

State Economic Impacts of NETL Pennsylvania



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 Pennsylvania 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 Pennsylvania.

NETL conducted an economic analysis using a state-level input-output model to quantify the laboratory’s economic impacts on Pennsylvania. The analysis revealed that NETL injected \$183 million directly into the state economy in 2014. It was further found that NETL had a total estimated impact of \$304 million on Pennsylvania’s economy in 2014.

The table below summarizes NETL’s direct impact on Pennsylvania’s economy in 2014. Included are the 563 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 Pennsylvania. All dollar figures in the tables are in millions of dollars.

Direct Economic Impact of NETL on the State of Pennsylvania, 2014

Input Category	
Jobs (federal employees and site-support contractors)	563
Total Direct Economic Impact on Pennsylvania	\$183 M*

The impact of NETL on Pennsylvania’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 Pennsylvania, 2014

Impact Category	
Jobs (direct, indirect, and induced)	1,979
Total Economic Impact on Pennsylvania	\$333 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 53 cost-shared research projects with Pennsylvania 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. A sampling of these projects is shown below:

1. Enhanced Coal Bed Methane Production and Sequestration of CO₂ in Unmineable Coal Seams
2. Demonstration of CO₂ Capture and Sequestration for Steam Methane Reforming Process Gas Used for Large-Scale Hydrogen Production
3. Robust and Energy Efficient Dual-Stage Membrane-Based Process for Enhanced CO₂ Recovery
4. High-Temperature Heat Exchange Design and Fabrication for Systems with Large Pressure Differentials
5. Cost-Effective Manufacturing and Morphological Stabilization of Nanostructured Cathodes for Commercial Solid Oxide Fuel Cells
6. Development of Membrane Distillation Technology Utilizing Waste Heat for Treatment of High-Salinity Wastewaters
7. A Scaling Study of Microbially Enhanced Methane Production from Coal: Optimizing Nutrient Delivery for Maximized Methane Production
8. Improving Turbine Efficiencies Through Heat Transfer and Aerodynamic Research in the Steady Thermal Aero Research Turbine
9. Lab-Scale Development of a Hybrid Capture System with Advanced Membrane, Solvent System, and Process Integration
10. Enhanced Gasification Reactor Designs for Maximizing Gas/Particle Interaction
11. Small Molecule Associative CO₂ Thickeners for Improved Mobility Control
12. Measurements and Modeling to Quantify Emissions of Methane and Volatile Organic Compounds from Shale Gas Operations
13. Continuous, Regional Methane Emissions Estimates in Northern Pennsylvania Gas Fields Using Atmospheric Inversions
14. Water Treatment System for Effective Acid Mine Drainage Water Use In Hydraulic Fracturing
15. Penn State Gate Center of Excellence: In-Vehicle, High-Power Energy Storage Technologies
16. Efficient Safety and Degradation Modeling of Automotive Lithium-Ion Cells and Packs
17. High-Energy, Long-Cycle-Life Lithium-Ion Batteries For Plug-In Hybrid Vehicles Applications
18. Advanced Truck And Bus Radial Materials For Fuel Efficiency
19. Development of Low Cost, High Strength Automotive Aluminum Sheet
20. Electrodeposition for Low-Cost, Water-Based Electrode Manufacturing

The total value of the 53 multi-year projects, including cost-sharing by NETL's research partners, is nearly \$785 million. NETL's contribution exceeds \$600 million.