DOE Pilot-Scale Capture Portfolio: Project Review Meeting

Pittsburgh, PA
November 18-19, 2026

U.S. DEPARTMENT of ENERGY | NATIONAL ENERGY TECHNOLOGY LABORATORY

DOE Pilot-Scale Capture Portfolio: Project Review Meeting

National Energy Technology Laboratory (NETL), Pittsburgh, PA

November 18-19, 2026
Building 922 – Conference Room 106ABC
626 Cochran Mill Rd, Pittsburgh, PA 15236

Day 1
November 18, 2026

8:00 a.m.	**Arrival, Registration & Breakfast**	
9:00 a.m.	**Welcome, Introduction & Safety**	
9:15 a.m.	**Bench-Scale Test of a Polyethyleneimine Monolith Carbon Capture Process for Natural Gas Combined Cycle Point Sources (FE0032138)**	**Chris Bertole** Cormetech
10:00 a.m.	**A New Thermal Swing Adsorption Process for Post-Combustion Carbon Capture from Natural Gas Plants (FE0032151)**	**Ambal Jayaraman** TDA Research
10:45 a.m.	**Break**	
11:00 a.m.	**Engineering-Scale Testing of a High-Performance Solvent for Natural Gas Combined Cycle Flue Gas Carbon Dioxide Capture (FE0032460)**	**Raghubir Gupta** Susteon
11:45 a.m.	**NETL Independent Verification and Validation (IV&V) – Materials Testing**	**David Luebke** NETL, DOE
12:05 p.m.	**Lunch & Networking** Coal Center of Excellence Poster Presentations	
1:00 p.m.	**Scaled Validation of Advanced TPMS Structured Packing at the National Carbon Capture Center (FWP-LLNL-23-FEW0297)**	**Nathan Ellebracht** Lawrence Livermore National Laboratory
1:30 p.m.	**Large Pilot Testing of Linde-BASF Advanced Post-Combustion Carbon Dioxide Capture Technology at a Coal-Fired Power Plant (FE0031581)**	**Stephanie Brownstein** University of Illinois

Day 1 (continued)

November 18, 2026

2:15 p.m.	**Large Pilot Testing of the MTR Membrane Post-Combustion Carbon Dioxide Capture Process (FE0031587)**	**Brice Freeman** Membrane Technology and Research
3:00 p.m.	**Break**	
3:15 p.m.	**NETL IV&V – Sensors and Mobile Lab**	**Lauren Burrows** NETL, DOE
3:45 p.m.	**Test Center Highlights – National Carbon Capture Center (FE0032704)**	**John Northington** Southern Company
4:05 p.m.	**Test Center Highlights – Wyoming Integrated Test Center (FE0032706)**	**Jim Ford** University of Wyoming
4:25 p.m.	**Test Center Highlights – University of North Dakota Energy & Environmental Research Center Carbon Capture Innovation Center (FE0032705)**	**Tony Snyder** University of North Dakota
4:55 p.m.	**Day 1 Adjourns**	

Day 2

November 19, 2026

8:00 a.m.	**Arrival, Registration & Breakfast**	
9:00 a.m.	**Introduction & First Day Summary**	
9:15 a.m.	**Engineering-Scale Testing of Carbon Capture Technology in Industrial Iron and Steel Production (FE0032466)**	**Alex Koutsostamatis** GTI Energy
10:00 a.m.	**Membrane Hybrid Process for Deep Decarbonization of Industry (FE0032462)**	**Jay Kniep** Membrane Technology and Research
10:45 a.m.	**Cryogenic Carbon Capture From Cement Production (FE0032148)**	**Kyler Stitt** Sustainable Energy Solutions
11:30 a.m.	**NETL IV&V – Modeling and Systems Analysis**	**Greg Hackett** NETL, DOE
12:00 p.m.	**Lunch**	
1:00 p.m.	**Laboratory Tour (Optional)**	
3:00 p.m.	**Meeting Adjourns**	

TOUR STOP DESCRIPTIONS

- **Point Source Capture Materials Fabrication and Testing**
  NETL tests new materials for industrial and power related gas separations in this laboratory, including high-performance membranes and membrane modules. Membranes are fabricated from laboratory scale up to pilot scale using roll-to-roll casting equipment. Membrane modules are 3D printed to facilitate fast and flexible testing of new architectures. Permeance testing is accomplished with a variety of pure gas and mixed gas systems.

- **NETL Gas Separations Center — Solvent IV&V**
  Gas separation systems relying on chemical absorption face significant operational challenges from solvent degradation, which increases operating costs, reduces efficiency, and generates unwanted byproducts. In this laboratory, NETL researchers conduct IV&V to quantify the performance and degradation of solvents under simulated industrial operating conditions. Gas Separations Center researchers use dedicated thermal and oxidative degradation test units and a specialized solvent degradation rig acquired in partnership with SINTEF. This experimental infrastructure enables researchers to subject emerging commercial solvent formulations to accelerated aging, replicating both individual and combined thermal and oxidative breakdown pathways. Coupled with comprehensive liquid- and gas-phase analytical capabilities, researchers track chemical changes, quantify volatile and liquid degradation byproducts, and establish uniform, standardized degradation protocols. Data generated in this facility provide industrial technology developers and plant operators with critical insights into solvent durability and operational lifespan, significantly derisking technology deployment and lowering long-term solvent management costs for power and industrial facilities.

- **NETL Gas Separations Center — Solid Sorbent IV&V**
  Solid sorbents offer a promising pathway to lower energy penalties and operating costs in gas separations, but predicting how novel sorbent formulations and structured contactors will withstand prolonged exposure to harsh industrial conditions remains a critical deployment challenge. This facility provides industrial partners with a dedicated, multiscale testing infrastructure for conducting IV&V. The center features a specialized suite of test systems, including four material-scale units for rigorous validation of baseline gas separation capacity and kinetics, alongside a dedicated material-scale system designed specifically for sorbent degradation and accelerated aging. Researchers use these automated breakthrough systems to evaluate sorbent performance across a wide range of form factors, including powders, pellets, monoliths, and hollow fibers. By subjecting materials to controlled cyclical thermal swings, moisture, and simulated contaminant exposure (SOx, NOx, and trace impurities), the facility establishes standardized, benchmarked protocols to characterize structural breakdown, capacity loss, and pore morphology changes over time. This rigorous independent validation derisks sorbent-based technologies, providing industry and project developers with the verified lifetime and durability data essential for commercial scale-up and financing.

- **Membrane Mobile Laboratory**
  NETL's Membrane Mobile Laboratory is a unique mixed gas permeance test system that has been built into a portable trailer, allowing it to be moved from one field host site to another. It is designed to operate a small membrane module using a feed gas stream of up to 50 standard liters per minute, while controlling temperature, humidity, pressure ratio, and stage cut. It can accept a variety of feed gas mixtures that are typical of post-combustion flue gases.

- **Carbon Capture Sorbent Development Lab Tour**
  Researchers at NETL conceptualize, synthesize, and characterize novel sorbents and membranes that can be used in a range of gas separation applications. A range of analytical equipment is used to understand and characterize both the physical properties and dynamic response of these multiscale materials. Promising materials are then scaled up to industrially relevant form factors such as flat sheets and fibers to allow testing of "real world" response.

POSTERS & PRESENTERS

Business Case Analysis Methodology Development for Capture and Coal Plant Modernization
Gregory Hackett

Super Intelligence/Machine Learning Design Tools for Novel Porous Carbon Capture Sorbents
Ali Sekizkardes

Membrane Test Campaigns for Coal-Relevant Carbon Capture Deployment
David Hopkinson

Independent Validation for Carbon Capture Project Decisions
Lauren Burrows

Independent Verification and Validation of Capture Materials and Devices
David Luebke

DOE Pilot-Scale Capture Portfolio: Project Review Meeting



U.S. DEPARTMENT of ENERGY

NATIONAL ENERGY TECHNOLOGY LABORATORY