

TWO LARGE-SCALE CAPTURE PILOTS PROCEED TO DETAILED DESIGN AND CONSTRUCTION

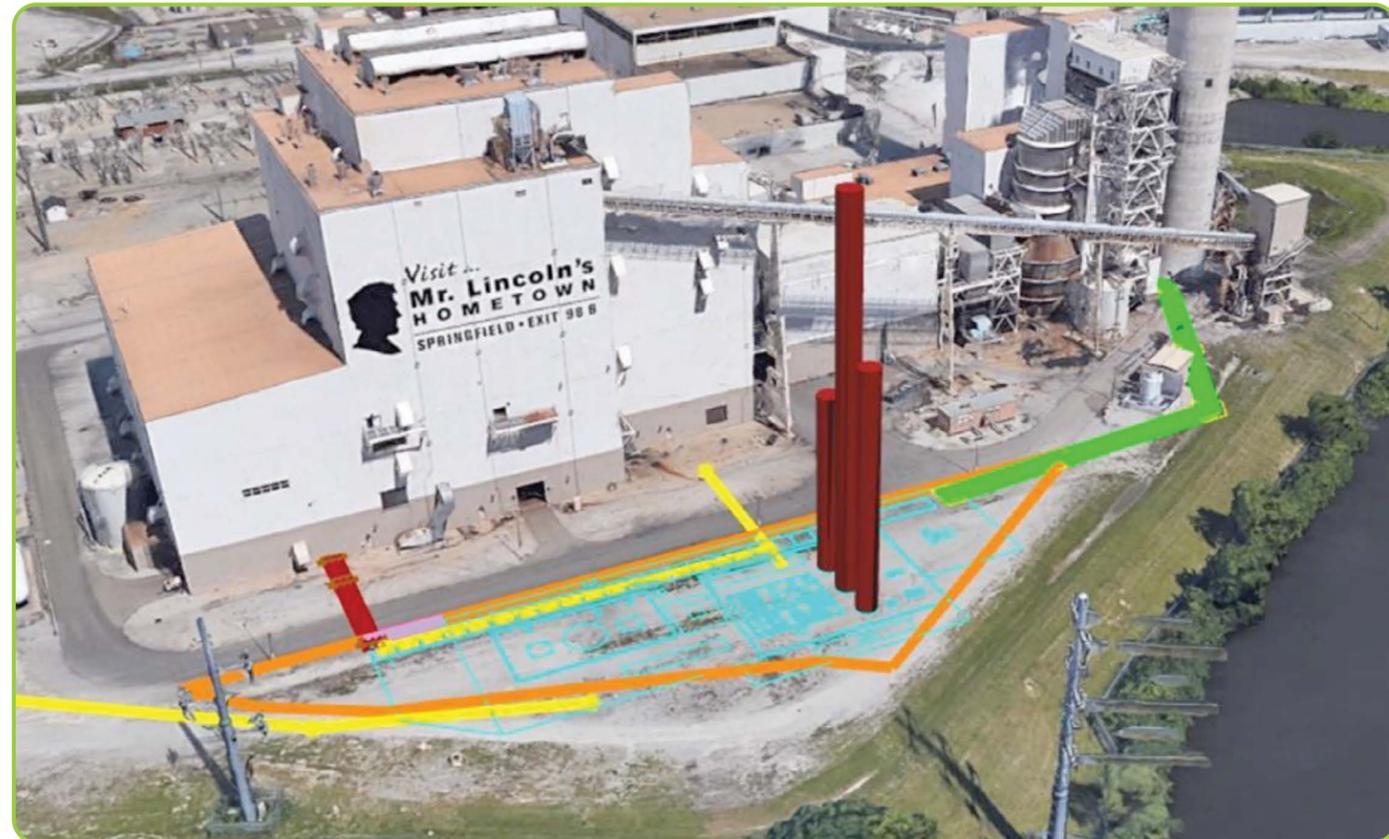
Large pilot testing of advanced carbon capture systems at actual sites will provide a detailed understanding of carbon capture costs in a commercial application.

Two advanced carbon dioxide (CO₂) capture technologies will be tested at large-scale pilot facilities using nominal 10-MWe exhaust slipstreams from existing power plants.

10-MWE TESTING OF LINDE-BASF OASE® BLUE SOLVENT SYSTEM AT DALLMAN POWER PLANT IN SPRINGFIELD, IL

The University of Illinois has partnered with Linde Engineering, BASF Corporation, and Affiliated Construction Services to build and operate a 10-MWe advanced amine-based post-combustion CO₂ capture (PCC) system at the coal-fired City Water, Light and Power (CWLP) Dallman Unit 4 in Springfield, IL.

The PCC system is **designed for >90% CO₂ capture [~200 tonnes of CO₂ per day (TPD)] with 50% turndown capacity** and includes a patented water wash process to reduce OASE® blue solvent loss and aerosol emissions, a unique two-phase, plate-and-frame reboiler design to improve load-following capabilities, stripper interstage heating, and high-pressure stripper operation (3.4 bar).



CWLP Dallman Plant with Rendering of Capture Unit

10-MWE TESTING OF MTR GEN-2 POLARIS MEMBRANE SYSTEM AT THE WYOMING INTEGRATED TEST CENTER IN GILLETTE

Membrane Technology and Research (MTR) has partnered with Sargent & Lundy, Trimeric, and Graycor to construct and operate a **two-stage membrane process designed for 70% CO₂ capture** from a 10-MWe coal-fired slipstream (~150 TPD) at the Wyoming Integrated Test Center in Gillette, WY.

The MTR process will feature high-permeance (>1,500 GPU) Gen-2 Polaris™ membranes in planar membrane modules designed for low pressure drop (4X reduction from earlier spiral-wound modules) followed by CO₂ liquefaction to evaluate product purification (>99%) and compression to 2,234 psia (154 bara).



PRIMING TECHNOLOGY FOR COMMERCIAL DEPLOYMENT

The two five-year projects will complete construction in 2023 for operation in the 2024–2025 time frame and will prime the CO₂ capture technologies for commercial deployment while also providing critical data and knowledge collection that can be applied to other power and industrial CO₂ emitting facilities.

AWARD NUMBER
DE-FE0031581
(U of Illinois)

PROJECT BUDGET

\$71.8M

- DOE\$50,862,896
- PERFORMER.....\$20,942,223

AWARD NUMBER
DE-FE0031587
(MTR)

PROJECT BUDGET

\$72.2M

- DOE\$55,698,626
- PERFORMER.....\$16,470,049

CONTACTS

HQ PROGRAM MANAGER

LYNN BRICKETT

TECHNOLOGY MANAGER

DAN HANCU

FEDERAL PROJECT MANAGERS

ANDREW JONES (U. of Illinois)

SAI GOLLAKOTA (MTR)

PRINCIPAL INVESTIGATORS

KEVIN O'BRIEN (U. of Illinois)

RICHARD BAKER (MTR Co-PI)

BRICE FREEMAN (MTR Co-PI)

FECM RDD&D PRIORITY



PARTNERS

