

NETL's mission is to implement a research, development, and demonstration program to resolve the environmental, supply, and reliability constraints of producing and using fossil resources.



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National, State, and Regional Economic and Environmental Impacts of NETL: Pennsylvania

Throughout Pennsylvania and the Nation, the U.S. Department of Energy's National Energy Technology Laboratory (NETL) provides support for scientific research and development (R&D) and for science education. Through these actions—and participation in the state economy from employment and operational activities—NETL serves as an important economic catalyst for the state. To quantify the laboratory's economic and environmental impacts on Pennsylvania, NETL developed a state-level environmental input-output (IO) model. Presented here is a summary of the resulting analysis.

The data in the following table represent NETL's direct impact on Pennsylvania's economy during 2006. The data include employment, wages, and salaries of Pennsylvania residents employed at NETL's sites in Pittsburgh, PA, and Morgantown, WV. It also includes NETL's direct operational expenditures and R&D award and grant monies spent within the state. The data show that NETL directly supported the employment of 629 Pennsylvanians in 2006 and injected nearly \$118 million into the state economy.

Direct Economic Impact of NETL on the State of Pennsylvania, 2006

Input Category*	Pennsylvania
Federal Employment (jobs)	298
Site-Support Contractor Employment (jobs)	331
Federal + Site-Support Contractor Employment (jobs)	629
Federal Wages and Salaries	\$32.6
Site-Support Contractor Wages and Salaries	\$22.4
Federal + Site-Support Contractor Wages & Salaries	\$55.0
Federal Operational Expenditures	\$10.6
Site-Support Contractor Operational Expenditures	\$3.3
Federal + Site-Support Contractor Operational Expenditures	\$13.9
Federal R&D Awards/Grants, Costs	\$48.6
Total Direct Impact on Pennsylvania	\$117.5

* Monetary data shown in millions of dollars (\$2006)



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Albany, OR

Fairbanks, AK

Morgantown, WV

Pittsburgh, PA

Tulsa, OK

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Because the Pennsylvania economy supplies a portion of NETL's total employment and operational demand, NETL activities produce extended (indirect) impacts on the state's economy. NETL's total impact on the state of Pennsylvania, both direct and indirect, is shown below.

*Direct and Indirect Economic Impact of NETL
on the State of Pennsylvania, 2006*

Impact Category*	Pennsylvania
Expenditures (including wages, salaries, and operational and R&D spending)	\$173
Employment (jobs)	1,940
Output Multiplier	1.47
Employment Multiplier	3.08
Employment per Million \$	20.1

* Monetary data shown in millions of dollars (\$2006)

The results of the analysis show that the economic output multiplier for Pennsylvania is 1.47. Therefore, for every \$1 million of NETL final demand that remains within Pennsylvania, the state economy grows by \$1.47 million. The employment multiplier of 3.08 indicates that for every one employee at NETL, an additional 2.08 employees are needed throughout the state economy to fulfill the state-level demands of NETL's supply-chain; this yields a total employment impact of 1,940 jobs. On an employment-per-dollar basis, the analysis shows that employment increases by approximately 20 persons for each \$1 million that remains in the state.

NETL strives to be an environmental steward and emphasizes environmental responsibility in the workplace. Not surprising, then, is the relatively small environmental impact on Pennsylvania stemming from NETL activity. Below are data that reflect NETL's contribution to Pennsylvania's criteria pollutant emissions.

NETL Contribution to Pennsylvania Emissions, 2006

Criteria Pollutant	Total Pennsylvania Emissions (metric tonnes)	Total NETL Emissions (metric tonnes)	NETL Relative Impact on Pennsylvania
SO _x	1,127,725	118.0	0.010%
CO	1,676,640	570.0	0.034%
NO _x	752,360	132.0	0.018%
VOC	204,542	52.2	0.026%
PM10	95,306	9.0	0.009%
PM2.5	27,541	3.6	0.013%

NETL's analysis excludes induced income impacts—those resulting from households spending their salaries in the state economy. The analysis also excludes impacts stemming from the deployment of NETL-sponsored technologies. Therefore, NETL's impact on Pennsylvania, as represented in this study, is considered to be a conservative estimate.

For more details about the economic theory underlying the study, the study's project methodology, and its analysis and results, please read the full report, *National, State, and Regional Economic and Environmental Impacts of NETL*, which is located online at <http://www.netl.doe.gov/energy-analyses/pubs/NETLimpactsPAandWV.pdf>.



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