NETL's Regional Summary

OREGON

The U.S. Department of Energy's (DOE) National Energy Technology Laboratory (NETL) in Albany, Oregon, is a vital hub for applied energy innovation, with approximately 160 dedicated employees developing cutting-edge solutions that strengthen the security, affordability and reliability of U.S. energy systems. The team at the Albany site focuses on the discovery, design and deployment of advanced structural materials and subsurface technologies that improve the performance and durability of next-generation energy systems.

Specializing in high-temperature, corrosion-resistant ceramics, metal alloys and composite materials, Albany researchers leverage state-of-the-art facilities and advanced computational modeling to accelerate breakthroughs for applications such as ultra-efficient turbines, solid oxide fuel cells and advanced reactors. The site has also expanded its geoscience and geomaterials capabilities, supporting a deeper understanding of both engineered and natural subsurface systems.

Through collaborations with industry, government agencies and academia – including Oregon State University and the University of Oregon — NETL is transforming innovative technologies into real-world solutions. These efforts are strengthening regional manufacturing, driving economic growth, and reinforcing Oregon's role in shaping the nation's secure energy future.

NATIONAL ENERGY TECHNOLOGY LABORATORY

Regional Economic Impact

In 2024, NETL conducted an economic analysis to quantify the laboratory's impacts on Oregon, highlighting its contributions to job creation and overall economic growth in the region.

Economy

$77M
Total Economic Impact (direct, indirect and induced)

$43M
Total Expenditures

Jobs

499
Jobs (direct, indirect and induced full-time equivalent jobs)

166
Federal Employment and Site-Support Contractor (full-time equivalent jobs)

DOE Program Execution

NETL uniquely functions as a DOE field office supporting DOE offices in all aspects of program execution. In 2024, NETL supported more than 50 research activities in Oregon.

$467.5M
DOE Share (Cost Plan)

$1.39B
Total Award Value (full-time equivalent jobs)

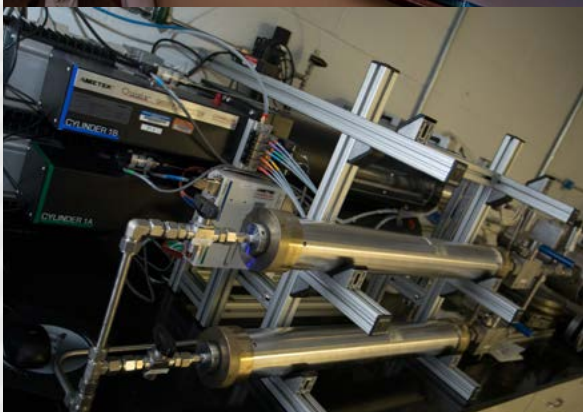
$924.5M
Performer Share (Cost Plan)

Facilities

The Advanced Alloys Signature Center (AASC) is a complete alloy development facility capable of developing and prototyping advanced alloys for various industries, including energy, defense, aerospace, automotive, chemical processing and biomedical devices. This facility helps companies and researchers create innovative materials by designing, engineering and testing specialty alloys that increase efficiency, reduce costs and improve performance with enhanced corrosion resistance, strength and durability. The facility can melt and process almost any alloy.

The Geoscience, Artificial Intelligence and Analysis (GAIA) Computational Facilities provides a collaborative environment for geological and environmental scientists to conduct computer-based analytical work. The facility offers shared resources and real-time collaboration tools — including software and video connectivity — and access to NETL's supercomputer for visualizing, interpreting, analyzing and modeling geospatial datasets to ensure the safe and reliable use of natural resources and development of new energy resources. NETL has expanded its geoscience and geomaterials science capabilities to better understand and characterize engineered and natural systems.

The Domain-Aware Coupled Physics-AI Materials Simulation Facility provides technical capabilities in multi-scale modeling and simulations to predict material properties and behavior in extreme conditions, demonstrating expertise in density functional theory, molecular dynamics and physics-informed multi-objective machine learning. These simulations help researchers and manufacturers design and optimize cost-effective materials by accelerating the development process and improving manufacturing efficiency, resulting in enhanced performance, reduced costs and increased safety.



Research Breakthroughs

Enhancing Pipeline Steel with Cerium

NETL researchers created a more robust pipeline steel alloy by adding a small amount of cerium, a rare earth element (REE) and often unused byproduct of REE extraction. The steel alloy is tougher and less susceptible to cracking, which makes it more resistant to failure and enhances the reliability of components manufactured from the steel.

Data-Driven Tool Used for Science-Based Decision-Making

The Science-Based Artificial Intelligence/Machine Learning Institute (SAMI) uses artificial intelligence (AI), machine learning, data analytics and high-performance computing to accelerate breakthroughs for efficient, affordable energy production and utilization, materials, infrastructure and more. This institute helps NETL partners who want to pioneer next-generation AI tools in modeling for transformational energy technologies, smart data platforms for better data interpretation, predicting energy consumption patterns more accurately and other scenarios like offshore modeling for operations and infrastructure.

NETL Discovers New Source of Platinum Group Metals

NETL researchers discovered a new source of platinum group metals while developing a new mineral carbonation process, which could help the U.S. build a sustainable domestic supply chain for these valuable catalysts. The process utilizes ultramafic rocks, which contain minerals highly reactive to carbon dioxide, to remove atmospheric carbon dioxide in a practice called mineral carbonation. The potential to recover valuable quantities of platinum group metals from these rocks is a significant finding with applications in the automotive, chemical and petrochemical industries, among others.

Community Involvement

BPA Science Bowl

In 2024, in partnership with Bonneville Power Administration (BPA), NETL supported the BPA Science Bowl. Often known as the Super Bowl of Science, regional Science Bowls provide the perfect opportunity for middle school and high school students interested in science, technology, engineering and mathematics (STEM) to compete for the chance to represent their school at the National Science Bowl in Washington, D.C.

National Laboratories and Government Agencies Virtual Fair

In 2024, NETL was a featured national laboratory at this event, which facilitated connections for research synergy and job recruitment among students in Oregon State University's (OSU) Colleges of Science and Engineering; OSU faculty and staff; and business, industry and government representatives.

NETL STEM Education and Outreach Program

NETL continues to demonstrate a commitment to STEM education and supports all levels of learning through our STEM Education and Outreach Program. NETL's workforce provides students with hands-on learning experiences, career path discussions, and presentations to heighten their awareness of, and interest in, careers in STEM fields.

R&D 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:

- Work with NETL on research and development (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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NETL is a U.S. Department of Energy (DOE) national laboratory dedicated to innovating and accelerating the nation's energy solutions in hydrocarbon, geothermal energy and critical minerals production. 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.

U.S. DEPARTMENT of ENERGY | NETL NATIONAL ENERGY TECHNOLOGY LABORATORY

www.NETL.doe.gov

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