

State Economic Impacts of NETL

West Virginia



The U.S. Department of Energy's National Energy Technology Laboratory (NETL) supports energy-related research and development (R&D) and science education programs throughout West Virginia and the nation. Through these actions, and by participating in the state economy from employment and operational activities, NETL serves as an important economic catalyst for West Virginia.

NETL conducted an economic analysis using a state-level input-output model to quantify the laboratory's economic impacts on West Virginia. The analysis revealed that NETL injected \$96 million directly into the state economy in 2014. It was further found that NETL had a total estimated impact of \$128 million on West Virginia's economy in 2014.

The table below summarizes NETL's direct impact on West Virginia's economy in 2014. Included are the 611 full-time jobs at NETL filled by federal and contractor employees, as well as NETL's spending on grants, R&D awards, cooperative agreements, contracts, and purchase orders within West Virginia. All dollar figures in the tables are in millions of dollars.

Direct Economic Impact of NETL on the State of West Virginia, 2014

Input Category	
Jobs (federal employees and site-support contractors)	611
Total Direct Economic Impact on West Virginia	\$96 M*

The impact of NETL on West Virginia's economy is greater than the total of the laboratory's direct spending, because money spent by NETL is spent again by the recipient employees and businesses. This economic "ripple effect" is measured in the model through a series of multipliers that provide estimates of the number of times each dollar of direct spending cycles through the state economy in the form of additional (indirect and induced) spending, personal income, and employment.

Total Economic Impact of NETL on the State of West Virginia, 2014

Impact Category	
Jobs (direct, indirect, and induced)	1,359
Total Economic Impact on West Virginia	\$161 M

NETL's full economic impact is actually larger than the estimates in the table above, because the estimates do not capture the indirect and induced impacts that "leak" into other states.

**Monetary data adjusted to millions of dollars (\$2014)*





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As of April 2016, NETL was partnering in 15 cost-shared research projects with West Virginia organizations to meet the laboratory's mission to discover, integrate, and mature technology solutions to enhance the nation's energy foundation and protect the environment for future generations. These projects are listed below:

1. Understanding of Oxygen Reduction and Reaction Behavior and Developing High-Performance and Stable Heterostructured Cathode with Heterostructured Surface
2. Feasibilities of a Coal-Biomass to Liquids Plant in Southern West Virginia
3. Graphene-Based Composite Sensors for Energy Applications
4. Smart Refractory Sensor Systems for Wireless Monitoring of Temperature, Health, and Degradation of Slagging Gasifiers
5. Development of an Integrated Biomimetic Framework with Intelligent Monitoring, Cognition, and Decision Capabilities for Control of Advanced Energy Plants
6. Novel Nanostructure Tailored Highly Active and Stable Electro-Catalytic Architecture on Surface of Cathode of Solid Oxide Fuel Cells
7. Scalable and Cost-Effective Barrier Layer Coating to Improve Performance and Stability of Solid Oxide Fuel Cell Cathode
8. Ceramic High-Temperature Thermoelectric Heat Exchanger and Heat Recuperators in Power Generation Systems
9. Passive Wireless Sensors Fabricated by Direct Writing for Temperature and Health Monitoring of Energy Systems in Harsh Environments
10. Scalable Nano-Scaffold Architecture on the Internal Surface of Solid Oxide Fuel Cell Anode for Direct Hydrocarbon Utilization
11. Recovery of Rare Earth Elements from Coal Mine Drainage
12. Assessing Fugitive Methane Emissions Impact Using Natural Gas Engines in Unconventional Resource Development
13. Marcellus Shale Energy And Environment Laboratory
14. EPAAct Complementary Unconventional Resources
15. Alternative Fuel Vehicle Curriculum Development and Outreach Initiative

The total value of the 15 multi-year projects, including cost-sharing by NETL's research partners, exceeds \$48 million. NETL's contribution is nearly \$42 million.