NATIONAL ENERGY TECHNOLOGY LABORATORY
PITTSBURGH, PENNSYLVANIA

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The history of NETL's Pittsburgh site stretches back to 1910, when the newly created Bureau of Mines in the U.S. Department of the Interior opened the Pittsburgh Experiment Station in Bruceton, Pennsylvania, about 12 miles south of Pittsburgh. The station's original purpose was to investigate the use of electricity and mining methods that would lower the number of fatal explosions and fires in America's underground coal mines. Additional facilities, including an experimental mine and laboratories, were established near the South Park suburb. The remote location allowed underground explosion testing to be duplicated and studied, leading to safer mining procedures and a more thorough understanding of the causes of mine explosions.

In the 1920s and 1930s, when politically inspired explosions occurred in several of our nation's cities, coal mine explosive experts from the Pittsburgh research facility were called in as crime scene experts to assist with investigations. In addition, energy researchers at the Pittsburgh Bureau of Mines Research facility used their experience with gas monitoring in coal mines to further develop ventilation procedures that would eventually be used to assist in the construction of Pittsburgh's Liberty Tunnel in the early 1920s. This major transportation artery was a safe and reliable venue for early drivers and is still in use today.

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During World War II, Bureau of Mines researchers applied their growing expertise in explosives to a range of assignments that put Pittsburgh on the forefront of the war effort. Researchers went to work in the experimental mine and in laboratories to improve the safety of explosives handling and storage. They appraised captured German and Japanese weaponry; analyzed the sensitivity of various explosives to friction, impact, heat and electricity; and analyzed the shock waves produced by explosions. While scientists elsewhere worked on the Manhattan Project to develop a nuclear weapon, experts in Pittsburgh participated in the design of a trigger for the atomic bomb. The trigger designed would start the chain reaction causing a fission-type atomic bomb to explode.

In the decades following World War II, researchers again turned their attention to improving mining safety. The Pittsburgh station explored the revolutionary concept of methane control. As part of this research program, Pittsburgh researchers verified that methane was a ubiquitous byproduct of the biological and physical processes that formed coal. Bureau researchers also initiated one of the earliest American methane-drainage experiments, which aimed to remove methane before it could endanger miners.

In the 1970s, the U.S. Energy Research and Development Administration was formed, incorporating federal government research centers in Morgantown, West Virginia; Bartlesville, Oklahoma; and Pittsburgh, Pennsylvania (Bruceton site). The centers began overseeing federally funded contracts for fossil energy research and development as they continued research on coal, oil and natural gas technologies.

By 1977, the U.S. Department of Energy (DOE) was formed. The facilities on the Bruceton site's R&D plateau, along with some other large coal production research facilities, were now part of the NIOSH portion of the original Pittsburgh research facilities. These became known as the Pittsburgh Energy Technology Center (PETC). Researchers at PETC pioneered work on environmental issues and energy innovations related to coal-fired power systems. This included providing workable technologies to address "acid rain," a significant environmental issue resulting from the sulfur dioxide and nitrogen oxides in coal-fired flue gas combining with atmospheric water to form acids. In addition, PETC had great success in developing technologies to reduce mercury emissions at power plants, which spearheaded the Laboratory's second century of service and a new focus: the challenges of global climate change.

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In 1996, researchers at the Morgantown and Pittsburgh centers were united in a new Federal Energy Technology Center, and then, in 1999, FETC joined a third laboratory in Albany, Oregon. These government-owned, government-operated facilities now comprise the DOE's NETL. Today, approximately 700 Pittsburgh-based NETL employees are part of an energy research powerhouse for the region. This team tackles thousands of projects and activities that focus nationwide attention on the results of a myriad of innovation-rich projects, to include: carbon capture and storage including direct air capture, air emissions monitoring including methane emissions, CO_2 conversion engineering, and critical materials processing, among scores of other important research projects. Partnerships with local companies and powerhouse academic research institutions like Carnegie Mellon University and the University of Pittsburgh help accelerate cutting-edge innovations that are bringing advances in the clean and efficient use of fossil energy fuels.

NETL Pittsburgh continues evolving to create viable solutions for America's energy infrastructure. Researchers are applying computer modeling, systems analysis, and artificial intelligence to today's pressing energy issues to ensure the future energy security for our nation.

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 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.

NETL lends its expertise toward achieving a carbon-free power sector by 2035 and a net-zero economy by 2050 while catalyzing economic revitalization, creating good-paying jobs and supporting workers in energy communities, especially hardhit coal, oil and gas, and power plant communities, across the country. One of the most rewarding aspects of NETL's research is that our innovations and our technologies have the potential to improve people's lives in meaningful ways.


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