



U.S. DEPARTMENT *of* ENERGY



OIL & GAS

CENTER *of* EXCELLENCE

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October 2026

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The National Energy Technology Laboratory (NETL) Centers of Excellence (CoE) advance applied research and technology solutions crucial for affordable, reliable, and secure energy. Aligned with the strategic goals and priorities of the U.S. Department of Energy (DOE) and the Hydrocarbons and Geothermal Energy Office, the Oil & Gas CoE enables secure, efficient, and low-impact oil and gas systems through integrated research aligned with industrial needs. The CoE's activities align with three major divisions: Production, Transport and Storage; and Power, Fuels, and Chemicals. Together, these divisions address upstream, midstream, and downstream components of the domestic oil and gas sector.



Production

Strengthening Domestic Energy Security

This division enables secure, efficient, and low-impact hydrocarbon production by developing advanced methods and technologies to increase recovery factors in unconventional reservoirs, boost output from existing wells, and extend the economic life of primary operations. Additionally, the division designs robust solutions for produced water management, transforming produced water for beneficial and economic uses. Ultimately, these upstream strategies maximize recovery efficiency, improve economic viability, and enhance the overall performance of primary, unconventional, and emerging operations.



Transport and Storage

Increasing Energy Resilience

This division designs and validates smart pipeline sensor technologies and advanced materials, coatings, and liners to increase resilience and extend the operational life of pipeline transport systems. Research efforts address energy storage in subsurface reservoirs and advance technologies that more effectively use natural gas at the well pad, including its conversion into valuable chemicals. Ultimately, these efforts maximize the efficiency and resilience of transport and storage operations, reinforce the U.S. energy supply chain, and enhance domestic energy security.



Power, Fuels, and Chemicals

Delivering Superior Efficiency and Reliability

The division develops advanced gas turbine combustion technologies for current and future platforms using fuel-flexible power generation. The division also designs and fabricates advanced alloy materials, novel turbine component platforms, and sensors engineered to withstand demanding environments. With artificial intelligence and machine learning, the division accelerates technology deployment and optimizes system performance. These efforts strengthen and expand the American power generation and chemicals sectors, reinforcing their role in the nation's energy mix.



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The NETL CoEs are a core component of DOE's strategy to secure the nation's energy future. By providing U.S. industry with unparalleled research and development capabilities, the Oil & Gas Center is enabling secure, efficient, and economically viable oil and gas systems to maximize extraction efficiency while bolstering domestic energy security. **For more information, please visit netl.doe.gov or contact netloilandgascenter@netl.doe.gov.**