



STABILIZE AND OPTIMIZE COAL POWER: PROGRAM PORTFOLIO KICK-OFF MEETING

MORGANTOWN, WEST VIRGINIA
OCTOBER 6-7, 2026



U.S. DEPARTMENT
of **ENERGY**

Hydrocarbons and
Geothermal Energy Office



Stabilize and Optimize Coal Power: Program Portfolio Kick-Off Meeting

National Energy Technology Laboratory (NETL), Morgantown, WV

October 6-7, 2026
Building 26 – Conference Room G51
3610 Collins Ferry Road, Morgantown, WV 26505

Day 1

October 6, 2026

Master of Ceremonies (MC): **Ayaka Jones**, Program Manager, Power & Capture, Office of Coal,
Hydrocarbons and Geothermal Energy Office (HGEO), Department of Energy (DOE)

8:00 a.m.	Registration Breakfast/Coffee, NETL Coal Center of Excellence Poster Session*	
9:00 a.m.	Welcome	Sean Plasynski Acting Director, NETL, DOE
9:10 a.m.	Keynote Panel	John Lassek Deputy Assistant Secretary for Subsurface Energy, HGEO, DOE Sarah Forbes Director, Office of Coal, HGEO, DOE
9:30 a.m.	Coal and Power Portfolio Overview	Dan Hancu Director, Power & Capture, Office of Coal, HGEO, DOE
9:45 a.m.	Maximizing the Value of the U.S. Coal Fleet	Michelle Bloodworth President and Chief Executive Officer, America's Power
10:05 a.m.	Break	
10:35 a.m.	Project Session 1: Integrated Power-Block Modernization Highlight multi-system portfolios anchored by major boiler and steam-cycle repairs and turbine-generator modernization with associated fuel-processing, draft, electrical, cooling, and emissions-control upgrades Moderator: Nicole Shamitko-Klingensmith , Federal Project Manager, NETL, DOE	Cardinal – Buckeye Power Paul Jackson , Director, Major Projects and Construction, Buckeye Power Belews Creek – Duke Energy Carolinas Steven Castagnero , Director, Fleet Outage & Project Governance, Duke Energy Carolinas Antelope Valley – Basin Electric Power Cooperative Joshua Raynes , Performance Engineer, Basin Electric Power Cooperative

*Posters will be displayed throughout the meeting. Presenters will be available for Q&A during the meeting
breaks and meals.



Day 1 (continued)

October 6, 2026

Flint Creek – Southwestern Electric Power Company

Richard Gillingham, Engineer Principal,
Southwestern Electric Power Company

Cumberland – Tennessee Valley Authority

Brad Geremia, Senior Manager, Generation
Projects, Tennessee Valley Authority

Q&A

12:00 p.m. Group Photo

12:15 p.m. Working Lunch: Meet Technical Resources
NETL Coal Center of Excellence overview and
poster session*

Nathan Weiland

Acting Director, Coal Center of Excellence, NETL,
DOE

Anthony Burgard

Division Director, Coal, Center for Systems
Analysis, NETL, DOE

MC: **Andrew HLasko**, Program Manager, Power & Capture, Office of Coal, HGEO, DOE

1:30 p.m. High-Level Articles and Project Administration Overview

William Simmons

Grants and Agreements Officer, Office of
Management, DOE

1:45 p.m. Project Session 2: Integrated Plant-Wide Supporting-System Modernization
Highlight plant-wide portfolios that combine
upgrades to coal and ash handling, cooling
and plant utilities, electrical infrastructure and
interconnection, controls, environmental
systems, and selected boiler and steam-cycle
components

Moderator: **Krista Hill**, Federal Project Manager,
NETL, DOE

Mountaineer and Amos – Appalachian Power

James Rappach, Managing Director, Regional
Engineering, Projects & Tech Services,
Appalachian Power

Roxboro – Duke Energy Progress

Robert Myron, Project Director, Duke Energy
Progress

Grand River Energy Center – Grand River Dam Authority

Robert Ladd, Vice President, Power Supply
Planning & Generation Marketing, Grand River
Dam Authority

Q&A

2:35 p.m. Break

3:05 p.m. Coal Export Infrastructure

West Gateway Terminal – Oakland Bulk and Oversized Terminal (OBOT), LLC

Vikas Tandon, Chief Investment Officer, JMB
Capital; Manager, Insight Terminal Solutions, LLC

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Day 1 (continued)

October 6, 2026

3:20 p.m.	Business Case Analysis: Guidance and Expectations	Eric Grol Federal Project Manager, NETL, DOE
3:40 p.m.	Project Session 3: Targeted Unit Modernization and Operating-Constraint Mitigation Highlight targeted upgrades to turbine-generator and boiler/steam-cycle equipment, controls and electrical systems, and emission controls that address equipment degradation, technology obsolescence, reduced electrical-system redundancy, performance limitations, and emissions-related operating constraints Moderator: Adam Payne , Federal Project Manager, NETL, DOE	Kyger Creek – Ohio Valley Electric Thomas Staats , Plant Manager, Ohio Valley Electric Apache – Arizona Electric Power Cooperative Nathen Hatch , Principal Engineer, Arizona Generation & Transmission Cooperatives East Bend – Duke Energy Kentucky Douglas Corson , Manager, Generation Project Engineering, Duke Energy Kentucky Sooner – Oklahoma Gas and Electric Garrett Hutchings , Supervisor, Electrical Engineering, Oklahoma Gas & Electric Ghent – Kentucky Utilities Brian Limberg , Senior Manager, Major Project Development, Louisville Gas & Electric and Kentucky Utilities Energy, LLC Q&A
5:05 p.m.	Day 1 Adjourns	

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Day 2
October 7, 2026

MC: **Nagamani Gavvalapalli**, Program Manager, Power & Capture, Office of Coal, HGEO, DOE

8:00 a.m. **Breakfast/"DOE Office Hours"**

9:00 a.m. **The Power of Persistence: Cleaning Up the Past**

Manny Zeringue, Vice President, Generation,
Big Rivers Electric Corporation
Jason Burden, Managing Director, Generation,
Big Rivers Electric Corporation
Holly Hills, Project Manager, Environmental &
Process Technologies, Sargent & Lundy

9:30 a.m. **Project Session 4: Critical Enabling Infrastructure —
Coal/Ash Handling and Cooling**

Highlight dedicated upgrades to critical coal-
handling, ash-handling, or cooling systems,
including coal crusher replacement with added
redundancy, wet-to-dry ash handling conversion,
and cooling-tower replacement

Moderator: **Dustin Brown**, Federal Project
Manager, NETL, DOE

Fort Martin – Monongahela Power

Justin Brown, Manager, Project and Outage
Services, FirstEnergy

**Columbia – Wisconsin Power and Light
Company, dba Alliant Energy**

James Fleming, Director of Generation, Alliant
Energy

Mitchell – Wheeling Power

Shawn Malone, Director of Programs, American
Electric Power Service Corporation

Q&A

10:20 a.m. **Break**

10:50 a.m. **Project Session 5: Water Management and
Advanced Wastewater Systems**

Highlight site-scale modernization and design
approaches to reduce, treat, reuse, and
manage wastewater, with resource recovery
where applicable

Moderator: **Alison Metz**, Federal Project
Manager, NETL, DOE

Merom – Hallador Power

Blake Cutrell, Chief of Staff, Hallador Energy

Baker Hughes

Sankaran Murugesan, Research Scientist, Baker
Hughes

Heartland Water Technology

Matthew Schroeder, Senior Director,
Engineering, Heartland Water Technology

Laramie River – University of Wyoming

Erica Belmont, Ph.D., Associate Professor,
Mechanical Engineering, University of
Wyoming

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Stabilize and Optimize Coal Power: Program Portfolio Kick-Off Meeting

Day 2 (continued)

October 7, 2026

Spurlock – University of Kentucky Research Foundation

Jesse Thompson, Ph.D., Associate Director,
Institute for Decarbonization and Energy
Advancement, University of Kentucky
Research Foundation

Q&A

12:15 p.m. **Lunch and Networking**

1:45 p.m. **Project Session 6: Fuel Flexibility**
Highlight additional fuel infrastructure, dual-firing,
co-firing, and advanced controls that expand
fuel and operating flexibility while preserving
coal-fired generation capability

Moderator: **Heather Hunter**, Federal Project
Manager, NETL, DOE

Spurlock and Cooper – East Kentucky Power Cooperative
Sean Alteri, Senior Environmental Engineer, East
Kentucky Power Cooperative

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Merom – Hallador Power
Scott McGuire, Senior Corporate Engineer,
Hallador Energy

Merom – Hallador Power
Joe Bisesi, Principal Account Manager,
Northeast, Hallador Energy

Dallman – University of Illinois
Kevin O'Brien, Ph.D., Director, Illinois Sustainable
Technology Center, University of Illinois

Zolo Carbon Smartech
Eric Huelson, Director of Product Development,
Zolo Carbon Smartech

Q&A

3:30 p.m. **Closing Remarks**

Dan Hancu
Director, Power & Capture, Office of Coal,
HGEO, DOE

3:40 p.m. **Tour of Coal Center of Excellence Laboratory Facilities**

5:25 p.m. **Meeting Adjourns**

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LABORATORY TOUR AGENDA

Tour Stop	Speaker	Location
Research & Innovation Center Safety Briefing	Nate Weiland Kirk Gerdes	B26-G51
Optical Sensors and Novel Waveguides for Harsh-Environment Sensing	Michael Buric	Laser and Optical Processes Lab, B25-102
Multiphase Flow Science and Scale-Up Testing for Coal Conversions	Mehrdad Shahn Timer Steve Rowan	Modular Multipurpose Reactor, B4
Advanced Integrated Energy Systems	David Tucker	Hybrid Performance Project, B4, Control Room
Advancing Industrial Combustion Systems*	Kristyn Johnson May	BLAZE Facility, B6*
Flexible Reactor System for Advanced Coal Conversion and Gasification	Jarrett Riley	Fluidized Bed Reactor Lab, B13
Coal and Carbonaceous Feedstock Conversion (ReACT Facility)	Dushyant Shekhawat	ReACT Facility, B14

**Denotes controlled laboratory*

	Group 1	Group 2	Group 3	Group 4
3:50 p.m.	Laser and Optical Lab, B25-102	Modular Multipurp. Reactor, B4	BLAZE Facility, B6*	Fluidized Bed Reactor Lab, B13
4:05 p.m.	Modular Multipurp. Reactor, B4	Hybrid Perform Proj, B4, Control Room	Fluidized Bed Reactor Lab, B13	ReACT Facility, B14
4:20 p.m.	Hybrid Perform Proj, B4, Control Room	BLAZE Facility, B6*	ReACT Facility, B14	Modular Multipurp. Reactor, B4
4:35 p.m.	BLAZE Facility, B6*	Fluidized Bed Reactor Lab, B13	Laser and Optical Lab, B25-102	Hybrid Perform Proj, B4, Control Room
4:50 p.m.	Fluidized Bed Reactor Lab, B13	ReACT Facility, B14	Modular Multipurp. Reactor, B4	Laser and Optical Lab, B25-102
5:05 p.m.	ReACT Facility, B14	Laser and Optical Lab, B25-102	Hybrid Perform Proj, B4, Control Room	BLAZE Facility, B6*



TOUR STOP DESCRIPTIONS

Optical Sensors and Novel Waveguides for Harsh-Environment Sensing

The Laser and Optical Processes Laboratory supports priorities of the Coal Center of Excellence (CoE) and Hydrocarbons and Geothermal Energy Office (HGEO) by enabling more reliable, real-time monitoring of coal-based power, conversion, gasification, and high-temperature industrial systems. The lab houses NETL's laser heated pedestal growth system, which can produce single-crystal optical fibers in sapphire, yttrium aluminum garnet, or other high-temperature oxides. Previously unavailable long-lengths of sapphire fiber are regularly produced in the lab and used for ultrahigh-temperature distributed measurement systems. The lab also develops novel hollow-capillary waveguides used in NETL's Raman gas analyzer system, which makes subsecond species measurements in multigas process streams. These capabilities can help improve process control, equipment monitoring, operational flexibility, safety, and reliability across coal-based energy and industrial systems.

Multiphase Flow Science and Scale-Up Testing for Coal Conversions

The Conversion & Products Division develops cutting-edge multiphase computational fluid dynamics models to predict and optimize complex gas-solid and gas-liquid interactions within gasifiers and combustors. To ensure model accuracy, NETL utilizes bench-scale and subpilot-scale experiments such as cold flow experiments conducted in the Multiphase Modeling Validation Unit to generate high-fidelity hydrodynamic data. This close integration of experimental validation directly strengthens the predictive power of the simulations.

These validated multiphase models serve as essential utilities for scaling up innovative concepts, such as process-intensified and microwave-assisted conversion systems, from the lab to commercial deployment. Furthermore, the models enable dynamic operability testing, providing designers and operators with critical insights into transient fluid dynamics, heat transfer, and reactor behavior during startups, shutdowns, and rapid load transitions. By combining robust multiphase modeling with pilot-scale validation, NETL lowers capital expenditure/operating expenditure risks, improves operational resilience, and accelerates the deployment of flexible, high-efficiency carbon conversion technologies.

Advanced Integrated Energy Systems

The Integrated Energy Systems Facility incorporates intelligent hardware or cyber-physical systems to develop new technologies and accelerate commercialization through implementation in an integrated power environment. This provides opportunities to improve energy system resiliency by increasing flexibility of both new and existing coal-fueled power plants by augmenting power generation with thermal and chemical storage. Using high-temperature thermal storage to minimize fuel modulation during load transients can improve ramp rates by as much as tenfold. Additionally, the Integrated Energy Systems Facility can be used to evaluate the coupling of chemical production from coal with power generation to achieve optimal economic viability. Critical to the success of these transformational systems is achieving optimal control strategies that balance the variable load while minimizing potential generation asset degradation, a research space where NETL provides leadership worldwide.

Advancing Industrial Combustion Systems

The BLAZE facilities serve as a national testbed to accelerate industrial combustion technology, which will bolster the competitiveness of the nation's heavy heat industries at a global scale, improve technology robustness, and increase American energy security by developing adaptable process-heating solutions. As a portfolio of industrially relevant testbeds with complementary computational modeling, BLAZE offers technology development pathways for burners, control systems, sensors, materials, and furnace refractories. At BLAZE, industry partners can evaluate adaptive heat solutions alongside national lab infrastructure, state-of-the art instrumentation, subject matter expertise, and supercomputing power, enabling industry to create innovative solutions in the most energy-intensive sectors.



Flexible Reactor System for Advanced Coal Conversion and Gasification

NETL's Solid Fuel Fluidized Bed Reactor (SFFBR) provides a highly adaptable testing platform for investigating a wide range of fluidized coal reactions and fuel pyrolysis processes. Designed to accommodate diverse operating conditions and novel reaction pathways, the system enables detailed study of catalytic gasification to significantly enhance reaction kinetics and maximize syngas yields from solid fuels. The flexibility of this reactor configuration allows researchers to evaluate diverse catalyst formulations and bed media targeting in-situ tar reforming, a critical challenge in solid fuel processing. Furthermore, the platform is engineered to handle varied feedstocks, from traditional coal, low-rank and waste coal streams to woody biomass and municipal solid waste. This versatile technology readiness level 4 semibatch system enables precise, isothermal injection of solid feeds into customizable fluidized beds. By allowing rapid adjustments to temperature, gas atmosphere, catalyst loading, and bed hydrodynamics, the SFFBR serves as a pivotal tool for advancing robust, high-efficiency technologies for waste coal conversion, tar management, and catalytic fuel synthesis.

Coal and Carbonaceous Feedstock Conversion

NETL's Reaction Analysis & Chemical Transformation (ReACT) facility supports Coal CoE and HGEO priorities by advancing modular, process-intensified technologies that expand the efficient use of domestic coal and carbonaceous resources for power, fuels, chemicals, and high-value manufactured products. The ReACT facility provides a flexible modular research platform for evaluating coal, waste coal, low-rank coal, and blended carbon-rich feedstocks under novel reaction-engineering conditions. The facility achieves significant process intensification by leveraging microwave energy inputs to drive compact, high-efficiency thermochemical conversion processes, such as coal gasification, pyrolysis, upgrading, and chemical transformation, in smaller, more agile footprints. These capabilities support targeted catalyst design, modular reactor development, process optimization, feedstock-flexibility testing, and rapid technology scale-up. By maximizing conversion efficiency, enhancing product selectivity, and enabling scalable, modular operational flexibility, ReACT reduces technical risk and accelerates intensified coal-based technologies toward industrial relevance, domestic manufacturing, and commercial deployment. Its flexible and modular configuration also provides a platform for rapidly adapting and demonstrating emerging reaction technologies in support of evolving Coal CoE and HGEO priorities.



POSTERS & PRESENTERS

Mining & Processing

- 01 Super Intelligence-Driven Mining Automation To Improve Coal Mining Operations: Safety and Productivity
- 02 Increasing Mining Revenue Through Development of a Coal Waste Valorization Screening Tool
- 03 Expanding Access To Unmineable Coal Seams
- 04 Machine Learning-Driven Approaches for Enhanced Coalbed Methane Recovery

Gasification

- 05 Scale-Up Pathways for Coal Gasification Commercialization
- 06 Strategic Analysis for Investable Coal Gasification Pathways
- 07 Process Intensification To Cut Coal Gasification Cost and Downtime
- 08 The National Laboratory Gasification Consortium

Coal & Waste to Products

- 09 Coal-Derived Pitch and Coke for Electric Arc Furnace Electrode Manufacturing
- 10 Coal-to-Graphite Commercialization for Domestic Manufacturing
- 11 Coal-Derived Carbon Electrodes for Energy Storage Devices
- 12 Electrochemical Conversion of Coal Waste Gases Into Valuable Chemicals
- 13 Microwave Conversion of Coal Waste Gas Into Industrial Chemicals

Digital Engineering

- 14 Advanced Controls for Flexible Coal Plant Operation
- 15 Real-Time Modeling and Digital Engineering Capabilities
- 16 Business Case Analysis Methodology Development for Power & Capture Project Decision-Making

Coal Power

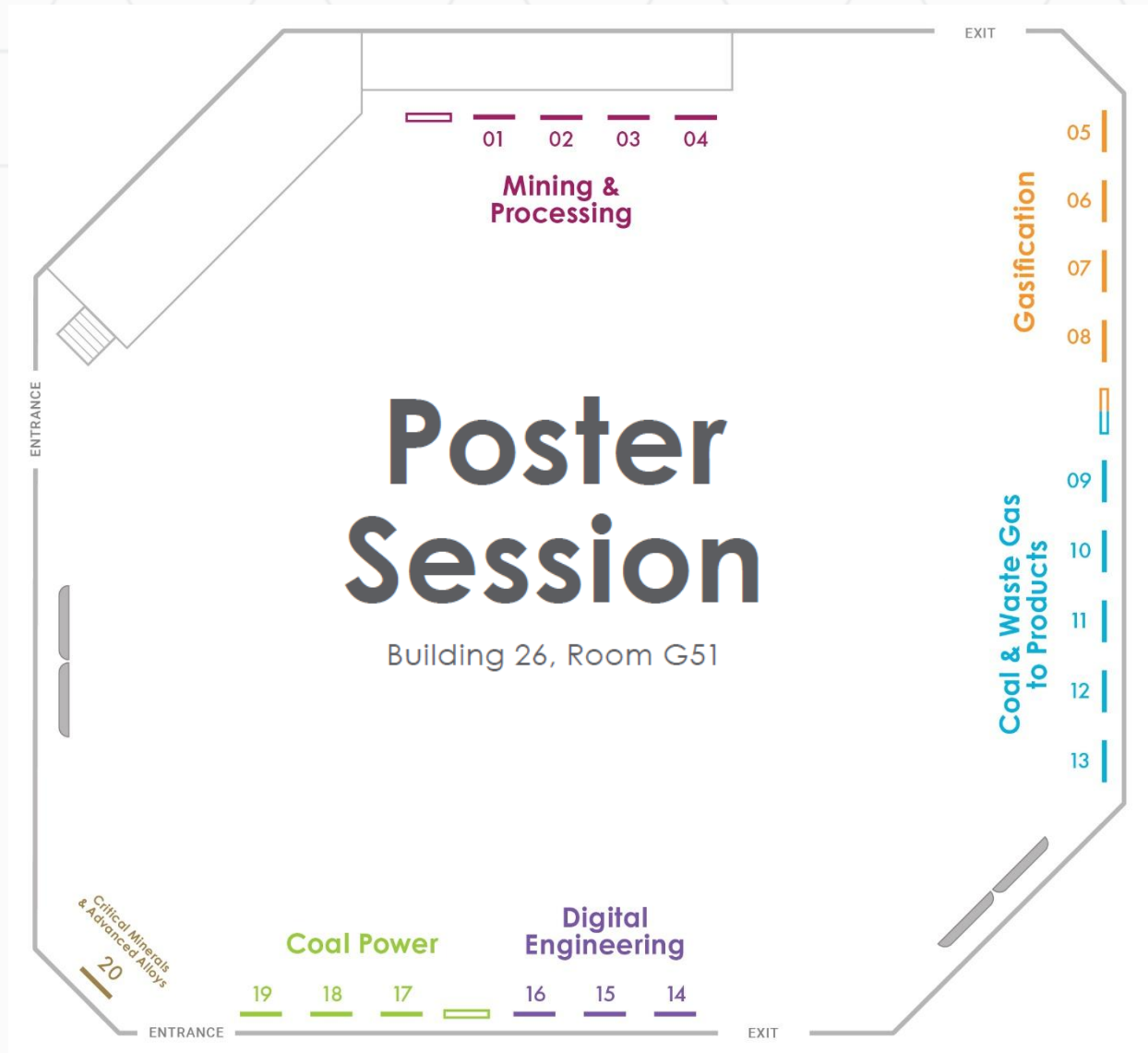
- 17 Coal Plant Modernization and Reliability Analysis
- 18 Digital Engineering and Materials Science for Coal Plant Life Extension
- 19 Harsh-Environment Sensing for Coal Plants

Critical Minerals & Advanced Alloys

- 20 METALLIC: The Minerals to Materials Supply Chain Research Facility



POSTER SESSION MAP





Visit the Power & Capture webpage to learn more.

Scan the QR code to learn more about how the U.S. Department of Energy's Power & Capture Program provides a platform for developing technologies that stabilize, optimize, and grow the American coal industry.

netl.doe.gov/centers-of-excellence/coal/power-capture



Visit the Coal Center of Excellence webpage to learn more.

Scan the QR code to learn more about how NETL delivers integrated research and technology solutions that advance and expand the efficient use of coal resources in alignment with DOE priorities and industrial needs.

netl.doe.gov/centers-of-excellence/coal

Contact us at **Coal@netl.doe.gov**

