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 Oil 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.

Powering Wisconsin

Coal is an important part of Wisconsin's electricity supply, providing approximately 35% of the state's electricity generation in 2025. As electricity demand grows, HGEO is supporting investments to modernize existing generating infrastructure, strengthen grid reliability, and preserve dependable power for Wisconsin farms, families, and businesses.

At Columbia Energy Center in Columbia County, DOE has selected a major modernization project to improve plant performance and support continued reliable coal power generation.

Columbia Energy Center: Modernizing Reliable Generation

The Reliable, Economical, and Local Advancement in Modernized Coal (RECLAIM-C) Project will modernize critical infrastructure at Alliant Energy's Columbia Energy Center, a two-unit coal-fired power plant in south-central Wisconsin.

The project will use a staged approach that coordinates improvements with scheduled outages, allowing the facility to continue operating during modernization. The investment is intended to strengthen plant reliability, maintain dependable generating capacity, and support continued operations using American equipment and skilled labor.

Project at a Glance

1,218 MW (gross)
Enough generating capacity to power approximately 550,000 homes

$19 MILLION
Federal investment

~$400,000 / YEAR
Projected operating and maintenance savings



Investing in Wisconsin's Energy Infrastructure

DOE's $19 million investment will help modernize Columbia Energy Center's aging ash-handling infrastructure by replacing water-based systems with more efficient, automated dry systems. The project includes new ash storage and conditioning equipment, upgraded piping, and conversion of bottom ash-handling systems on both generating units. The improvements are expected to reduce water use, improve worker safety, lower the risk of unplanned outages, and save approximately $400,000 annually in operating and maintenance costs.

The work will be completed in stages during scheduled outages, allowing the plant to continue generating electricity throughout the modernization.

Supporting Wisconsin Communities

Columbia Energy Center contributes to the local economy through high-skilled employment and shared revenue payments that support public services.

Local Economic Impact

$2.1 MILLION ANNUALLY
Shared revenue payments to Columbia County

$750,000 ANNUALLY
Shared revenue payments to the Town of Pacific

NEARLY 100 WORKERS
Skilled union employees supported at the facility

The project is also expected to create additional skilled-trade employment opportunities during construction, supporting local workers and businesses.

Strengthening Grid Reliability

In 2025, Wisconsin generated approximately 66.7 million megawatt-hours of electricity, including 23.3 million megawatt-hours from coal. Coal was the state's second-largest source of electricity generation, behind natural gas. By modernizing Columbia Energy Center's existing infrastructure, DOE and industry are working to preserve reliable generating capacity, support Wisconsin's electricity needs, and strengthen regional energy security as demand continues to grow.

Work With Us

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

Learn more: energy.gov/hgeo/office-coal
Contact: coal@hq.doe.gov ■

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

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