



Carbon Capture Large-Scale Pilot Projects Program — Carbon Capture Pilot at Dry Fork Power Station

The Carbon Capture Large-Scale Pilot Projects Program, managed by the U.S. Department of Energy's (DOE) Office of Clean Energy Demonstrations (OCED), aims to develop transformational carbon capture technologies to significantly improve the efficiency, effectiveness, costs, emissions reductions, and environmental performance of coal and natural gas use in power generation, manufacturing, and industrial facilities. The program aims to prove out these technologies at pilot scale in partnership with industry and communities in the United States. OCED selected four projects to begin award negotiations for a total of up to \$304 million. Following negotiations, in August 2024, OCED awarded the Carbon Capture Pilot at Dry Fork Power Station with nearly \$5 million in federal funding (of the total federal cost share of up to \$49 million) for Phase 1 activities, located in Gillette, WY.

Awardee Fact Sheet

Carbon Capture Large-Scale Pilot Projects Program: Carbon Capture Pilot at Dry Fork Power Station

Project at a Glance

- » **Total OCED Cost Share:** Up to \$49 million
- » **Phase 1 Total Project Amount:** \$7,134,969*
- » **Phase 1 OCED Award Amount:** \$4,993,509**
- » **Phase 1 Scope of Work:** Completion of Front-End Engineering Design (FEED) study and planning and initial engagement activities for community benefits commitments
- » **Phase 1 Timeline:** 18–22 months
- » **Recipient:** TDA Research, Inc. is a research and development company in advanced materials
- » **Project Location:** 7 miles from Gillette, WY
- » **Project Start Date:** August 2024

* Represents the total project cost for Phase 1.

** Represents OCED's cost share for Phase 1. Additional funding for this project is subject to future award negotiations at the end of each project phase.

About This Project

TDA Research, Inc., in collaboration with Schlumberger Technology Corporation, plans to deploy a carbon capture system at the Wyoming Integrated Test Center's test bay that is equipped to deliver up to 23 MWe of flue gas and is located adjacent to Basin Electric's Dry Fork Power Station, a coal-fired power plant seven miles north of Gillette, WY.

The Carbon Capture Pilot at Dry Fork Power Station intends to capture more than 90% of carbon dioxide (CO₂) emissions from coal flue exhaust at high purity (+95%), using TDA Research's highly stable, low-cost sorbent-based technology in a vacuum and concentration swing adsorption process. If successfully demonstrated, TDA Research's technology could be scaled up for use at coal plants around the world. During Phase 1 of the project, TDA Research plans to complete a FEED study to determine the specifications for carbon capture. The project plans to also start workforce planning, project permitting, and

provide input into the National Environmental Policy Act review process. TDA Research plans to develop strategies to fulfill state, local, tribal, and federal approvals, permits, and authorizations required for construction and operations. In addition, TDA Research will establish relationships and plans to ensure successful implementation of community benefits activities in later project phases and will evaluate a preliminary plan for CO₂ offtake, including the potential for carbon sequestration via Wyoming CarbonSAFE and any contingency offtake options.

OCED will provide project management oversight of the Carbon Capture Pilot at Dry Fork Power Station by evaluating the status and quality of implementation at each phase of the project. Through its phased approach to project management, OCED will review and evaluate the project's progress, including on community benefits, which will impact OCED's decisions to continue to provide federal funding and allow the project to progress to each subsequent phase.

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Project Site

The Wyoming Integrated Test Center is located seven miles north of Gillette, WY, adjacent to Basin Electric's Dry Fork Power Station, a 405 MW coal-fired power plant. The goal of the pilot project is to deploy a system that could capture up to 158,000 metric tons of CO₂ each year—equivalent to the annual emissions of nearly 37,000 gasoline-powered cars.

Community Benefits Commitments

Community benefits commitments are a key component of the Carbon Capture Pilot at Dry Fork Power Station. These commitments, informed and developed with local communities, aim to maximize local community benefits and mitigate potential impacts of this project. The Carbon Capture Pilot at Dry Fork Power Station project plans to implement these commitments in Phase 1 through:

- Hiring one intern during Phase 1, and a total of four interns during the duration of the project, **recruiting from underrepresented communities**, including students from Minority-Serving Institutions.
- Delivering seminars for students at **local colleges and universities** to learn more about carbon capture technology.
- Developing strategies to recruit local workers to support the regional economy and **create job opportunities for residents**.

More details on the Carbon Capture Pilot at Dry Fork Power Station's community benefits commitments can be found in the Community Benefits Commitments Fact Sheet.



Dry Fork Power Station plant in Gillette, WY

The U.S. Department of Energy established OCED to help scale the emerging technologies needed to tackle our most pressing climate challenges and achieve net-zero emissions by 2050. OCED's mission is to deliver clean energy demonstration projects at scale in partnership with the private sector to accelerate deployment, market adoption, and the equitable transition to a decarbonized energy system.

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Carbon Capture Large-Scale Pilot Projects Program Goals

Large-scale deployment of carbon management technologies is critical to addressing the climate crisis. Reaching our nation's climate goals will require capturing and sequestering 400 to 1,800 million tons of CO₂ annually by 2050. Commercial demonstration of advanced carbon capture technologies, integrated with reliable transportation and storage infrastructure, will be required for the widespread deployment of these carbon management technologies. To help achieve these goals, the Carbon Capture Large-Scale Pilot Projects Program aims to develop transformational carbon capture technologies at the pilot scale to significantly improve the efficiency, effectiveness, costs, emissions reductions, and environmental performance of coal and natural gas use in power generation, manufacturing, and industrial facilities.



TDA Research's sorbent-based technology is planned to be piloted at Dry Fork Power Station

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More Resources

Website: energy.gov/oced/carbon-capture-large-scale-pilot-programs

Office of Clean Energy Demonstrations: energy.gov/oced

