



Carbon Capture Large-Scale Pilot Projects Program — Carbon Capture Pilot at Cane Run Generating 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, including 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 September 2024, OCED awarded the Carbon Capture Pilot at Cane Run Generating Station in Louisville, KY \$4.9 million in federal funding (of the total federal cost share of up to \$72 million) for Phase 1 activities.

Awardee Fact Sheet

Carbon Capture Large-Scale Pilot Projects Program: Carbon Capture Pilot at Cane Run Generating Station

Project at a Glance

- » **Total OCED Cost Share:** Up to \$72 million
- » **Phase 1 Total Project Amount:** \$7,024,865*
- » **Phase 1 OCED Award Amount:** \$4,916,613**
- » **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:** 18-21 months
- » **Recipient:** Kentucky Utilities Company, a subsidiary of PPL Corporation
- » **Project Location:** Louisville, KY
- » **Project Start Date:** September 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

Kentucky Utilities Company plans to deploy a carbon dioxide (CO₂) capture system at Cane Run 7, a natural gas combined cycle (NGCC) power plant in Louisville, KY operated by PPL subsidiaries Louisville Gas and Electric Company and Kentucky Utilities Company. The Carbon Capture Pilot at Cane Run Generating Station would capture 95% of the CO₂ from a portion of the unit's flue gas using an advanced heat-integrated technology developed by the University of Kentucky (UK).

The goal of the project is to pilot and inform the safe and responsible commercial deployment of UK's solvent-flexible process, which could be scaled up for use at other NGCC plants. The project plans to capture up to 67,000 metric tons of CO₂ per year—equivalent to the annual emissions of nearly 16,000 gasoline-powered cars—and partner with an off-taker who would purify the captured CO₂ for beneficial use.

During Phase 1 of the project, Kentucky Utilities Company plans to complete a FEED study to determine the technical specifications for incorporating carbon capture into the facility. The project plans to also start workforce planning, project permitting, and providing input into OCED's National Environmental Policy Act review process. Phase 1 of the project will also include an Environment, Safety, and Health assessment, business plans, community labor engagements, and community benefits planning.

OCED will provide oversight of the Carbon Capture Pilot at Cane Run Generating Station project by evaluating the status and quality of implementation at each phase of the project. Through its phased approach to project management oversight, OCED will review and evaluate the project's progress, including community benefits, which impact OCED's decision to continue to provide federal funding and allow a project to progress to the following phase.

Carbon Capture Pilot at Cane Run Generating Station

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Project Site

The Cane Run Generating Station is in Louisville, KY. This site was home to Louisville Gas and Electric Company's coal-fired generating plant from 1954 until it was retired in 2015 and replaced by Kentucky's first NGCC generating unit, Cane Run 7.

Community Benefits Commitments

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

- Establishing a **Community Advisory Board** that could include labor unions, local stakeholders, first responders, local workforce development, environmental organizations, academic organizations, community residents, and community-based organizations that support underrepresented groups.
- Developing a **Good Neighbor Agreement** draft outlining project commitments to minimize construction impacts.
- Hosting **town hall meetings and educational workshops** to bring community members, civic leaders, and organizations together to share project information and collect feedback.

More details on Carbon Capture Pilot at Cane Run Generating Station's community benefits commitments can be found in the [Community Benefits Commitments Fact Sheet](#).



Cane Run Natural Gas Combined Cycle Generating Station in Louisville, KY

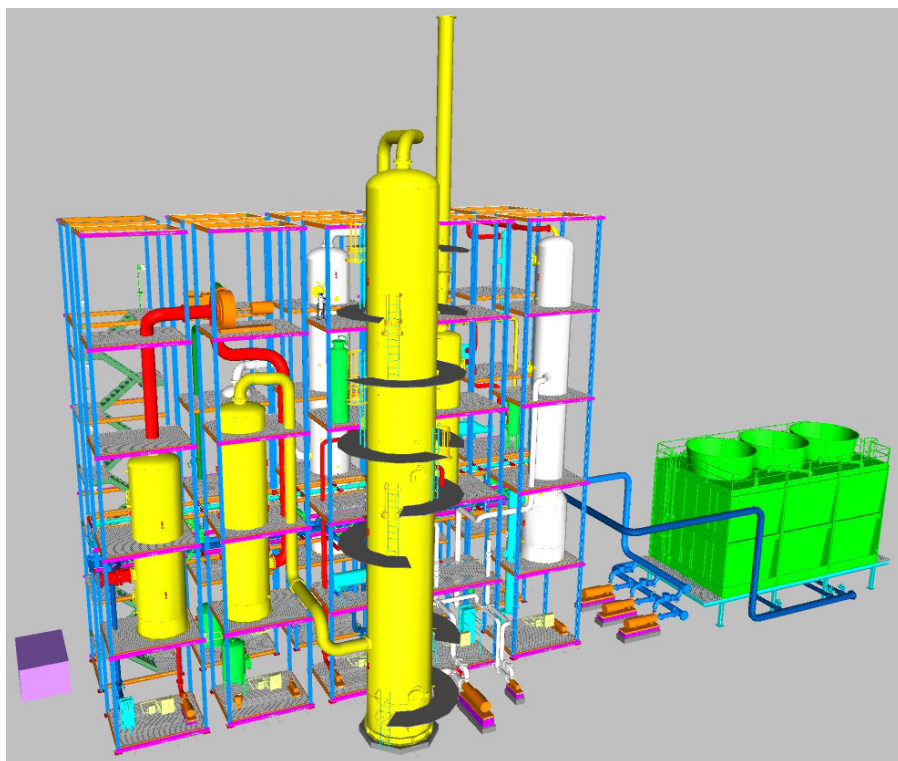
The U.S. Department of Energy established OCED to help scale the emerging technologies needed to tackle our most pressing climate challenges and achieve net-zero emissions by 2050. OCED's mission is to deliver clean energy demonstration projects at scale in partnership with the private sector to accelerate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

Carbon Capture Pilot at Cane Run Generating Station

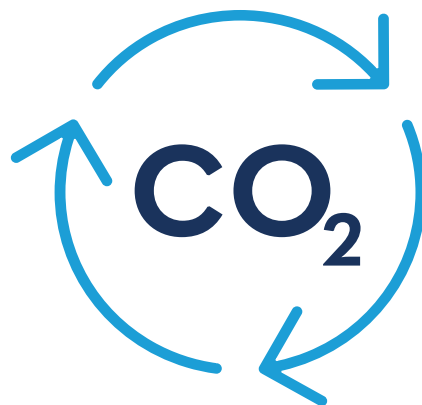
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Carbon Capture Large-Scale Pilot Projects Program Goals

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.



Concept rendering of possible carbon capture equipment layout (actual configuration to be determined in Phase 1)



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More Resources

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

Office of Clean Energy Demonstrations: energy.gov/oced