



## Overview

NETL is a U.S. Department of Energy (DOE) national laboratory 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.

The laboratory traces its origins to 1910 when the U.S. Bureau of Mines was established to improve coal mining safety and to develop synthetic liquid fuels during WWII. Over the decades, NETL evolved with a mission to deliver groundbreaking innovations in advanced energy systems and materials science. From reducing emissions that helped eliminate acid rain to advancing shale gas production technologies, NETL has played a pivotal role in shaping the nation's energy landscape.

Today, NETL specializes in energy technologies that advance hydrocarbons and broader national energy goals. The Lab conducts research across critical areas, including computational science and engineering, energy conversion, geological and environmental systems, materials engineering and systems analysis. Research priorities include high-performance computing, artificial intelligence and machine learning, domestic rare earth element and critical mineral supply chain development, advanced materials, microwave chemistry and subsurface science.

Through forward-thinking research, NETL strives to ensure a robust economy and to strengthen national security by developing advanced energy technologies that support DOE's mission while fostering collaborations that will lead to a resilient and abundant energy future for the nation.

## People

NETL operates as a government-owned, government-operated (GOGO) lab, managing a workforce of approximately 1,800 federal and site-support contractor staff across its three sites in Albany, Oregon; Morgantown, West Virginia; and Pittsburgh, Pennsylvania. The Lab's team includes scientists, engineers, economists, research support staff, technical project managers, procurement experts and attorneys, as well as postgraduate, graduate and undergraduate interns, all working to advance energy technology innovation and research.





## R&D Focus Areas

NETL's research and development (R&D) focus is on energy technologies, particularly those relating to fossil energy, critical minerals and materials and artificial intelligence applications for energy security.

**Computational Science and Engineering** — Pioneering simulation models and machine learning to accelerate American energy innovation.

**Energy Conversion Engineering** — Advancing chemical and energy conversion technologies to efficiently produce power, fuels and chemicals.

**Strategic Systems Analysis and Engineering** — Advancing American innovation through insightful analysis of complex, multi-scale energy systems.

**Materials Engineering and Manufacturing** — Designing and developing affordable, durable materials for a resilient and abundant energy future for America.

**Geological and Environmental Systems** — Examining geologic reservoirs and materials to maximize efficient production and utilization of domestic energy resources.

## Achievements

Over the past 25 years, NETL's scientists have earned 60 R&D 100 Awards, as well as 53 regional and national awards from the Federal Laboratory Consortium. These awards, in addition to many other individual awards, recognize NETL's contribution to our nation's energy landscape. Most recently, NETL researchers have:

- Harnessed cutting-edge microwave research capabilities to revolutionize ammonia production, significantly reducing costs by **more than 25%**.
- Developed a low-cost process for converting coal tar waste into high-quality graphene material that can enhance the performance of energy-storing supercapacitor systems by **up to 55%**.
- Developed an exceptionally robust pipeline steel by strategically adding cerium to increase strength by **over 30%**.

## DOE Program Execution

As the only GOGO laboratory within the national lab system, NETL uniquely functions as a DOE field office supporting FECM and other DOE offices in all aspects of program execution. This includes planning, development, issuance, application evaluation, selections, awards and project management for notices of funding opportunities. NETL has the ability to seamlessly integrate research, project management, procurement, NEPA and legal functions in an integrated project team approach, ensuring the efficient execution of DOE initiatives.

## Collaborations

NETL collaborates with industry, academia, national laboratories and government agencies to advance energy innovation. These partnerships leverage NETL's expertise, facilities and research capabilities to tackle critical energy challenges. Through these partnerships, stakeholders can:

- Partner with NETL on R&D projects.
- Access NETL's facilities, equipment and research services.
- Establish agreements that define collaboration terms and maximize research impact.
- Secure and license NETL's intellectual property.



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