NETL RESEARCH

OUR MISSION

NETL is a U.S. Department of Energy national laboratory that drives innovation and delivers technological solutions for an environmentally sustainable and prosperous energy future. By leveraging its world-class talent and research facilities, NETL is ensuring affordable, abundant and reliable energy that drives a robust economy and national security, while developing technologies to manage carbon across the full life cycle, enabling environmental sustainability for all Americans.

OUR VISION

Our vision is to be the nation's premier energy technology laboratory, delivering integrated solutions to enable transformation to a sustainable energy future.

NETL

NATIONAL ENERGY TECHNOLOGY LABORATORY

WHO WE ARE

The National Energy Technology Laboratory (NETL) is a U.S. Department of Energy national laboratory that drives innovation and delivers technological solutions for an environmentally sustainable and prosperous energy future. Through its world-class scientists, engineers, and research facilities, NETL is ensuring affordable, abundant, and reliable energy that drives a robust economy and national security, while developing technologies to manage carbon across the full life cycle, enabling environmental sustainability for all Americans, advancing environmental justice, and revitalizing the economies of disadvantaged communities. Leveraging the power of workforce inclusivity and diversity, highly skilled innovators at NETL's research laboratories in Albany, Oregon; Morgantown, West Virginia; and Pittsburgh, Pennsylvania conduct a broad range of research activities that support DOE's mission to ensure America's security and prosperity by addressing its energy and environmental challenges through transformative science and technology solutions.

ACCELERATING DEVELOPMENT OF EMERGING TECHNOLOGIES

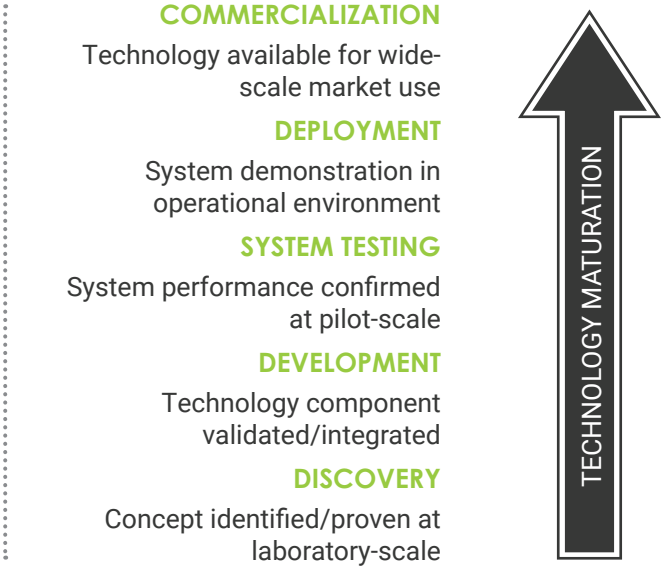
At NETL, we're at the forefront of accelerating emerging technologies. Our multidisciplinary teams, armed with cutting-edge expertise, are dedicated to pioneering transformative energy solutions. As the country's premier laboratory for advancing carbon management and resources sustainability technologies, our R&D is actively shaping the energy future.

NETL is the nation's only DOE government-owned and operated (GO-GO) laboratory. This unique position empowers us to bridge the gap between early-stage research and practical solutions for the energy sector. NETL's core competencies cover diverse fields, such as geological and environmental systems, materials engineering and manufacturing, energy conversion engineering, strategic systems analysis and engineering, computational science and engineering, and program execution and integration.

The lab undertakes robust intramural R&D and manages an extensive extramural R&D portfolio across various DOE offices. These include the Offices of Fossil Energy and Carbon Management (FECM), Energy Efficiency and Renewable Energy (EERE), Cybersecurity, Energy Security and Emergency Response (CESER), Electricity (OE), Grid Deployment Office (GDO), Manufacturing and Energy Supply Chains Office (MESC), and the Joint Office of Energy and Transportation. Our research portfolio encompasses approximately 1,000 R&D activities in 49 states and has a total award value of over $5 billion, complemented by private sector cost-sharing of $1.3 billion. Through close collaboration with industry, academia, and national/international research organizations, NETL nurtures emerging technologies that drive economic progress while mitigating risks.

FROM DISCOVERY TO COMMERCIALIZATION

NETL champions the entire spectrum of technology development and maturation, from initial concept ideas to deployment and commercialization, regarding energy and carbon management R&D. We offer independent, unbiased, science-based analyses of technologies, energy policies, legislation, and regulations. With our expertise in science, engineering, and technology, we tackle national priorities by spearheading targeted research, development, demonstration, and deployment initiatives. Collaborating with a range of top-tier resources—spanning state, local, and federal agencies, academia, industry, and not-for-profit research institutes and organizations—NETL is addressing today's energy challenges and strategically planning for tomorrow's evolving needs by collaborating with a range of top-tier resources—spanning state, local, and federal agencies, academia, industry, and not-for-profit research institutes, and organizations.

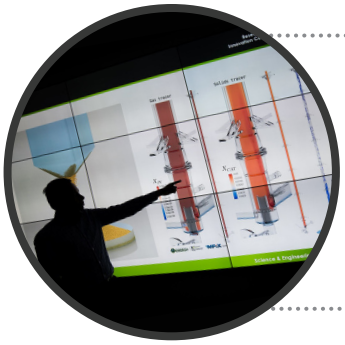


COMMUNITY ENGAGEMENT AND ENVIRONMENTAL JUSTICE

In pursuit of a sustainable energy future for all Americans, we recognize the importance of minimizing our impact on frontline communities. At NETL, we don't just focus on innovation; we prioritize environmental justice. Our initiatives actively engage with communities that have historically been impacted by energy production, ensuring their voices are heard and their concerns addressed. By forging open channels of communication and collaboration, we aim to usher in a new era of energy solutions that benefits everyone equitably.

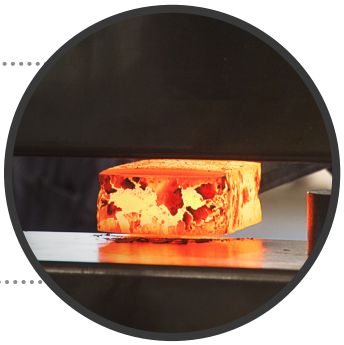
CORE COMPETENCIES

NETL focuses on developing and nurturing technical skills related to carbon management and resource sustainability technologies. Our lab collaborates with other entities to create technological solutions, emphasizing developing practical and efficient concepts ready for technology implementation. NETL's core competencies in integrated science, engineering, and technology enables us to address the current energy challenges while planning and seeking solutions for the future. The laboratory's ability to execute an energy research portfolio of national importance, discovering, maturing, and deploying innovative technologies, is critical to ensuring that it can continue to provide technology options that meet the nation's needs.



COMPUTATIONAL SCIENCE & ENGINEERING

High Performance Computing
Data Analytics
Machine Learning
Multi-Scale Modeling (Atomistic to Device)

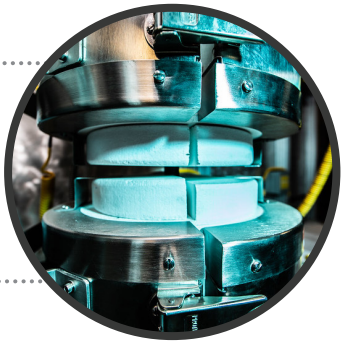


MATERIALS ENGINEERING & MANUFACTURING

Structural & Functional Materials
Design, Synthesis, Characterization,
Manufacturing & Performance Assessment

GEOLOGICAL & ENVIRONMENTAL SYSTEMS

Geo-Analysis & Monitoring
Data Storage, Management, & Analysis
Geochemistry



ENERGY CONVERSION ENGINEERING

Process & System
Multi-scale Modeling, Simulations & Optimization
Energy Markets Analysis

STRATEGIC SYSTEMS ANALYSIS & ENGINEERING

Reaction Engineering
Design & Validation
Innovative Energy & Water Processes

PROGRAM EXECUTION & INTEGRATION

Technical Project Management
Finance & Acquisition
R&D Planning

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