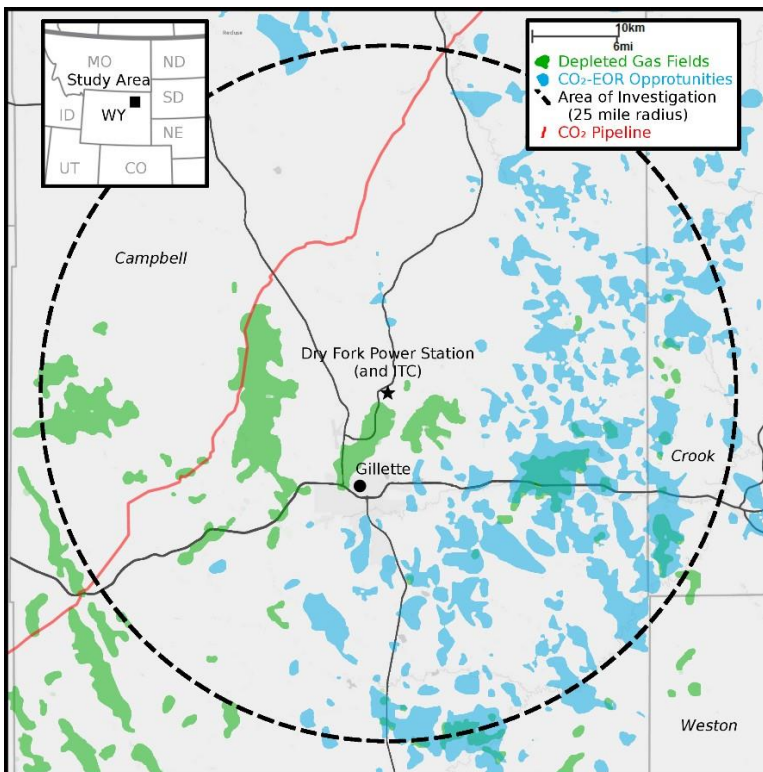
Program:

Carbon Transport & Storage

Project Outcomes:

This project concluded that the northeast of Wyoming is one of the more uniquely situated regions in the country to sustain an industrial CCS project. The team identified four high-priority storage reservoirs and locations as part of the storage complex for further feasibility study in Phase II. The Minnelusa and Sundance are promising target formations to independently meet the volumetric saline storage requirements to feasibly store 50+ MMT of CO₂ over 25 years. The site's proximity to existing CO₂ transportation networks, CO₂-enhanced oil recovery (EOR) opportunities, ability to sell to markets that value low-carbon electricity, Wyoming's existing carbon regulatory framework, and a public that is well-educated with respect to energy markets and issues collectively increase the potential for implementing commercial-scale CCS adjacent to Dry Fork Station.

Figure 1: Study area. Saline storage reservoirs were investigated within a 25-mile radius of DFS (black dash line). Also proximal to DFS is an existing CO₂ transport line (red line), EOR potential (blue), and depleted gas fields (green).



Presentations, Papers, and Publications

[Final Report: Integrated Commercial Carbon Capture and Storage \(CCS\) Prefeasibility Study at Dry Fork Station, Wyoming](#) (May 2019) – Scott Quillinan, Kipp Coddington