

The Role of Waterborne Coal in the National Economy

Coal is one of the principal *building block* commodities transported on the inland waterways system. On the shallow draft portion of the system, coal comprises about 180 million tons on an annual basis, which is about 27 percent of total traffic. This coal has a market value of more than \$4.9 billion.

Origins / Destinations

Waterborne coal is loaded onto the inland waterway system in twelve states. Table 1 shows the states of origin with annual tons and value of coal transported. Note that the leading state is West Virginia with nearly 52 million tons (28.5 percent of coal originated). The top four states – West Virginia, Illinois, Kentucky and Pennsylvania – account for more than 83 percent of coal originated. The pattern of originating waterborne coal is shown graphically in Figure 1.

Table 1 - Originating Waterborne Coal by State

Originating State	Average Annual Tons	Approx. Value (\$Million)
West Virginia	51,697,000	\$1,414.9
Illinois	40,569,000	\$1,110.4
Kentucky	31,649,000	\$866.2
Pennsylvania	26,657,000	\$729.6
Ohio	14,606,000	\$399.8
Alabama	11,670,000	\$319.4
Indiana	2,331,000	\$63.8
Iowa	1,455,000	\$39.8
Louisiana	388,000	\$10.6
Maryland	61,000	\$1.7
Tennessee	40,000	\$1.1
Missouri	7,000	\$0.2

Figure 1

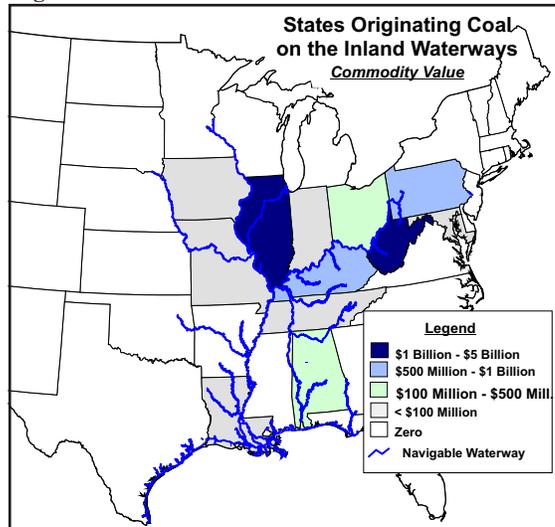


Table 2 (and Figure 2) show the pattern of coal received on the inland waterway system. There are sixteen states that receive waterborne coal. Ohio is the leading receiver of coal with more than 35 million tons (20 percent) followed by Pennsylvania at 29.4 million tons (16.5 percent). Inbound coal is more broadly distributed among the states, with eight states accounting for 94 percent of coal delivered by inland waterway.

Figure 2

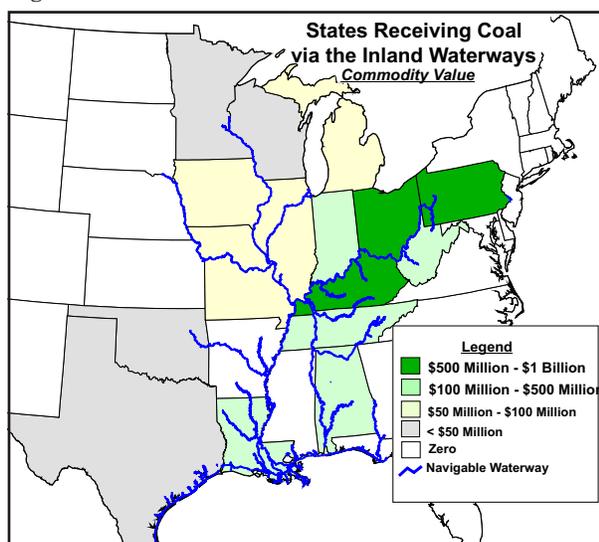


Table 2 - Terminating Waterborne Coal by State

Destination State	Average Annual Tons	Approx. Value (\$Million)
Ohio	35,565,000	\$973.4
Pennsylvania	29,445,000	\$805.9
Kentucky	19,806,000	\$542.1
Indiana	17,641,000	\$482.8
West Virginia	17,110,000	\$468.3
Louisiana	16,928,000	\$463.3
Tennessee	15,763,000	\$431.4
Alabama	14,712,000	\$402.7
Iowa	2,653,000	\$72.6
Illinois	2,425,000	\$66.4
Mississippi	2,117,000	\$58.0
Missouri	2,036,000	\$55.7
Wisconsin	1,789,000	\$49.0
Minnesota	161,000	\$4.4
Oklahoma	16,000	\$0.4
Texas	3,000	\$0.1

Economic Analysis

The value of coal moved by inland waterway – over \$4.9 billion – can be used in conjunction with input-output data and analysis to estimate its importance to the American economy. Using this form of economic analysis, output and jobs in the coal industry and in industries directly and indirectly linked to the coal industry have been estimated. Corresponding value added totals and aggregate tax revenues have also been estimated.

There are 87,500 jobs directly associated with the production and consumption of coal transported on the inland waterways.

The Direct Output (a measure of business activity, similar to sales) that results from these 87,500 jobs has a value of \$41.3 billion.

The total number of associated jobs is 474,200, which includes jobs indirectly associated with coal shipments (in industries that directly and indirectly buy from and sell to any associated industries, including industries associated through employee expenditures).

The Total Output associated with these 474,200 jobs amounts to \$91 billion.

Direct Value Added is over \$22 billion, while the Total Value Added exceeds \$54 billion. Value Added is used by economists as a measure of the increase in the value of goods as a result of the production process. Value Added is sales less the cost of intermediate goods (materials) and services.

Impacted Industries

The analysis also shows output and employment associated with waterborne coal in each of the 505 industries that comprise the American economy, some of which are much more heavily impacted than others.

Table 3 shows the twenty most strongly linked industries in terms of Output. The industry at the top of the list is the leading consumer of coal -- Power Generation and Supply – at \$28 billion. That is followed by two other industries that consume coal – Iron & Steel Mills (\$6.3 billion) and State & Local Government Electric Utilities (\$4.0 billion). The fourth industry – Coal Mining – produces the coal, and has a Direct Output impact of \$3.8 billion.

Output impacts are spread widely through the economy – 97 of the 505 industries in the analytic model show Total Output associated with waterborne coal greater than \$100 million.

Table 3 - Most Strongly Linked Industries - Output

Industry	Output (\$Million)	
	Direct	Total
Power generation and supply (investor owned)	\$28,059	\$28,727
Iron and steel mills	\$5,841	\$6,335
State and local government electric utilities	\$3,965	\$4,057
Coal mining	\$3,448	\$3,794
Wholesale trade	\$0	\$2,949
Oil and gas extraction	\$0	\$2,043
Real estate	\$0	\$1,820
Owner-occupied dwellings	\$0	\$1,772
Monetary authorities and depository credit interme	\$0	\$1,351
Food services and drinking places	\$0	\$1,232
Hospitals	\$0	\$1,171
Petroleum refineries	\$0	\$1,033
Automotive repair and maintenance- except car wash	\$0	\$1,013
Lessors of nonfinancial intangible assets	\$0	\$979
Insurance carriers	\$0	\$959
Offices of physicians- dentists- and other health	\$0	\$905
Rail transportation	\$0	\$892
Other maintenance and repair construction	\$0	\$871
Telecommunications	\$0	\$867
Truck transportation	\$0	\$859

Table 4 shows the twenty leading industries in terms of employment.

Power Generation and Supply leads with more than 55,000 jobs associated with waterborne coal. The other three directly linked industries are also among the top twenty. However, they are not at the top of the list, largely because other industries, such as Food Services and Drinking Places have lower levels of compensation (thus, more jobs per \$1 million of Output).

Associated jobs are also widely distributed through the economy – 88 of the 505 industries have more than 1,000 jobs tied to waterborne coal.

Table 4 - Most Strongly Linked Industries - Employment (Jobs)

Industry	Employment (Jobs)	
	Direct	Total
Power generation and supply (investor-owned)	53,972	55,258
Food services and drinking places	0	28,434
Wholesale trade	0	19,596
Iron and steel mills	14,785	16,034
Employment services	0	12,769
Coal mining	10,646	11,714
Other maintenance and repair construction	0	11,103
Real estate	0	10,814
Hospitals	0	9,483
Offices of physicians- dentists- and other health	0	8,840
State and local government electric utilities	8,105	8,292
Legal services	0	7,054
Automotive repair and maintenance- except car wash	0	6,824
Food and beverage stores	0	6,739
Securities- commodity contracts- investments	0	6,525
General merchandise stores	0	6,505
Nursing and residential care facilities	0	6,458
Truck transportation	0	6,409
Services to buildings and dwellings	0	5,404
Management of companies and enterprises	0	5,326

Industrial Sectors

It is also useful to group the results for individual industries into industrial sectors.

Table 5 shows the distribution of jobs associated with waterborne coal, by sector.

Note that Utilities is the most strongly linked sector with nearly 56,000 jobs affected. That is closely followed by the Manufacturing sector at 51,000 jobs, then Retail Trade at 40,000 jobs and Health & Social Services at 35,000 jobs.

Table 5 - Employment (Jobs) by Industrial Sector

Industrial Sector	Employment (Jobs)	
	Direct	Total
Agriculture, Forestry, Fishing & Hunting	0	6,712
Mining	10,646	21,352
Utilities	53,972	55,904
Construction	0	13,418
Manufacturing	14,785	51,229
Wholesale Trade	0	19,596
Transportation & Warehousing	0	27,246
Retail Trade	0	40,398
Information	0	9,622
Finance & Insurance	0	22,470
Real Estate & Rental	0	14,376
Professional - Scientific & Tech Services	0	28,848
Management of Companies	0	5,326
Administrative & Waste Services	0	29,016
Educational Services	0	8,522
Health & Social Services	0	35,205
Arts - Entertainment & Recreation	0	12,658
Accommodation & Food Services	0	32,103
Other Services	0	27,987
Government & Other	8,105	12,235
Total	87,508	474,219

Table 6 shows the distribution of Direct and Total Output associated with waterborne coal among industrial sectors.

Note that the Utilities sector has the highest value at over \$29 billion in Total Output. Next comes Manufacturing at \$15 billion. The Mining Sector follows with \$6.9 billion in Total Output tied to coal transported on the inland waterways system.

Taxes

The analysis also resulted in approximate estimates of tax payments tied to waterborne coal, as shown in Table 7.

The taxes paid in association with all linked activities amounts to about \$8 billion in federal taxes, and \$7 billion in state and local taxes, for a grand total tax payments associated with waterborne coal of nearly \$15 billion.

Table 6 - Output by Industrial Sector

Industrial Sector	Output (\$Million)	
	Direct	Total
Agriculture, Forestry, Fishing & Hunting	\$0	\$519
Mining	\$3,448	\$6,876
Utilities	\$28,059	\$29,093
Construction	\$0	\$1,098
Manufacturing	\$5,841	\$15,180
Wholesale Trade	\$0	\$2,949
Transportation & Warehousing	\$0	\$4,222
Retail Trade	\$0	\$2,234
Information	\$0	\$2,195
Finance & Insurance	\$0	\$4,105
Real Estate & Rental	\$0	\$3,367
Professional - Scientific & Tech Services	\$0	\$3,122
Management of Companies	\$0	\$703
Administrative & Waste Services	\$0	\$1,545
Educational Services	\$0	\$433
Health & Social Services	\$0	\$3,030
Arts - Entertainment & Recreation	\$0	\$611
Accommodation & Food Services	\$0	\$1,525
Other Services	\$0	\$2,155
Government & Other	\$3,965	\$6,380
Total	\$41,313	\$91,343

Table 7 - Associated Tax Payments

	Taxes Paid (\$Million)	
Federal Government		
Corporate Profits Tax	\$1,166	
Indirect Bus Tax: Custom Duty	\$180	
Indirect Bus Tax: Excise Taxes	\$580	
Indirect Bus Tax: Fed NonTaxes	\$205	
Personal Tax: Estate and Gift Tax	\$0	
Personal Tax: Income Tax	\$2,946	
Personal Tax: NonTaxes (Fines- Fees	\$31	
Social Ins Tax- Employee Contribution	\$1,534	
Social Ins Tax- Employer Contribution	\$1,336	
Total - Federal Government		\$7,978
Corporate Profits Tax	\$199	
Dividends	\$3	
Indirect Bus Tax: Motor Vehicle Lic	\$48	
Indirect Bus Tax: Other Taxes	\$296	
Indirect Bus Tax: Property Tax	\$2,250	
Indirect Bus Tax: S/L NonTaxes	\$352	
Indirect Bus Tax: Sales Tax	\$2,808	
Indirect Bus Tax: Severance Tax	\$53	
Personal Tax: Estate and Gift Tax	\$0	
Personal Tax: Income Tax	\$644	
Personal Tax: Motor Vehicle License	\$37	
Personal Tax: NonTaxes (Fines- Fees	\$123	
Personal Tax: Other Tax (Fish/Hunt)	\$9	
Personal Tax: Property Taxes	\$14	
Social Ins Tax- Employee Contribution	\$8	
Social Ins Tax- Employer Contribution	\$28	
Total - State / Local Government		\$6,873
Grand Total		\$14,850

Conclusion

This analysis shows the extent to which coal transported on the inland waterways system supports economic activity among the industries that make up the American economy.

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Prepared by
LINARE CONSULTING
Pittsburgh, PA
412-343-3888
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