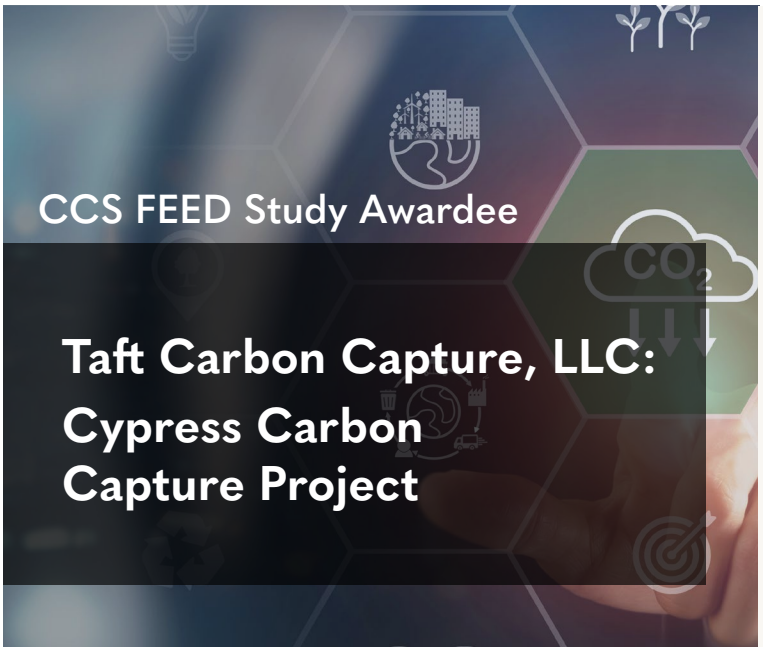
Carbon Capture Demonstration Projects Program Front-End Engineering Design (FEED) Studies

The Carbon Capture Demonstration Projects Program, managed by the U.S. Department of Energy's (DOE) Office of Clean Energy Demonstrations (OCED), aims to de-risk integrated carbon capture and storage (CCS) demonstrations and catalyze significant follow-on investments from the private sector for commercial-scale, integrated CCS demonstrations on carbon emissions sources across industries in the United States. To advance CCS demonstrations, OCED sought applications to execute and complete front-end engineering design (FEED) studies for prospective integrated carbon capture, transport (if required) and storage systems projects. OCED awarded this FEED study in December 2023.



Project At A Glance

- **Project Total:** $36,805,602*
- **OCED Award Amount:** $6,500,001
- **Total Potential Carbon Savings:** 2.6 million metric tons of CO_2 per year
- **Project Synopsis:** Design a commercial-scale carbon capture facility to substantially reduce CO_2 emissions from an existing natural gas cogeneration facility
- **Awardee:** Taft Carbon Capture, LLC
- **Project Locations:** Taft Cogeneration Facility; Hahnville, Louisiana
- **Anticipated Project Start:** January 2024

*For FEED study only.

About This Project

OCED is working with Taft Carbon Capture, LLC (Taft) to design a FEED study evaluating the cost and performance of a commercial-scale, post-combustion carbon capture system. The carbon capture system being evaluated would separate and prepare up to 2.6 million metric tons of CO_2 per year for storage, with a minimum of 90% capture efficiency. This evaluation includes the development of a commercial-scale design package that includes application of carbon capture data from carbon-capture data from smaller-scale demonstrations by the technology provider.

Integration engineering will be provided by a major engineering, procurement, and contruction firm (EPC) experienced in FEED studies for similar systems.

The project team will complete a cost estimate for all elements of the project: the carbon capture system, balance of plant, and integration of the system into the existing facility. The FEED study will also include all process, controls, civil, structural, electrical, environmental, constructability, risk analysis, and permitting aspects to evaluate technical and economic viability of the project.

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 system.

Taft Carbon Capture CCS FEED Study
Project Fact Sheet

Project Site

The Cypress Carbon Capture Project FEED Study's host site is the Taft Cogeneration facility — a natural gas-fired, 3x1 combined cycle, heat, and power cogeneration plant — located in St. Charles Parish, Louisiana. The facility is in an industrial area on the bank of the Mississippi River in Hahnville, approximately 30 miles west of New Orleans.

Community Benefits Plan

A key deliverable for this project includes a Community Benefits Plan (CBP), informed and developed in consultation with the project community. The community engagement strategy of the project is focused on the self-sufficiency, sustainability, health, safety, and environment of the communities in which we operate.

The Cypress Carbon Capture Project, if it were to advance beyond a FEED study to the engineering and construction phase, would provide a high-quality workplace through competitive pay, excellent benefits, a safe and accessible work environment, opportunities for growth, and potential to generate tax revenue for St. Charles Parish.

Replicability

More than 335 million residents in the United States depend on our energy grid to reliably generate an average of 4 trillion kilowatt hours of power annually, but much of the power generation system relies on fossil fuels to operate. Carbon Capture and Storage is one important solution that can help reduce carbon emissions and their impact on the environment without sacrificing the reliable power generation that Americans need to thrive.

Through conducting Carbon Capture and Storage demonstrations, OCED envisions the technology being replicated at power generation plants all over the country, significantly reducing carbon emissions.

To learn more about Carbon Management you can access DOE's Pathways to Commercial Liftoff report or visit the Carbon Management section on the OCED website.

Contact

Program Email: ccdemoprojectsprogram@hq.doe.gov

Site-Specific Email: Cypress_FEED@hq.doe.gov

More Resources

Website: energy.gov/oced/CCFEEDs

Office of Clean Energy Demonstrations: energy.gov/oced

Carbon Management Interactive Graphic: edx.netl.doe.gov/carbonstorage/interactive-graphic/