

NATIONAL ENERGY TECHNOLOGY LABORATORY PITTSBURGH, PENNSYLVANIA



NETL

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The first iteration of what would become today's NETL was housed in the U.S. Army's old Explosives Experiment Station at the Pittsburgh Arsenal on Butler Street in the Lawrenceville neighborhood of Pittsburgh. In 1910, researchers, under the banner of the federal Bureau of Mines, began investigating electricity, its applications in mining, safer use of explosives and improved equipment and procedures for mine rescue work. Researchers focused on coal mining safety and production, including safer ways to handle explosives and electricity, and began a long legacy of energy research. Additional facilities, including an experimental mine and laboratories, were established at Bruceton near South Park. 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 unusual explosions occurred on city streets, coal mine explosive experts from the Pittsburgh research facility were called in as crime scene experts to get answers. In addition, energy researchers at the Pittsburgh Bureau of Mines Research facility used their experience with gas monitoring in coal mines, to develop ventilation procedures that would eventually be used to assist in the construction of Pittsburgh's Liberty Tunnel, a major transportation artery and a safe venue for early drivers



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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 research centers in Morgantown, WV, Bartlesville, OK, and Pittsburgh. 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 Department of Energy (DOE) was formed. The Pittsburgh research facilities became known as the Pittsburgh

Energy Technology Center (PETC). 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.

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, OR, to become a DOE National Laboratory called the National Energy Technology Laboratory or NETL. Today, the nearly 600 Pittsburgh-based employees of NETL are part of an energy research powerhouse for the region, tackling thousands of projects and activities that focus nationwide attention on their results from carbon capture and storage, and development and advanced energy systems to methane monitoring and continued hydraulic fracturing research using captured CO₂ and dozens of other innovation-rich 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.