

# The Economic Impact of the Coal Industry in Pennsylvania

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Prepared for  
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## Executive Summary

The Pennsylvania Coal Alliance is committed to promoting and advancing the Pennsylvania Coal Industry and the economic and social benefit to the employees, businesses, communities, and consumers who depend on affordable, reliable and increasingly clean energy from coal.

Through aggressive advocacy and education, the Pennsylvania Coal Alliance seeks to influence public policy, public opinion, and the marketplace in support of 200 member organizations and the employees of coal mining companies throughout the state. The organization asked the Allegheny Conference on Community Development (ACCD) to perform an economic impact study of the Coal Industry in Pennsylvania. This study looks at the Industry's annual impact on the Commonwealth's economy, using 2017 as a baseline year unless otherwise stated.

### Measuring the current economic impact of the Coal Industry

Pennsylvania's economy benefits from the direct employment, compensation, and output of the Coal Industry, as well as from the impacts of the industry's supply chain. The current jobs within the industry, and many more in the broader economy, would not exist without the activity of the Coal Industry. Similarly, the wages paid to industry employees have an effect on the broader economy, as employees use their compensation to buy goods and services. In this report, ACCD measures the direct, indirect, and induced employment created by the Coal Industry as well as the more than \$6.9 billion in economic output stimulated by the activity of the industry.

### The Coal Industry supports more than 17,700 jobs in Pennsylvania

Pennsylvania's Coal Industry is a vital contributor to the state's economy, with direct, indirect, and induced impacts responsible for:

- **Approximately 17,728 full-time jobs**, about 5,966 of these directly in the Coal Industry. For each direct Coal Industry job, an additional 1.97 jobs are generated throughout the state, for a total employment multiplier of 2.97.
- **Approximately \$6.91 billion in economic output is created in Pennsylvania**, \$4.7 billion of this directly by the Coal Industry.

The Coal Industry creates economic value in communities across Pennsylvania, with multiple company locations in more than half of Pennsylvania's counties.

The Industry makes substantial capital investments that increase the economic impact of coal mining on the region by utilizing advanced mining machinery that costs millions of dollars to purchase, operate, and maintain while also investing in a multitude of other goods and services.

**Coal is a crucial energy resource**

In 2017, Pennsylvania produced approximately 1.8 million tons of Anthracite Coal and 47.2 million tons of Bituminous Coal statewide from 290 combined mines and refuse sites.<sup>1</sup> This coal was shipped to 23 U.S. States.<sup>2</sup> In 2017, Bituminous coal was the largest category of exports, accounting for 6.8% of the state's total exports at \$2.6 billion, a 117.9% increase over 2016.<sup>3</sup>

Energy production is the primary end use for PA coal. In 2017, roughly 58% all Bituminous Coal produced in Pennsylvania, went to produce electricity.<sup>4</sup> This coal contributed to the state of Pennsylvania generating 213 million megawatts hours of electricity, which made it the third largest producer of electricity in the United States, beating out California and only behind the high-population states of Texas and Florida.<sup>5</sup>

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# 1. Introduction

## 1.1. Origins of this report

The Pennsylvania Coal Alliance is committed to promoting and advancing the Pennsylvania Coal Industry and the economic and social benefit to the employees, businesses, communities and consumers who depend on affordable, reliable, and increasingly clean energy from coal. Through aggressive advocacy and education, the Pennsylvania Coal Alliance seeks to influence public policy, public opinion, and the marketplace in support of 200 member organizations and the employees of coal mining companies throughout the state. The Pennsylvania Coal Alliance asked the Allegheny Conference on Community Development (ACCD) to perform a study of the economic impact of the coal industry in Pennsylvania. This study looks at the industry's annual impact on PA's economy using 2017 as a baseline year, unless otherwise stated. This report builds on research and material prepared by ACCD in a 2014 report on the economic impact of the coal industry for the Pennsylvania Coal Alliance and a 2010 report for the Families Organized to Represent the Coal Economy, Inc. (F.O.R.C.E.).

The previous reports were authored by the Pennsylvania Economy League of Greater Pittsburgh, LLC (PELGP), a regional branch of Pennsylvania Economy League (PEL) which was founded in 1936 by business and civic leaders seeking to improve the quality of government and promote economic development in Pennsylvania. PELGP is the public policy research affiliate of the Allegheny Conference on Community Development. PELGP provides research and analysis on critical issues for the region's competitiveness to support improvements for living and doing business in the region. With a rich history of civic and community involvement and emphasis on comparative research and policy analysis, the organization holds a statewide reputation for objectivity, integrity, and consensus-building.

## 1.2 The Coal Industry's rich history in Pennsylvania

Coal is a combustible black rock composed primarily of carbon and hydrocarbons from compressed plant material that was buried under a large amount of dirt and mud. Over many millions of years, the materials altered to form layers of solid rock. The elements in coal, carbon, hydrogen, and oxygen with smaller amounts of sulfur, nitrogen, phosphorus, and calcium, release energy when they break down during combustion. This makes coal an excellent and abundant source of energy.

Coal has a long history in Pennsylvania, dating back to the mid-18th century. It powered the American Industrial Revolution and helped Pennsylvania's industrial centers flourish.

Pennsylvania coal is used to generate electricity and in manufacturing processes. It is widely exported to other states and countries. The extraction, processing, transportation and use of coal in Pennsylvania create economic activity that contributes to the state's economic vitality, this report explores these economic impacts.

## 2. Measuring the economic impact of Pennsylvania's Coal Industry

The economic impact of the Coal Industry in Pennsylvania is not limited to the employment and compensation within the industry itself. Through its supply chain, the Coal Industry creates jobs in related industries. These jobs would not exist without the activity of the Coal Industry. Similarly, the wages paid to employees have an effect on the broader economy as employees use their compensation to buy goods and services for their personal use.

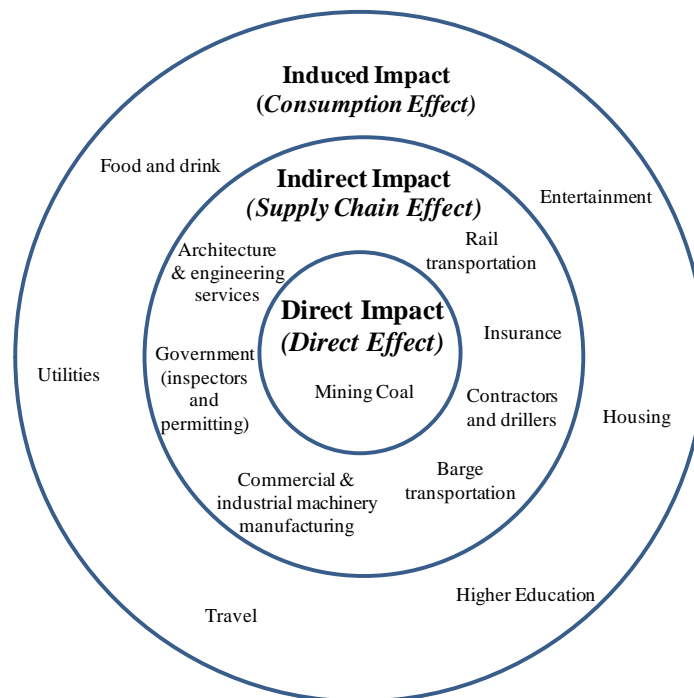
To estimate the overall economic impact of the Coal Industry in Pennsylvania, ACCD used an input-output model for the state. There are several input-output models commonly used by economists to estimate multiplier effects. Because of the complexity of measuring multiplier effects, all of the models have limitations. Still, economists generally agree that the models can provide a reasonable approximation of the indirect and induced spending, and total jobs generated by a given amount of direct spending in a particular geographic area. ACCD employed the IMPLAN input-output model in developing the impact estimates of the construction of the Coal Industry on the Pennsylvania economy.

The IMPLAN model organizes the economy into 536 separate industries and has comprehensive data on every area of the United States. IMPLAN was originally created in 1978 by the United States Forest Service (USFS) to assist in developing 5-year management plans. In 1985, the responsibility for developing IMPLAN data sets shifted to the University of Minnesota. As demand grew for regional models by non-USFS organizations, IMPLAN (then Minnesota IMPLAN Group (MIG, Inc.)) was established in 1993 as an independent corporation for the purpose of developing and selling all future iterations of the IMPLAN database and software. Based in Hendersonville, North Carolina, since 2013, IMPLAN's tools are used by more than 1,000 public and private institutions.

## 2.1. Direct, indirect and induced economic impact

The economic impact of the Coal Industry on the Pennsylvania economy is not limited to the employment and other activity directly related to the Coal Industry. Through its supply chain, the Coal Industry creates jobs in related industries, and some of these jobs would not exist without the activity of the Coal Industry. Similarly, the wages paid to employees working in the Coal Industry have an effect on the broader economy as employees use their compensation to buy goods and services.

The *Direct Spending* of the Coal Industry in the Pennsylvania economy is the total the industry spends on payroll, goods (such as equipment) and services (such as engineering contracts). The money spent by the Coal Industry in its supply chain is spent again by local businesses. Businesses make their own purchases and pay employees – termed *Indirect Spending*. Employees throughout the supply chain use their salaries and wages to purchase goods and services from other businesses for personal consumption – termed *Induced Spending*. A chain reaction of indirect and induced spending continues, with subsequent rounds of additional spending gradually diminished through savings, taxes, and expenditures made outside the state. This economic ripple effect is measured by IMPLAN and other input-output economic models, using a series of multipliers to provide estimates of the number of times each dollar of input, or direct spending, cycles through the economy in terms of indirect and induced output, or additional spending, personal income and employment. Figure 1 presents an illustration of some direct, indirect and induced impacts of the Coal Industry.



**Figure 1 - The Coal Industry has an impact on the broader economy through indirect and induced spending**



## 2.2. Methodology

The ACCD modeled the impact of the Pennsylvania Coal Industry within the state of Pennsylvania. The Pennsylvania Coal Industry will have economic impacts outside the state and Coal Industry companies located outside Pennsylvania will have an impact on the Pennsylvania economy, but for purposes of this analysis, these impacts were not considered. Studies done at the national level on the impact of the Coal Industry on Pennsylvania may not align with these results because of this difference in geographic scope.

To determine the impact of the Coal Industry in Pennsylvania, ACCD used the core industry as the '*Coal Mining*' IMPLAN industry sector. The internal industry profile of IMPLAN estimated that *Coal Mining* created 5,966 full time jobs and after comparing this number to others available through the Bureau of Labor Statistics and the Pennsylvania Department of Energy, the ACCD found it to be the most accurate and used it as the primary direct input the rest of the output model is based on.

The IMPLAN model determines the impact that each industry has on the economy, including employment, total value added, employee compensation, proprietor income, and property income. These are defined as follows:

- **Employment** – Stated as full-time equivalent jobs.
- **Output** – Value of the total production an industry, event, or company.
- **Total Value Added** – The difference between an industry, event or company's total output and the cost of its intermediate inputs (consumption of goods and services purchased from other industries or imported). Value added, which measures the contribution to the Gross State Product, consists of Labor Income, Other Property Type Income and Indirect Business Taxes.
  - **Labor Income** – Consisting of:
    - *Employee Compensation* – Payroll costs for the industry, including salaries and benefits.
    - *Proprietor Income* – Payments received by self-employed individuals as income, including income received by private business owners.
  - **Other Investor and Property Owner Income** – Payments for rents received on properties, royalties from contracts, dividends paid by corporations, and corporate profits earned by corporations.
  - **Indirect Business Taxes** – Includes taxes on sales, property and production but not payroll taxes or end of year income or corporate taxes.

### 3. The economic impact of the Coal Industry in Pennsylvania

The direct, indirect, and induced impact in employment, output, and value added are based on the number of full-time jobs in the Coal Mining industry according the IMPLAN database: 5,966. This number was the direct input placed into the input-output model for the results shown in this report.

As shown in Table 1, Pennsylvania's Coal Industry is a vital contributor to the state's economy, providing support through direct, indirect, and induced impacts:

- **Approximately 17,728 full and part-time jobs**, more than 5,966 of these directly in the Coal Industry. For each direct *Coal Mining* job an additional 1.97 jobs are generated throughout Pennsylvania for a total multiplier of 2.97.
- **Nearly \$7 billion in total output**, including \$4.7 billion in total spending from *Coal Mining* alone.
- **Approximately \$4.1 billion in total value added to the Pennsylvania economy**, \$2.7 billion of this directly created by *Coal Mining*. This includes:
  - Approximately \$1.3 billion in labor income (\$1.26 billion in employee compensation and \$87 million in proprietors' income).
  - Property income contributed about \$2.5 billion.
  - Indirect business taxes added almost \$260 million to the economy.

**Table 1 - Summary of Coal Industry economic impact in Pennsylvania**

Coal Mining Impact					
	Direct	Indirect	Induced	Total	Multiplier <sup>1</sup>
Employment	5,966	5,729	6,033	17,728	2.97
Output	\$4,655,290,936	\$1,386,377,526	\$870,678,582	\$6,912,347,044	1.48
Total Value Added <sup>2</sup>	\$2,709,734,985	\$855,442,396	\$520,779,303	\$4,085,956,684	1.51
Labor Income	\$516,524,525	\$520,335,588	\$311,441,196	\$1,348,301,308	2.61
Employee Compensation	\$540,610,667	\$450,711,538	\$270,387,666	\$1,261,709,871	2.33
Proprietors Income	-\$24,086,143	\$69,624,050	\$41,053,530	\$86,591,437	N/A
Other Property Type Income	\$2,017,325,954	\$293,026,134	\$167,575,700	\$2,477,927,788	1.23
Taxes on Production and Imports	\$175,884,506	\$42,080,674	\$41,762,407	\$259,727,587	1.48

<sup>1</sup> Total impact divided by direct impact

<sup>2</sup> Total Value Added represents the industry's contribution to Gross Regional Product

Source: IMPLAN

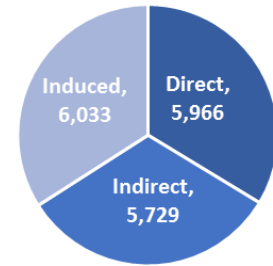
Compiled by the Allegheny Conference on Community Development, March 2019

### 3.1. Employment: The Coal Industry generates approximately 17,728 full-time equivalent jobs in Pennsylvania

Among the approximately 17,728 full-time equivalent jobs that the Coal Industry supports, the *Coal Mining* industry supports about 5,966 jobs directly. The roughly 11,761 indirect and induced jobs are in industries that supply goods and services to the Coal Industry, as well as in industries across the entire economy as employees of the Coal Industry and its supply chain spend their income on various goods and services.

Table 2 shows the industries that are identified in the model as seeing the largest number of jobs supported as a result of the activity of the Coal Industry. The *Support Activities For Oil and Gas Operation* industry (which includes mining support activities) sees the largest indirect impact with over 1,000 jobs generated as a result of the activity of the *Coal Mining* industry in Pennsylvania. The rest of the indirect impact on employment is spread across a large number of industry sectors. The *Hospitals* industry sees the largest induced impact on employment resulting from activities in the Coal Industry and its supply chain, with 348 full time positions.

**Figure.2**  
**Coal Mining Employment**



**Table 2 - Employment Impact of the Pennsylvania Coal Industry: Top Industries**

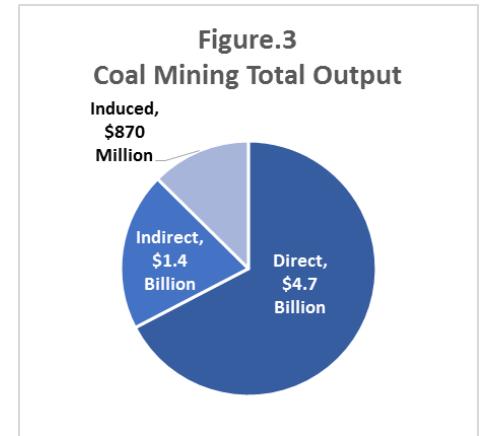
Coal Mining Employment Impact				
Industry	Direct	Indirect	Induced	Total
<b>Coal Mining</b>	5,966	80	0	6,047
Support activities for oil and gas operations	0	1,185	1	1,186
Wholesale trade	0	553	140	694
Maintenance and repair construction of nonresidential structures	0	483	29	512
Rail transportation	0	407	2	409
Hospitals	0	0	348	348
Real estate	0	79	250	329
Other financial investment activities	0	212	112	324
Full-service restaurants	0	42	276	318
Management of companies and enterprises	0	268	44	312
Limited-service restaurants	0	30	232	262
<i>Total Top Industries</i>	5,966	3,339	1,435	10,741
<b>Total All Industries</b>	5,966	5,729	6,033	17,728

Source: IMPLAN

Compiled by the Allegheny Conference on Community Development, March 2019

### 3.2. Total Output: Coal Extraction a \$4.7 Billion Dollar Industry

The total output of a particular industry is the value created by the industry's employment and activities as well as its intermediate inputs, which are the consumption of good and services purchased from another industry or imported. A double-counting occurs in including both final expenditures and intermediate expenditures in an industry's total output, but the measure is an accurate picture of the portion of the overall economy affected in some way by the *Coal Mining* industry. In all, *Coal Mining* is involved in just under \$7 billion of Pennsylvania's overall statewide economy. \$4.7 billion was from coal mining activities directly with top indirect and induced contributing industries of *Support Activities for Oil and Gas* (which includes mining support activities), *Wholesale Trade*, and *Rail Transportation* accounting for about 7.5% of total output.



**Table 3 – Total Output of the Pennsylvania Coal Mining Industry: Top Industries**

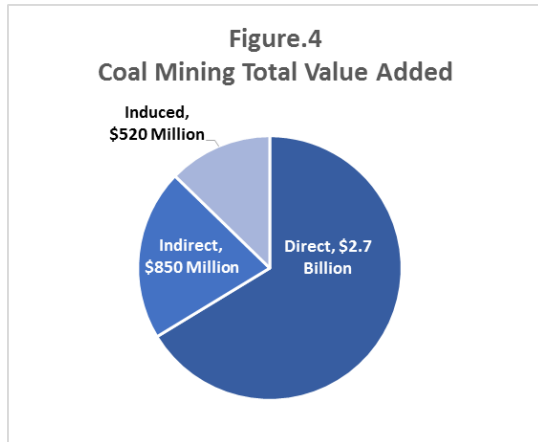
Coal Mining Total Output				
Industry	Direct	Indirect	Induced	Total
<b>Coal mining</b>	\$4,655,290,936	\$62,277,540	\$178,181	\$4,717,746,656
Support activities for oil and gas operations	\$0	\$234,409,655	\$141,236	\$234,550,891
Wholesale trade	\$0	\$134,909,498	\$34,206,648	\$169,116,146
Rail transportation	\$0	\$110,908,664	\$564,528	\$111,473,192
Owner-occupied dwellings	\$0	\$0	\$91,800,838	\$91,800,838
Petroleum refineries	\$0	\$84,275,116	\$6,202,139	\$90,477,255
Maintenance and repair construction of nonresidential structures	\$0	\$84,971,458	\$5,177,918	\$90,149,376
Management of companies and enterprises	\$0	\$71,777,784	\$11,914,364	\$83,692,148
Real estate	\$0	\$16,828,226	\$53,003,742	\$69,831,968
Other financial investment activities	\$0	\$42,735,288	\$22,677,734	\$65,413,022
Hospitals	\$0	\$0	\$58,180,683	\$58,180,683
<b>Total Top Industries</b>	\$4,655,290,936	\$843,093,228	\$284,048,011	\$5,782,432,175
<b>Total All Industries</b>	\$4,655,290,936	\$1,386,377,526	\$870,678,582	\$6,912,347,044

Source: IMPLAN

Compiled by the Allegheny Conference on Community Development, March 2019

### 3.3. Total Value Added: The Coal Industry adds \$4.1 billion to Pennsylvania's Gross State Product

The total value added by an industry can be understood to be the Industry's contribution to the Pennsylvania economy as part of the Gross State Product (GSP), or as the sum value of all of the labor income, profits, rents and indirect business taxes generated in the operation of the Industry over a year. The Coal Industry created \$2.7 billion in direct total value added – the value of the labor income paid to employees and contractors, the payments to property owners and the indirect state taxes generated in Pennsylvania in 2017. These



components are discussed in the following sections. The direct value added stimulated a further \$1.4 billion in total value added across the broader Pennsylvania economy, including in companies that supply products to the *Coal Mining* Industry and in companies that supply goods and services to the employees of the Coal Industry and its supply chain. In total, about \$4.1 billion was added to Pennsylvania's GSP as a result of coal industry activity, the majority of this directly through the *Coal Mining* sector. The industries that are identified in the model as seeing the largest total value added as a result of the activity of the Coal Industry can be found in Table 4.

**Table 4 - Total Value Added Impact of the Pennsylvania Coal Industry: Top Industries**

Coal Mining Total Value Added				
Industry	Direct	Indirect	Induced	Total
<b>Coal Mining</b>	\$2,709,734,985	\$36,250,286	\$103,715	\$2,746,088,985
Support activities for oil and gas operations	\$0	\$202,839,306	\$122,214	\$202,961,520
Wholesale trade	\$0	\$92,282,031	\$23,398,345	\$115,680,375
Rail transportation	\$0	\$63,035,648	\$320,853	\$63,356,501
Owner-occupied dwellings	\$0	\$0	\$59,920,276	\$59,920,276
Management of companies and enterprises	\$0	\$45,055,236	\$7,478,699	\$52,533,935
Real estate	\$0	\$12,429,091	\$39,147,819	\$51,576,910
Maintenance and repair construction of nonresidential structures	\$0	\$45,132,618	\$2,750,253	\$47,882,871
Commercial and industrial machinery and equipment rental and leasing	\$0	\$38,392,973	\$1,034,559	\$39,427,531
Hospitals	\$0	\$0	\$31,842,736	\$31,842,736
Petroleum refineries	\$0	\$22,638,702	\$1,666,072	\$24,304,774
<b>Total Top Industries</b>	\$2,709,734,985	\$558,055,890	\$167,785,541	\$3,435,576,415
<b>Total All Industries</b>	\$2,709,734,985	\$855,442,396	\$520,779,303	\$4,085,956,683

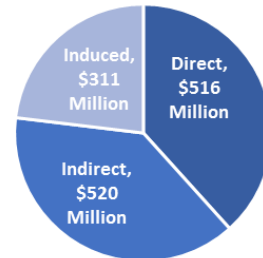
Source: IMPLAN

Compiled by the Allegheny Conference on Community Development, March 2019

### 3.4. Total Value Added: Labor Income

Labor income makes up approximately 33% of the Coal Industry's total value added to the Pennsylvania economy. Labor income constitutes employee compensation and proprietor income. Employee compensation makes up the bulk of the labor income in the Coal Industry. Of the \$1.3 billion in labor income that can be attributed to the activity of the Coal Industry and its ripple effects in the economy, about 39% is paid directly into the *Coal Mining* industry. The other approximately \$830 million of the labor income arises in the supply chain through Coal Industry purchases and in the broader economy through employee spending. The industries that are identified in the model as seeing the largest amount of labor income as a result of the activity of the *Coal Mining* industry can be found in Table

**Figure.5**  
**Coal Mining Labor Income**



5. The *Support Activities for Oil and Gas Operations* and *Rail Transportation* are two sectors that saw the largest indirect impact because of their place in the supply chain for the Coal Industry. *Wholesale Trade* and *Management of Companies and Enterprises* sectors also saw significant indirect impact on labor income. The largest induced impact on employee compensation is seen in the medical field, especially in *Hospitals* and *Offices of Physicians*. Those sectors saw over \$50 million in induced labor income.

**Table 5 - Labor Income impact of the Pennsylvania Coal Industry: Top industries**

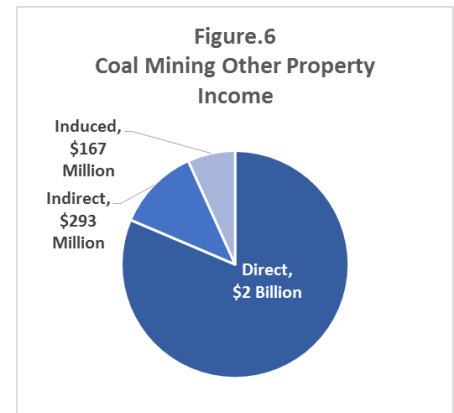
Coal Mining Labor Income Impact				
Industry	Direct	Indirect	Induced	Total
<b>Coal Mining</b>	\$516,524,525	\$6,909,961	\$19,770	\$523,454,255
Support activities for oil and gas operations	\$0	\$128,689,384	\$77,538	\$128,766,921
Rail transportation	\$0	\$69,333,862	\$352,911	\$69,686,774
Wholesale trade	\$0	\$49,221,733	\$12,480,296	\$61,702,029
Management of companies and enterprises	\$0	\$36,788,428	\$6,106,496	\$42,894,924
Maintenance and repair construction of nonresidential structures	\$0	\$34,455,842	\$2,099,641	\$36,555,483
Hospitals	\$0	\$0	\$28,654,992	\$28,654,992
Architectural, engineering, and related services	\$0	\$21,371,892	\$1,977,599	\$23,349,491
Offices of physicians	\$0	\$0	\$21,812,911	\$21,812,911
Commercial and industrial machinery and equipment rental and leasing	\$0	\$14,593,819	\$393,253	\$14,987,073
Radio and television broadcasting	\$0	\$7,617,744	\$6,774,419	\$14,392,163
<i>Total Top Industries</i>	\$516,524,525	\$368,982,665	\$80,749,826	\$966,257,016
<b>Total All Industries</b>	\$516,524,525	\$520,335,588	\$311,441,196	\$1,348,301,308

Source: IMPLAN

Compiled by the Allegheny Conference on Community Development, March 2019

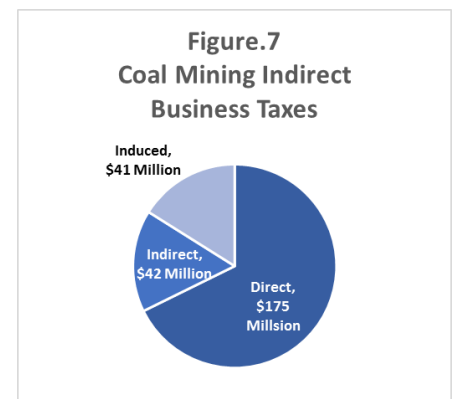
### 3.5. Total Value Added: Other Property Income

The Pennsylvania Coal Industry generates almost \$2.5 billion in other investor and property owner income through direct, indirect and induced effects. This represents 60.1% of the total value added to the Pennsylvania economy by the Industry. Other property income includes payments for rents received on properties, royalties from contracts, dividends paid by corporations, and corporate profits earned by corporations. More than 81.4% of the other investor and property owner income occurs in the *Coal Mining* industry itself. Property income has the greatest effect on three industries: *Support Activities for Oil and Gas Operations*, *Owner-occupied Dwellings*, and *Real Estate* industries.



### 3.6. Total Value Added: Indirect Business Taxes

Business taxes include taxes on sales, property and production paid by businesses on transactions in the production process and through the ripple effects. The Coal Industry paid \$259 million in indirect business taxes. Payment of business taxes account for 6.3% of the total value added to the Pennsylvania economy by the Industry.



### 3.7. Case study: Coal Freight Transportation by Rail

As evidenced by its predominant position in transporting coal, rail is an industry that sees a significant economic impact from the coal industry in Pennsylvania. A portion of the employment and economic activity of the rail industry results from the activity of the coal industry. This is captured in the indirect and induced effect of the coal industry's economic impact, but is analyzed separately to illustrate the clear link between the coal industry and the supported rail industry.<sup>6</sup>

The Pennsylvania Department of Transportation (PennDOT) intermittently publishes the Pennsylvania State Rail Plan (SRP). The purpose of the document is to examine how rail infrastructure is used, what larger economic inputs shape its usage, and how PennDOT can plan to use its railways in the future. A large portion of the report examines the products that are shipped both within Pennsylvania and outward, to end users in other states. Of all commodity products that are transported by Pennsylvania railroads, the most recent report, published in 2015, finds that coal accounts for 58% of all tonnage transported by rail.<sup>7</sup> By this measure, coal is a significant, if not the primary, source of business for the rail freight industry in Pennsylvania.

To arrive at a direct input to run an impact analysis of Coal Freight Transportation, the ACCD found the total number of estimated jobs in the Pennsylvania *Freight Transportation* Industry according to IMPLAN: 8,713.5. To develop a proxy for the number of *Freight Transportation* jobs directly supported by Coal, the ACCD then multiplied the total number of jobs by the percentage of total freight tonnage that coal represents in the Freight Industry according to PennDOT.

Based on the 58% of total tonnage that coal represents, the economic activity of the coal industry results in 5,054 full-time equivalent jobs supported by Coal in the *Rail Transportation* industry, and \$782 million in direct total value added. These jobs and their associated economic activity, in turn, have their own economic ripple effect in the broader economy, as can be seen in Table 6:

- **Approximately 13,639 full-time equivalent jobs**, roughly 8,585 of these jobs resulting from the indirect and induced impacts. For each job directly in Coal Freight Transportation, an additional 1.70 jobs are generated for a total multiplier of 2.70.
- **Roughly \$2.8 billion in total output**, including nearly \$1.4 billion in output directly from Coal Freight activities.
- **Approximately \$1.6 billion in total value added to the state-wide economy including:**
  - Nearly \$1.4 billion in Labor income (\$1.29 billion in employee compensation and \$72 million in proprietor's income.
  - \$305 million in property income.



**Table 6 - Economic impact of transportation of coal by rail in Pennsylvania**

<b>Coal Freight Transportation by Rail Impact</b>					
	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total</b>	<b>Multiplier <sup>1</sup></b>
Employment	5,054	2,446	6,138	13,639	2.70
Output	\$1,376,043,431	\$563,264,152	\$886,002,681	\$2,825,310,264	2.05
Total Value Added <sup>2</sup>	\$782,083,077	\$314,523,223	\$529,924,379	\$1,626,530,678	2.08
Labor Income	\$860,225,003	\$184,808,854	\$316,912,119	\$1,361,945,976	1.58
Employee Compensation	\$860,753,528	\$153,396,642	\$275,141,294	\$1,289,291,464	1.50
Proprietors Income	-\$528,526	\$31,412,212	\$41,770,825	\$72,654,511	N/A
Other Property Type Income	\$25,966,902	\$108,755,204	\$170,521,762	\$305,243,868	11.76
Taxes on Production and Imports	-\$104,108,828	\$20,959,165	\$42,490,497	-\$40,659,166	0.39

1 Total impact divided by direct impact

2 Total Value Added represents the industry's contribution to Gross Regional Product

Source: IMPLAN

Compiled by the Allegheny Conference on Community Development, March 2019

### 3.8. Average wages paid by the Pennsylvania Coal Industry

Average wages in the Pennsylvania Coal Industry, overall, are higher than average U.S. private sector wages. Starting from this higher base, average wages for jobs covered by the unemployment insurance system in the *Coal Mining* industry have increased at a faster rate than private sector wages in the past five years. Average wages in the largest supporting industry, *Support Activities for Coal Mining*, have decreased in the past five years.

**Table 7 - Pennsylvania average wages in the Coal Industry compared to Pennsylvania private sector**

	2012	2013	2014	2015	2016	2017	2012-17 percent change
<b>Coal Mining</b>	<b>\$79,127</b>	<b>\$80,059</b>	<b>\$85,898</b>	<b>\$81,529</b>	<b>N/A</b>	<b>\$89,243</b>	<b>12.8%</b>
<b>Support for Activities for Coal Mining</b>	<b>\$60,695</b>	<b>\$58,379</b>	<b>\$59,098</b>	<b>\$62,729</b>	<b>\$65,163</b>	<b>\$57,952</b>	<b>-4.5%</b>
<b>Total, all U.S. private sector</b>	<b>\$49,200</b>	<b>\$49,701</b>	<b>\$51,296</b>	<b>\$52,876</b>	<b>\$53,515</b>	<b>\$55,338</b>	<b>12.5%</b>

Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages

## 4. Appendix and Bibliography

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<sup>1</sup> Pennsylvania Department of Environmental Protection, *Anthracite Statewide Production Summary 2017 & Bituminous Statewide Production Summary 2017*

<sup>2</sup> Energy Information Administration, *Annual Coal Report 2017*

<sup>3</sup> US Census Bureau, *State Exports from Pennsylvania*

<sup>4</sup> Energy Information Administration, *Form EIA-923*

<sup>5</sup> Energy Information Administration, *Net Generation by State by Type of Producer*

<sup>6</sup> To avoid double counting, the results of the analysis of the rail industry should not be added to the results of the analysis of the economic impact of the coal industry, as the rail industry results are a subset of the indirect and induced effect in the coal industry analysis.

<sup>7</sup> Pennsylvania Department of Transportation, 2015 Pennsylvania State Rail Plan