U.S. DEPARTMENT of ENERGY

Hydrocarbons and Geothermal Energy Office

OFFICE OF COAL



America's need for affordable, reliable, and secure energy is growing as Super Intelligence, advanced manufacturing, and other industries increase demand for electricity. The U.S. Energy Information Administration projects this demand could grow as much as 50 percent by 2050. The U.S. Department of Energy's (DOE) Hydrocarbons and Geothermal Energy Office (HGEO) is working to meet that demand by making more effective use of America's abundant domestic energy resources, strengthening existing infrastructure, and advancing new technologies.

As part of that mission, HGEO's Office of Coal works with the National Energy Technology Laboratory (NETL), other DOE National Laboratories, industry, universities, and partners to **stabilize, optimize, and grow America's coal industry**.

Research & Development Priorities

The Office of Coal focuses on four objectives:

1. **Modernize and extend the life of existing coal mines and coal-based power plants** through advanced technologies and infrastructure improvements.
2. **Improve efficiency across the coal value chain,** including extraction, processing, conversion, and power generation.
3. **Grow coal-based power generation and product manufacturing** by advancing technologies for reliable electricity and high-value coal-derived products.
4. **Expand opportunities for U.S. coal exports** by addressing technical and infrastructure barriers and strengthening access to global markets.

Innovation Across the Value Chain

The **Mining & Processing Division** develops technologies to modernize coal extraction and processing, improve safety and productivity, extend mine life, and access resources previously considered uneconomic or difficult to recover.

Super Intelligence, Robotics & Automation • Digital Twins • Advanced Coal Processing • Enhanced Coalbed Methane Recovery • Underground Gasification • Export-Enabling Technologies

The **Conversion & Products Division** advances new uses for coal and coal-derived feedstocks, expanding opportunities beyond traditional power generation and strengthening domestic manufacturing and supply chains.

High-Value Carbon Materials • Graphite & Carbon Fibers • Coal-Derived Fuels & Chemicals • Waste-to-Products • Gasification

The **Power & Capture Division** develops technologies to modernize America's existing coal power fleet, improve efficiency and operational flexibility, and create value from power plant waste streams.

Coal Plant Modernization • High-Efficiency Power Systems • Flexible Operations • Waste Stream Conversion • Carbon Dioxide-Enhanced Hydrocarbon Recovery

From Research to Real-World Impact

More Than $1 Billion Investment Announced

In FY26, HGEO announced more than $1.1 billion in federal funding for coal plants and infrastructure, including projects to modernize existing generation, recommission viable facilities, add generating capacity, and strengthen export infrastructure.

More Value From American Coal

HGEO and NETL are advancing technologies that can produce graphite, carbon materials, construction materials, fuels, and chemicals, and recover critical minerals from coal and coal-related resources, opening new markets while strengthening domestic industrial supply chains.

Coal Center of Excellence

Based at NETL's Morgantown, West Virginia campus, the Coal Center of Excellence connects industry and other stakeholders with DOE expertise, facilities, and technical capabilities to solve real-world challenges and move technologies toward deployment. The Center has already supported more than 68 industry engagements.

Work With Us

HGEO works directly with industry, universities, National Laboratories, and other partners to identify barriers, apply DOE's technical capabilities, and move promising technologies from research through demonstration and toward commercial deployment.

Contact: coal@hq.doe.gov ■

For more information, visit: energy.gov/hgeo/office-coal

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