NATIONAL ENERGY TECHNOLOGY LABORATORY
MORGANTOWN, WEST VIRGINIA

July 2026

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NETL's Morgantown laboratory was established in 1946 with a mission to find more efficient and cost-effective ways of gasifying coal to produce synthesis gas. Throughout the lab's history, Morgantown researchers have been dedicated to advancing the nation's energy future by creating innovative solutions that strengthen the affordability, reliability, and security of energy systems and natural resources.

World War II sparked national interest in synthetic fuels production, leading to passage of the Synthetic Liquid Fuels Act of 1944. It was under this legislation that the Synthesis Gas Branch Experiment Station began government-sponsored coal-gasification research at West Virginia University facilities in Morgantown in 1946. Administered by the U.S. Department of the Interior's Bureau of Mines, the 17-employee station was tasked with developing processes to produce synthesis gas from coal.

Reaction Analysis and Chemical Transformation Facility

By 1954, the Morgantown laboratory became the Appalachian Experiment Station for on-site coal research with a staff of 109 employees. Construction of the Appalachian Experiment Station, which comprised an administrative building and laboratories for the study of petroleum production and coal gasification, began on Collins Ferry Road in June 1952. The new Appalachian Experiment Station represented an important step toward consolidating ongoing investigations of petroleum, coal, and synthetic fuels into an overarching program of hydrocarbon energy research that could help guide federal energy policy.

The Appalachian Experiment Station came under the purview of the new U.S. Energy Research and Development Administration in 1975 and gained a new moniker: the Morgantown Energy Research Center (MERC). Together with sister Energy Research Centers in Bartlesville (Oklahoma), and Pittsburgh, MERC oversaw federally funded contracts for hydrocarbons research and development. Research areas included the development of advanced methods for combustion gases, alternative methods to substitute coal for imported oil, and enhanced oil recovery to produce more domestic oil. In 1977, the center was incorporated into the newly established U.S. Department of Energy (DOE) as the Morgantown Energy Technology Center. The center's responsibilities included on-site research with coal, oil, and gas technologies, as well as management of millions of dollars' worth of contracts for research and development conducted by universities, private industry, and other government research institutions.

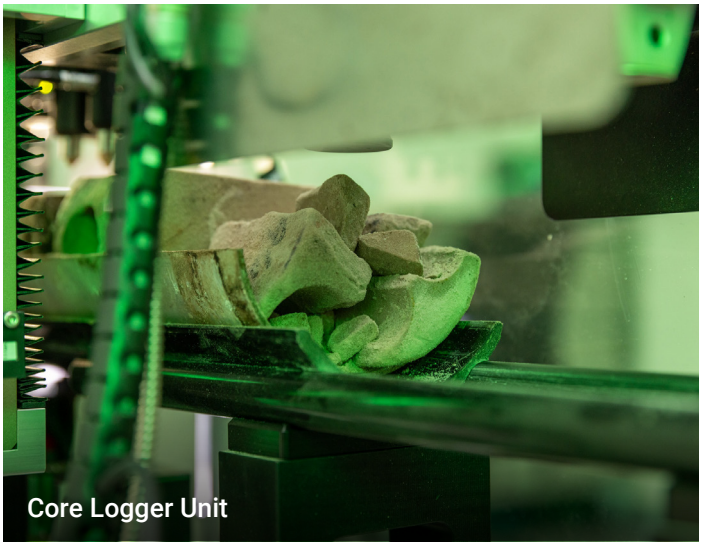
In 1996, researchers at the Morgantown and Pittsburgh centers were united in a new Federal Energy Technology Center (FETC). In 2005, FETC was joined by a third laboratory in Albany, Oregon. These government-owned, government-operated facilities now comprise DOE's NETL.

In February 2026, NETL opened the Coal Center of Excellence on its Morgantown site. The center highlights NETL's expertise, bringing together industry, academia, national laboratories, and other stakeholders to deliver integrated research and technology solutions that expand the efficient use of coal resources in alignment with DOE priorities and industrial needs. To address these priorities and needs, NETL's Morgantown site is a hub for coal research and development, with approximately 430 Morgantown-based NETL personnel who are dedicated to advancing the nation's energy future by creating solutions that strengthen the affordability, reliability, and security of energy systems and natural resources. The Morgantown site plays a key role in advancing applied energy technologies that support DOE's mission

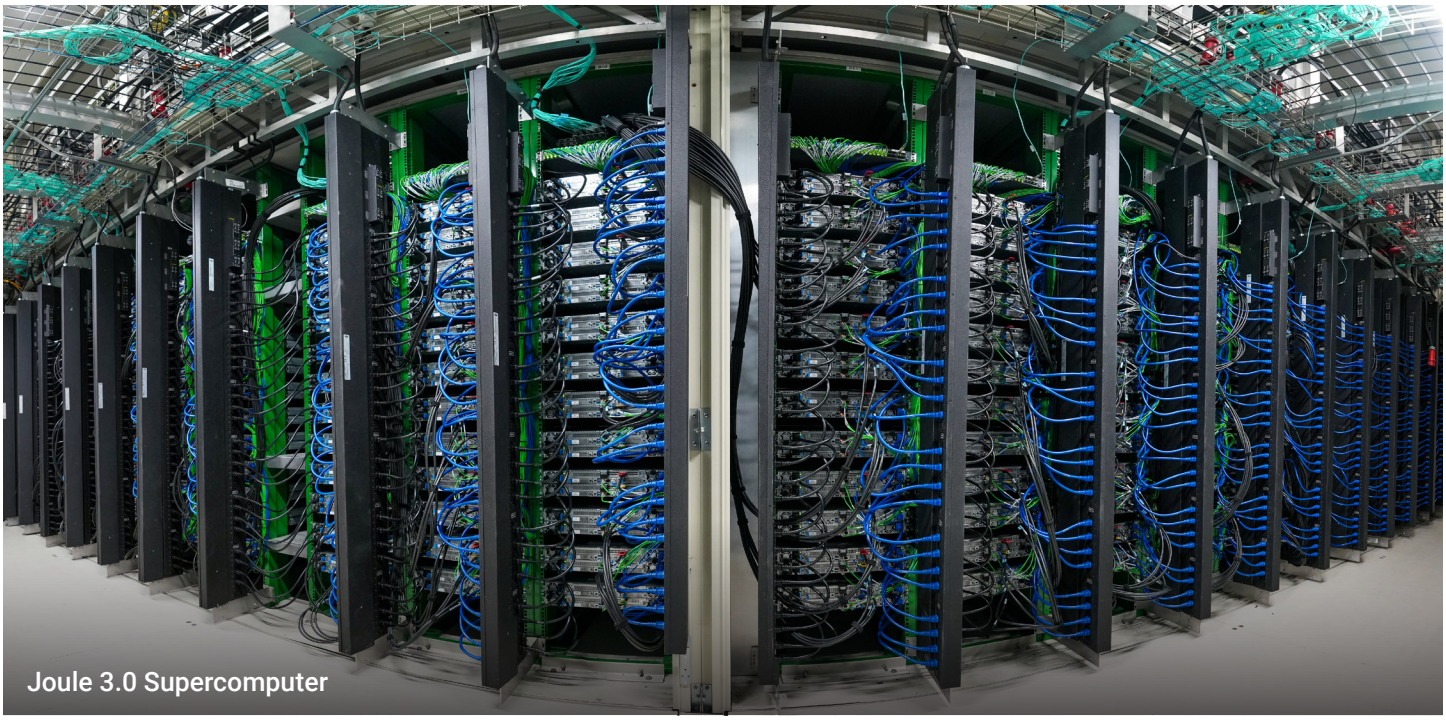
NETL researchers leverage computational tools, engineering expertise, and strategic partnerships to address national energy challenges, including advancements in chemical reaction engineering, the development of integrated energy systems, novel reactor designs for high-value carbon and chemical production, fuel cell and electrolyzer innovation, advanced subsurface imaging using in-situ CT technology, and next-generation combustion systems.

Collaborations with industry, government agencies, and academia, including West Virginia University, help accelerate the transition of innovative solutions from the lab to real-world applications.

NETL's Medical CT Scanner



Core Logger Unit



Joule 3.0 Supercomputer

RESEARCH IN ACTION

NETL research has unlocked a low-temperature synthesis process to turn America's coal into critical mineral graphite with a lower processing intensity, adding to the domestic supply chain and addressing commercial market needs for several key industries as well. The novel process NETL researchers developed focuses on using earth-abundant catalyst materials, such as iron, to facilitate the production of highly crystalline graphite. Coal of different ranks, coal waste, coal char, bio-char, petroleum coke, and plastic waste have been demonstrated to work as feedstocks with this process.

The new catalyst from NETL results in a manufacturing process that is not only quicker than conventional catalytic processes, but also requires less heat, and therefore uses less energy and costs less for users to operate. The NETL catalyst is responsible for dropping process temperatures from 3,000 degrees Celsius down to less than 1,500 degrees Celsius and reducing process times from several weeks to just a few hours. Additionally, research demonstrates the catalyst can be recovered, recycled, and reused indefinitely, which improves the overall economics of graphite production.

NETL researchers are leveraging the power of the wafer-scale engine to accelerate innovation across industrial and energy systems.

NETL is a U.S. Department of Energy (DOE) national laboratory dedicated to innovating and accelerating the nation's energy solutions in hydrocarbons, geothermal energy, and critical minerals production. The Lab further strengthens its impact by engaging with industry, academia, and other stakeholders through four strategically located Centers of Excellence: Coal, Critical Minerals & Advanced Alloys, Oil & Gas, and Geothermal. With research sites in Albany, Oregon; Morgantown, West Virginia; and Pittsburgh, Pennsylvania, NETL operates as one laboratory to create advanced energy technologies that support DOE's mission and enable affordable, reliable, and secure energy to fuel human prosperity.