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At Madrid Coal Mine, New Mexico by Carl Redin 1934. \*

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Abstract:

The economic impact of coal mining in New Mexico is examined in this report. This report is an update of an earlier technical report prepared by Arrowhead Center on the economic impact of coal mining in New Mexico. All data and impacts have been updated through calendar year 2008. In addition, the analysis was conducted using a major update to the economic modeling software (IMPLAN Pro Version 3.0). The direct, indirect, and induced impacts of coal mining in New Mexico are presented in terms output, value added, employment, and labor income for calendar year 2008. Tax, rental, and royalty income to the State of New Mexico are also presented. Historical coal production, reserves and price data are also presented and discussed. The report does not include the impacts of coal-fired electricity generation.

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# The Economic Impact of Coal Production in New Mexico: 2008 Update

## Executive Summary

This report has been prepared as part of New Mexico State University's Arrowhead Center PROSPER project funded by the National Energy Technology Laboratory of the U.S. Department of Energy (DOE Award Number: De-NT0004397). The technical reports produced under this grant can be found at the PROSPER Project website: <http://arrowheadcenter.nmsu.edu/policy/pep/index.html> .

This report provides an analysis of the impact of coal mining on the New Mexico economy in 2008. This report is an update of an earlier report (*The Economic Impact of Coal Mining in New Mexico*, June 2009). All data and impacts have been updated through calendar year 2008. In addition, the analysis was conducted using a major update to the economic modeling software (IMPLAN Pro Version 3.0).

New Mexico has been producing coal for more than a century. In 1918 New Mexico coal production reached four million short tons, but declined to a low of 123,000 short tons in 1954. New Mexico coal production began to rise again in the early 1960s, but did not reach its 1918 production level of four million short tons until 1969. More than half of all coal mined in the state has been produced since 1990. Between 1882 and 2008, New Mexico produced 962.3 million short tons of coal. From 1990 to 2008, the state produced 506.4 million short tons of coal (52.6 percent of all coal ever mined in the state).

In 2008, New Mexico's coal mines produced 24.1 million short tons of coal. The average price was \$29.91 per short ton (average of FY2008 and FY2009 data reported by the State Board of Finance). The reported sales value of coal produced in New Mexico in 2008 was \$727.3 million.

The coal mining industry in New Mexico contributed about \$1.0 billion in total output and \$553 million in value added—including the direct, indirect and induced effects. Direct coal mining employment in New Mexico in 2008 was 1,445 jobs. Total employment (direct, indirect, and induced) associated with coal mining employment was 3,068. In total, the industry accounted for \$106 million in tax, rental, and royalty income to the state.

## Introduction

This report provides an analysis of the impact of coal mining on the New Mexico economy in 2008. This report has been prepared as part of New Mexico State University's Arrowhead Center PROSPER project funded by U.S. Department of Energy Grant Award Number DE-NT0004397. This report is an update of "The Economic Impact of Coal Mining in New Mexico: 2007" (issued June 2009). All reports issued by the PROSPER project can be found on-line at: <http://arrowheadcenter.nmsu.edu/policy/pep/index.html> .

The base year of the study (2008) is the latest year for which complete coal production, price, and tax data are available. The report will be updated again when 2009 data become available –approximately June 2011.

Natural resource industries are an important part of the New Mexico economy. Major natural resource industries in the state include timber, agricultural resources, potash, oil, natural gas, coal, and uranium. The extraction, processing, and marketing of these resources are major sources of employment, income, and tax revenue for the state.

The history of New Mexico is intertwined with resource based industries. Agriculture and mining set the stage for the development of modern New Mexico and remain important industries in the state. With the westward expansion of railroads in the late 1800s, coal became a significant part of the New Mexico economy. Significant coal deposits near Raton (north Central New Mexico) and Gallup (in the Western part of the state) were particularly important to the railroad industry (Beck 1962, p. 250). As will be discussed later, the conversion of railroads to diesel engines resulted in a dramatic decline in New Mexico coal mining by the early 1950s. Starting in the 1960s, coal mining in New Mexico was stimulated by its use in electrical generation facilities. New Mexico coal production in the 2000s is at an all time high.

An analysis of the economic activity generated by coal mining in New Mexico is the focus of this report. The economic impacts of coal mining are presented in terms of output, value added, employment, labor income and tax revenue. The economic modeling software used in this report is IMPLAN Professional Version 3.0. This report does not address the economic impact of coal fired generation of electricity.

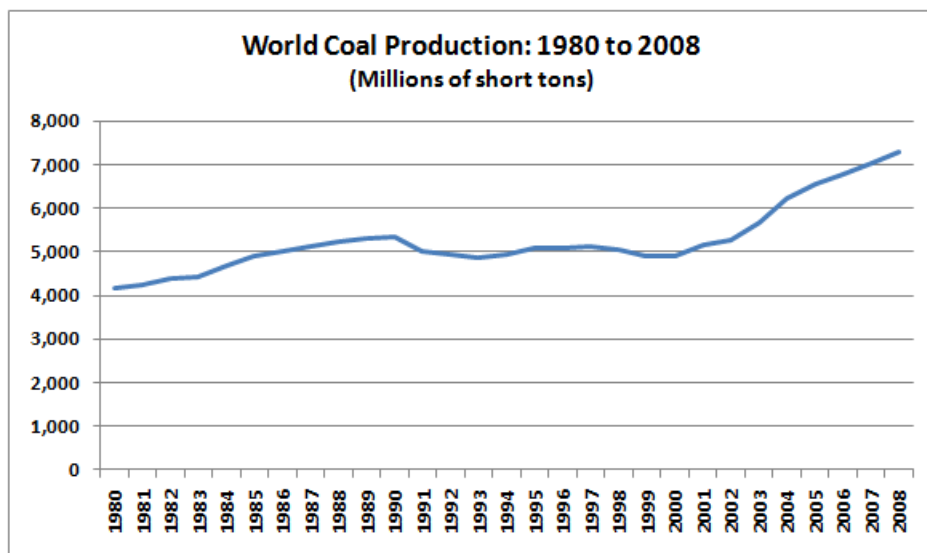
After this brief introduction, the report is organized as follows: (1) national and world trends in coal production; (2) coal in New Mexico; (3) coal prices, (4) economic impacts of coal mining; (5) tax impacts of coal mining; and (6) conclusion. Appendix A contains a discussion of sometimes conflicting sources of coal production and price data. Appendix B contains the data and data sources used in all figures in the main body of the report.

## National and World Trends in Coal Production

In 2008, the world produced and consumed 7.3 billion short tons of coal (Table B1). Coal provides approximately 25 percent of the world's primary energy supply and is used to generate approximately 40 percent of the world's electricity supply (International Energy Agency 2007, pp. 74 and 93).

World coal production since 1980 is displayed in Figure 1 and Table B1. Between 2000 and 2008 world coal production increased by 48.6 percent. As Figure 1 illustrates, world coal production grew more rapidly in the 2000s than in the 1980s or 1990s. This growth of world coal production can be traced to rapid increases in consumption of coal in Asia, particularly by India and China. Despite the recent global economic crisis further increases in world coal production during the next few decades is highly likely.

Figure 1: World Coal Production 1980 to 2008.



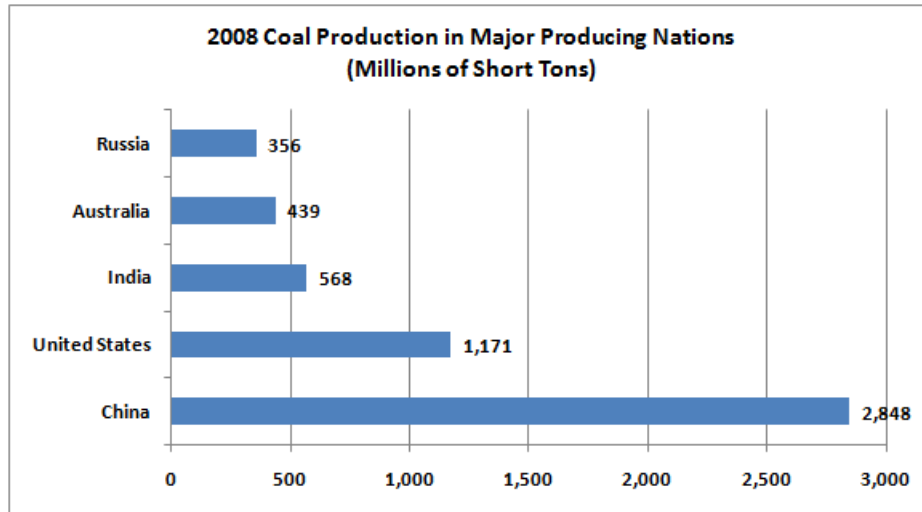
Source: Appendix B contains data tables and data sources for all figures.

World coal production is highly concentrated geographically. Nearly three fourths (74.0 percent) of world coal production in 2008 occurred in five nations: China, U.S., India, Australia, and Russia (Figure 2 and Table B2).

The United Kingdom was the world's largest producer of coal in the late 19<sup>th</sup> century but ranked 23<sup>rd</sup> in coal production in 2008 (Zimmerman 1951 and Table B2). New Mexico's coal production in 2008 of 25.6 million short tons (Table B4) is a small portion of the nation's total production but larger than production in the United Kingdom. The U.S. displaced the United Kingdom as the world's largest producer of coal in the early 20<sup>th</sup> century, an event that symbolized the nation's rise as an industrial power (Zimmerman 1951, Table 27.4, p. 471). In 1985, China surpassed the U.S. in coal production and has remained the world's largest producer of coal since then (Energy Information Administration, 2009).

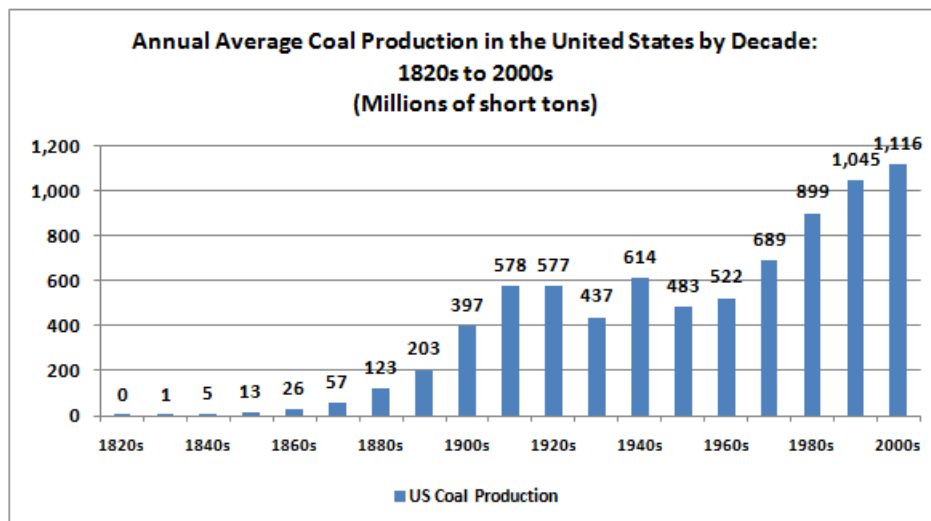


Figure 2: Coal Production in Major Producing Nations 2008



Between the 1880s and World War I, US coal production (Figure 3) increased rapidly, reflecting the equally rapid growth of railroads and the U.S. steel industry. U.S. coal production fell during the Great Depression of the 1930s for the first time in more than a century. During World War II, U.S. coal production again increased, but this was followed by substantial decreases during the late 1940s and 1950s as railroads converted from coal engines to diesel engines. U.S. coal production increased in each decade since the 1960s as coal became the fuel for base-load electricity generation. In the early 2000s, coal accounts for nearly half of all U.S. electricity generation.

Figure 3: Annual Average Coal Production in the U.S. by Decade: 1820s to 2000s.



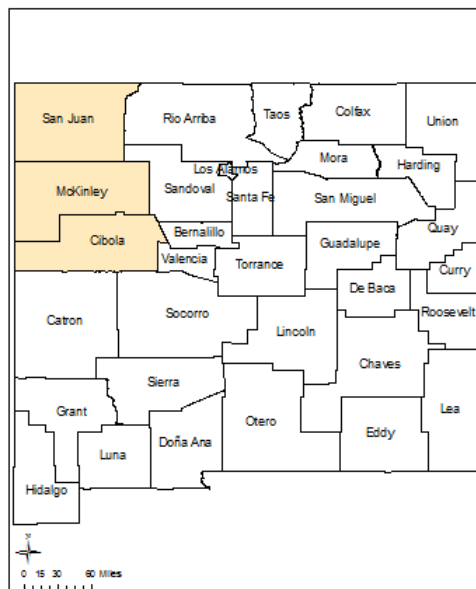
## Coal Reserves

Four main types of coal are used as an energy source: (1) lignite, (2) sub-bituminous, (3) bituminous, and (4) anthracite. Generally, lignite contains the fewest BTUs per ton, while anthracite contains the most BTUs per ton. In addition to variation in energy content, coal deposits also vary significantly in sulfur content. There are five major coal producing regions in the U.S: (1) the Appalachian Basin, (2) the Illinois Basin, (3) the Gulf Coast, (4) the Northern Rocky Mountains and Great Plains, and (5) the Colorado Plateau (U.S. Geological Survey 2001).

The Energy Information Administration (EIA 2009) uses three distinct terms when referring to coal reserves. (1) The *Demonstrated Reserve Base* (DRB) refers to “coal resources that have been identified to specified levels of accuracy and may support economic mining under current technologies.” As of January 1, 2009 (2008 data), EIA reported 488 billion short tons of coal as DRB. (2) Recoverable Coal Reserves (RCR) refer to “that portion of the DRB that EIA estimates may be available and accessible for mining.” This classification reflects the fact that some portion of the DRB may not be available due to geological, legal, environmental or other reasons. The EIA estimates recoverable reserves as 261 billion tons as of 2008. At 2008 production levels, recoverable reserves are adequate to supply the nation with coal for more than two centuries. (3) “Recoverable coal reserves at producing mines represent the quantity of coal that can be recovered (i.e. mined) from existing coal reserves at reporting mines. These reserves essentially reflect the working inventory at producing mines. In 2008, the recoverable reserves at producing mines were 17.9 billion short tons.” (All quotes in this paragraph are from the website listed at the beginning of the paragraph.)

A fourth term referring to coal reserves (“Economically Extractable Resource” or EER) is often used by the U.S. Geological Survey. This term refers to that portion of the recoverable reserves that can be produced at a profit. This term will not be used here as USGS does not provide current estimates of EER.

Map 1. New Mexico



Source: Arrowhead Center, New Mexico State University

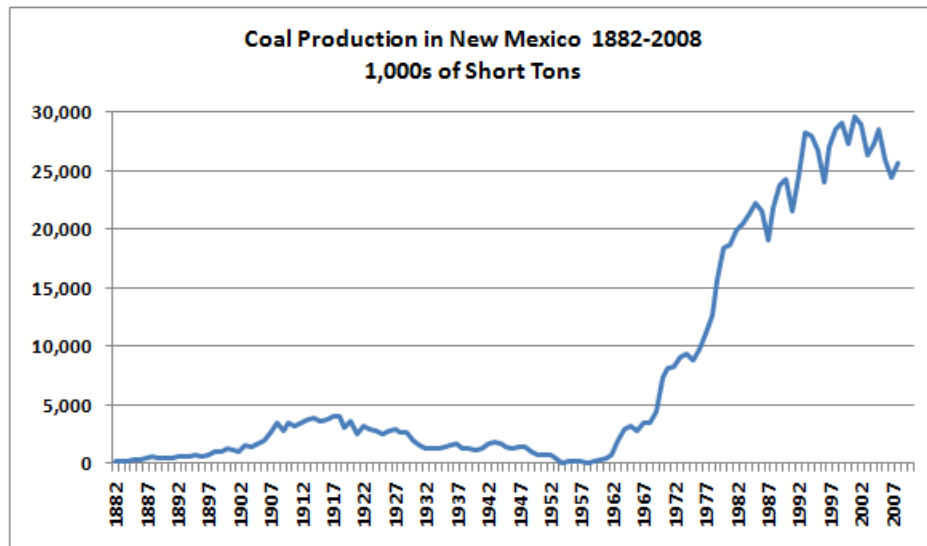
EIA (2010) estimated that New Mexico’s recoverable coal reserves at producing mines in 2008 were 605 million short tons or 3.4 percent of the U.S. total. The 2008 figure represents an increase of 25.4 percent over the reported reserves in the state in 2007 (483 million short tons). New Mexico’s coal reserves are mainly in the San Juan Basin in San Juan, McKinley and Cibola Counties (Map1).

Along with reserve estimates, EIA (2010) also estimated the recovery rate for New Mexico mines to be 88.4 percent. Recovery rates vary significantly depending on geological conditions specific to each mine. Recovery rates are generally higher for surface mines than in underground mines. In 2008, four of New Mexico’s five active coal mines were surface mines.

### Coal Production in New Mexico

Coal was used in fire pits by the Hopi Indians in New Mexico as early as 1300 AD (Kottlowski 1964, p. 3). By 1835, coal was being mined near Madrid, New Mexico about 14 miles from Santa Fe but far from currently producing coal mines. In 1861, federal troops at Fort Craig in the south central part of the state were mining coal on a “significant scale” (Kottlowski 1964, pp. 3-4). By the early 1880s, coal production in New Mexico exceeded 150,000 short tons (Figure 4). In 1923 New Mexico coal production reached four million short tons but declined to a 20<sup>th</sup> century low of 123,000 short tons in 1954. The decline in state production in the 1950s was largely due to the replacement of coal burning, steam-fired locomotives with diesel powered locomotives –a national trend as well. New Mexico coal production began to increase again in the 1960s, but did not reach its 1918 peak of four million short tons until 1969.

Figure 4: Coal Production in New Mexico 1882 to 2008



Before 1970, New Mexico coal production never exceeded five million short tons or approximately one-fifth of average annual production in the 2000s. Although commercial coal mining in New Mexico on a relatively large scale began in the 1880s, more than half (52.6 percent) of the state’s total production occurred after 1990.

During the last several decades, the number of active coal mines in New Mexico has decreased substantially. In 1952, there were 27 active coal mines in the state and those mines produced 759,000 short tons of coal (U.S. Bureau of Mines, 1952). In 2008, there were five active coal mines in New Mexico, but these mines produced 25.6 million tons of coal. The decrease in the number of mines and the simultaneous increase in production during the last half century reflect mainly a shift from underground mining to surface mining in the state.

All five active New Mexico coal mines in 2008 were located in the San Juan Basin (San Juan, McKinley and Cibola Counties) in the northwest corner of the state (NMEMNRD 2010). The five mines are:

1. The San Juan Mine operated by BHPBilliton (BHPBilliton 2010) is the state's only underground mine. The San Juan mine provides coal to the San Juan Generating Station which produces electricity sold in New Mexico and Arizona. The San Juan Mine produced 7.1 million short tons of coal in 2008 (EIA 2009, Table 9) The San Juan mine is located 15 miles west of Farmington, NM and has 576 employees.
2. The Navajo mine operated by BHPBilliton is located on the Navajo Indian Reservation about 18 miles southwest of Farmington, NM. In 2008, the Navajo Mine produced 8.9 million short tons of coal (EIA 2009, Table 9). The Navajo mine provides coal to the Four Corners power plant and has 433 employees (BHPBilliton 2010).
3. The Lee Ranch Mine is operated by Peabody Energy Resources and is located 35 miles north of Grants, NM (Cibola County). In 2008, the Lee Ranch Mine produced 2.3 million short tons of coal (BNSF 2010).
4. The McKinley North Mine is located about 35 miles northwest of Gallup, NM and was operated by Chevron Energy. The McKinley Mine was the first surface coal mine in New Mexico and opened in 1962. Production continued for 47 years but the mine was closed in 2009. Production and employment data for 2008 are not available.
5. The El Segundo Mine is located 25 miles north of Grants, NM (Cibola County) and is operated by Peabody Energy Resources. The El Segundo mine is New Mexico's newest mine and began production in May 2008. The El Segundo mine produced 2.5 million short tons of coal in 2008 (BNSF 2010).

### **New Mexico Coal Mining Employment**

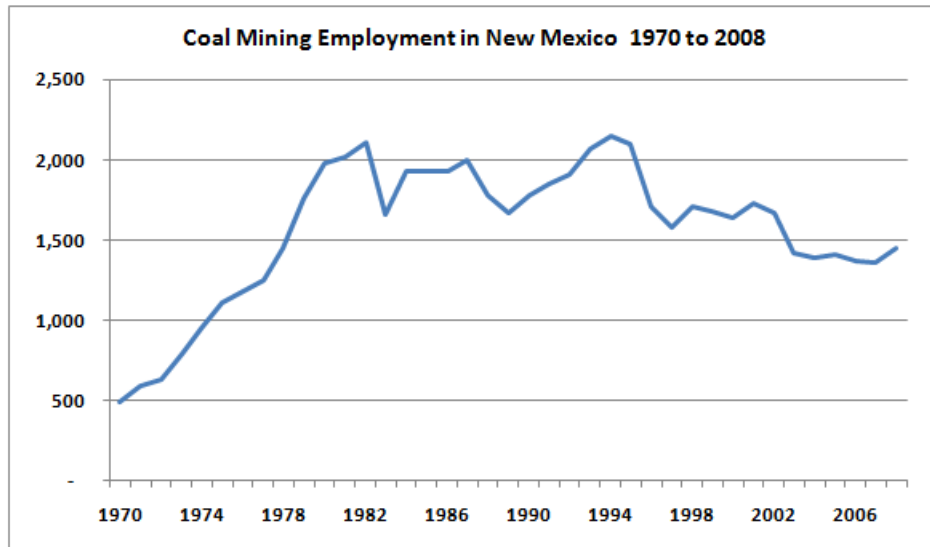
Despite increases in coal production in New Mexico in recent years, employment in the state's coal mining industry has been declining –a pattern also seen at the national level. Employment in the coal industry reflects the dual effects of changes in mining type and technology.

In particular, there has been a long-term increase in productivity per worker in the coal mining industry. Labor productivity in the coal mining industry is measured as tons per worker per year (or per day or per hour worked). In 1934, New Mexico's 2,342 coal miners produced 1,150,825 short tons of coal or about 491 short tons per worker per year. In 2008, New Mexico's 1,445 coal miners produced 25.458 million short tons of coal or 17,635 short tons per worker per year. This is a 35-fold increase in output per worker since 1934 (United States Geological Survey 1932-2008, 1936 and 2008).

Given the dramatic increases in labor productivity, the long-term downward trend in coal mining employment is not surprising. In New Mexico this trend has continued in recent years, although there was a small increase in coal mining employment in the state between 2007 (1,390 workers) and 2008 (1,445 workers).

Figure 5 exhibits coal mining employment in New Mexico from 1969 to 2008. Peak employment in New Mexico’s coal mines since 1969 occurred in 1994 (2,153 jobs). In 2001, there were 1,743 jobs in New Mexico’s coal mines but this figure decreased to 1,445 in 2008 –a decrease of 17.1 percent.

Figure 5: Coal Mining Employment in New Mexico: 1970 to 2008



### Coal Prices

Coal prices vary substantially by type of coal, location of coal deposits relative to markets, the technology used to mine the coal (e.g., surface versus underground mining), the nature of long-term contracts, and other market conditions. Figure 6 displays the price of coal by coal type from 1949 to 2008 in current dollars per short ton. Figure 7 displays coal prices by type converted to constant (2005) dollars. The conversion to constant dollars was based on the implicit price deflator for GDP (Bureau of Economic Analysis, Table 1.1.9, 2010). Prior to 1978 bituminous and sub-bituminous coal prices were not reported separately (EIA, 2009). As shown in figures 8 and 9, anthracite (with its higher energy content) commands a higher price than other coal types.

In real (2005 dollars) terms the price of coal has decreased since 1949. The average price of coal in 1949 (expressed in 2005 dollars) was \$36.17 per short ton. In 2008, the average price of coal was \$30.04 per short ton—a decrease of 16.9 percent. Because 2008 was a year of unusually high energy prices, a different comparison may be appropriate. The 1949 price of coal was 39.2 percent higher than the 2000 to 2008 average (\$22.01 dollars per short ton).

Coal prices in New Mexico differ from national averages. Figure 8 displays average coal prices in New Mexico and the U.S. from 1949 to 2008 Figure 9 displays New Mexico and US coal prices in real (2005 dollars) from 1949 to 2008. From 1949 to 1969 the average price of coal in the state and nation hovered near \$5 per short ton in nominal terms (Figure 8), while the real price of coal was decreasing (Figure 9). During the 1970s there was a dramatic increase in coal prices (real and nominal) in both the state and nation. From the 1980s to the early 2000s, real and nominal coal prices declined in the nation and the state. Coal prices began to increase after 2003.

New Mexico coal prices have been higher than in the nation for the last two decades (1988 to 2008), but this has not always been the case. During the 1960s and 1970s, New Mexico coal prices remained below national prices and the gap was particularly large during the 1970s (Figures 8 and 9). From 1988 to 2008 New Mexico and US coal prices have been highly correlated. The simple correlation coefficient between New Mexico and US nominal prices was 0.912 while the correlation between New Mexico and US real prices was 0.940.

Figure 6: Coal Prices by Type of Coal in the United States 1949 to 2008

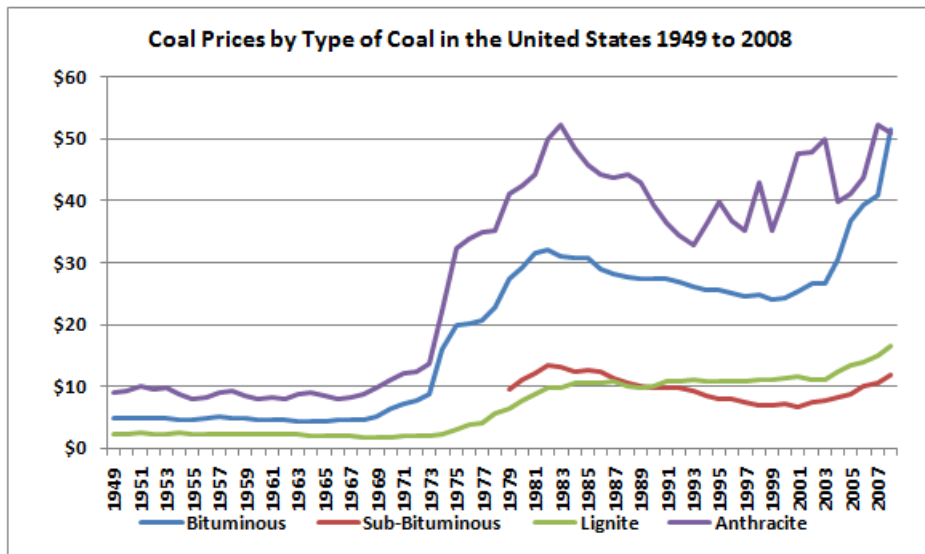


Figure 7: Real (2005 Dollars) Price of Coal by Coal Type in the U.S. 1949-2008

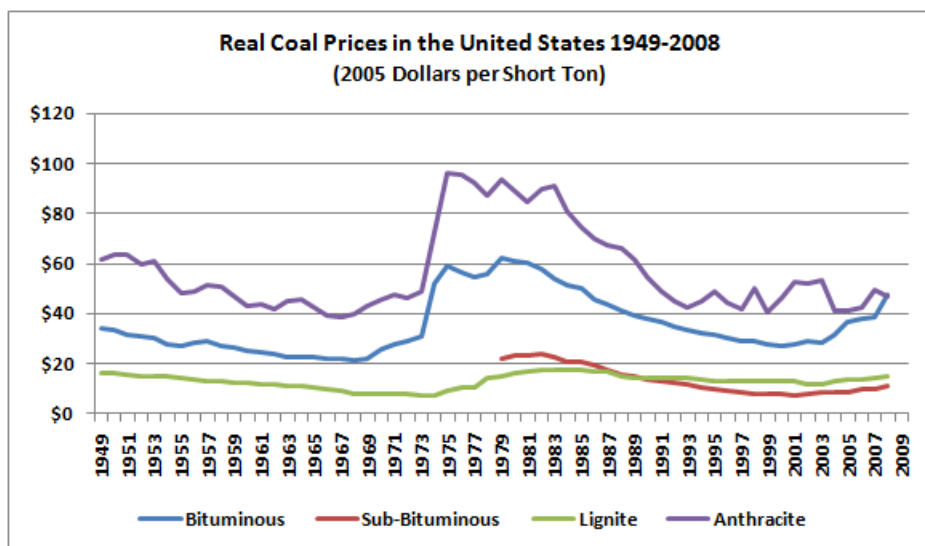


Figure 8 Coal Prices in New Mexico and the United States 1949 to 2008

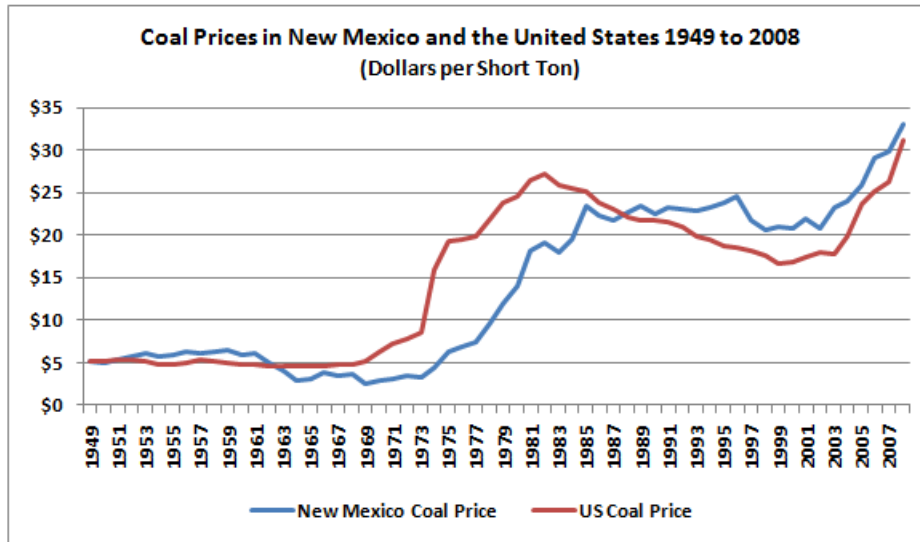
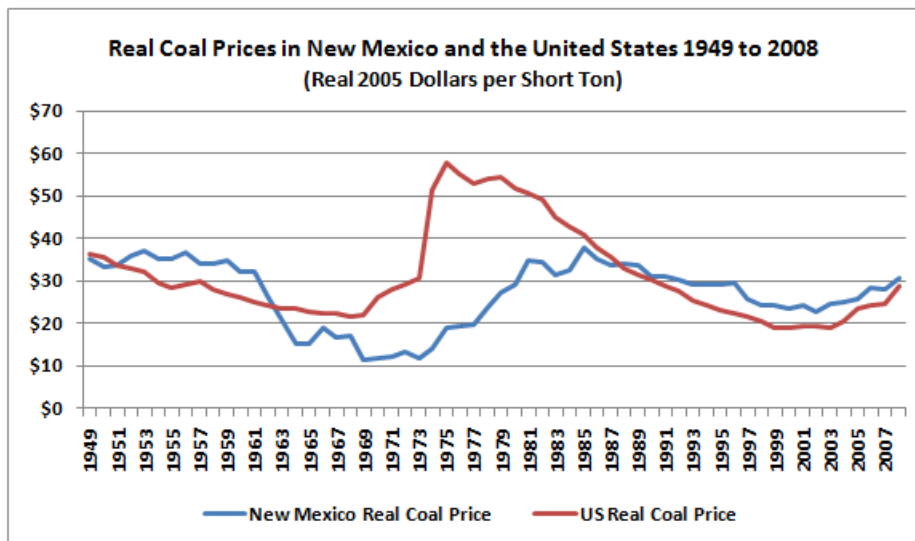


Figure 9 Real Coal Prices in New Mexico and the United States 1949 to 2008



### Economic Impact of Coal Mining in New Mexico

The economic impacts of coal mining in New Mexico were estimated using multipliers derived from an input-output model. Input-output analysis was developed initially by Nobel Laureate Wassily Leontieff in the 1930s. In the U.S., input-output models are available at the national, state, and county levels. Input-output analysis quantifies the relationships between sectors of complex economic systems, detailing the movement of dollars between producers and consumers of goods and services. The input-output modeling software used in this analysis is IMPLAN PRO Version 3.0, produced by the Minnesota Implan Group, Inc. The IMPLAN models are widely used to conduct economic impact analysis by public

and private sector economists. Additional information on the IMPLAN software and models can be found at: [www.implan.com](http://www.implan.com).

Typical economic impact studies capture the direct, indirect, and induced impacts of the economic activity being considered. Direct effects are estimates of impacts to the economy resulting from production by businesses in the sector under consideration. That is, a particular sector's direct effect on the economy in dollar terms is the amount of money generated by the sector through sales of its products or services. Indirect effects are impacts to the economy of industry firms purchasing inputs from other sectors within the economy. That is, indirect result from production in other industries as a result of production in the primary industry. Induced effects are the result of increased spending by households from the increase in household income that was generated through the direct and indirect effects. The total economic impact of an initial change in the economy is the sum of the direct, indirect, and induced effects. The direct, indirect, induced, and total effects are measured in terms of output (industry sales), value added (roughly the equivalent of GDP), labor income (wages, salaries and proprietors income), and employment (full and part-time jobs).

In addition, estimated tax impacts of an economic activity such as coal mining are of particular use to policy-maker. For consistency with officially reported tax data, the impacts described below are based on data available from the New Mexico State Board of Finance ([www.dfa.nm.us](http://www.dfa.nm.us)). The production and price data used below differ slightly from other officially reported data such as that provided by the Energy Information Administration in its various coal reports. The economic models used to generate the impacts are based on a calendar year, while the New Mexico fiscal year begins July 1 and ends on June 30 of the following year. The impacts described below are based on inputs calculated as an average of two fiscal years. For example, the input data for calendar year 2008 consists of the average of the data reported for fiscal years 2008 and 2009.

The economic impacts of New Mexico's coal mining industry in 2008 are displayed in Table 1A. Comparable impact estimates for 2007 from the previous report (Peach and Starbuck 2009) have been included to facilitate comparisons (Table 1B).

Differences in impacts between the two reports occur for two main reasons. First, there were relatively small changes in employment and output between the two years. For example, output (industry sales) in the coal mining industry increased by 8.0 percent (\$53.6 million) between 2007 and 2008. At the same time, coal mining employment in New Mexico increased by 4.0 percent (55 jobs). Second, differences between the 2007 and 2008 impacts result from using a newer version of the economic modeling software discussed earlier. For example, the implied output multiplier from the 2007 model was 1.54 while the comparable figure for 2008 was 1.39. The 2007 implied employment multiplier was 2.37 while the employment multiplier for 2008 was 2.12. The changes in the multipliers result from improvements in the input-output tables, structural change in the economy, and data revisions. Overall, the 2008 economic impacts exhibited relatively small changes from those reported for 2007. In 2008, New Mexico produced 24.1 million short tons of coal at an average price per short ton on \$30.14 (see Appendix A for a discussion of New Mexico coal production and price data.) As shown in Table 1, the direct output (industry sales) from coal mining in New Mexico in 2008 was \$727.5 million (production multiplied by price). The total output impact was \$1.0 billion or 1.39 times the industry's direct output.



Table 1A. Coal Mining Impacts in New Mexico 2008.

	Direct	Indirect	Induced	Total
Output	\$727,520,526	\$126,355,696	\$160,257,856	\$1,014,134,080
Value Added	\$393,783,000	\$67,023,960	\$93,127,370	\$553,934,300
Employment	1,445	541	1,082	3,068
Labor Income	\$141,007,616	\$27,791,852	\$34,525,080	\$203,324,544

Source: Author Calculations using IMPLAN Professional Version 3.0

Table 1B. Coal Mining Impacts in New Mexico 2007.

Value	Direct	Indirect	Induced	Total
Output	\$673,944,832	\$200,289,241	\$165,636,748	\$1,039,870,811
Value Added	\$370,295,392	\$97,019,908	\$91,238,499	\$588,553,819
Employment	1,390	786	1,117	3,293
Labor Income	\$141,941,298	\$41,541,286	\$35,149,868	\$218,632,452

Source: Peach and Starbuck 2009, p. 21.

### Tax Impacts of Coal Mining in New Mexico

New Mexico coal production generates substantial tax revenues, rents, and royalties in the state. Coal is subject to gross receipts tax, excise tax, conservation tax, and severance tax (New Mexico Law Section 7-26-6). Coal mining properties are also subject to a property tax. The State of New Mexico also receives rental and royalty income from coal leases on state and Indian Land. The current base severance tax rate of \$0.57 per short ton was set in 1980. The state also imposes a severance surtax indexed to the Consumer Price Index. The FY2009 surtax was \$0.83 per short ton compared to the FY2008 rate of \$0.80 per short ton (State Board of Finance, 2010). Coal mined underground is currently exempt from the surtax. Lucero (2009, p. 22) estimated lost tax revenue from the exemption on underground mining at \$5.8 million and exemptions on surface mining at \$4.7 million in FY2008.

The State Board of Finance (January 2010, p. 12), reports that the Taxation and Revenue Department “believes that it has historically calculated the surtax rate at rates lower than provided by law.” The Taxation and Revenue Department intends to impose the correct (higher rates) in FY2010.

A summary of actual taxes, rents and royalties is presented in Table 2. Tax, rental and royalty data have been presented for fiscal years 2008 and 2009. The average figures presented for FY2008 and FY2009 correspond to the impact data for calendar year 2008.

The direct taxes, rental and royalty income from coal mining paid to the State of New Mexico are not estimates. Rather, the data are actual receipts as reported by the State Board of Finance, the State Land Office, and the federal Mineral Revenue Management Division of the U.S. Department of the Interior. The effective tax rate for direct taxes imposed by the state is \$3.00 per short ton or 10.0 percent of the dollar value of production. If rents and royalties on state lands are included, the effective tax rate is \$3.37 per ton. If federal rents and royalties are included, the effective rate is \$3.53 per ton. The actual

tax burden per ton is higher because the federal disbursements include only the state portion of federal rents and royalties received.

**Table 2 Coal Taxes, Rents and Royalties In New Mexico in Fiscal Years 2007 and 2008**

	FY2008	FY2009	Average FY08 and FY09	Effective Tax Rate (\$ per short ton)
Severance Tax and Surtax	\$17,145,895	\$20,234,260	\$18,690,078	\$0.77
Resources Excise Tax	\$4,432,200	\$5,428,852	\$4,930,526	\$0.20
Conservation Tax	\$1,133,085	\$1,375,306	\$1,254,196	\$0.05
Property Tax	\$6,071,098	\$5,833,150	\$5,952,124	\$0.25
Gross Receipts Tax	\$35,369,395	\$47,610,572	\$41,489,984	\$1.72
Sub-Total	\$64,151,673	\$80,482,140	\$72,316,907	\$3.00
Price per ton	\$28.72	\$31.09	\$29.91	
Total Production (Tons)	22,801,290	25,482,801	24,142,046	
Total Value	\$654,942,711	\$792,304,607	\$723,623,659	
Rental Income on State Land	\$44,240	\$40,405	\$42,323	\$0.00
Royalty Income on State Land	\$4,631,632	\$13,596,644	\$9,114,138	\$0.38
Sub-Total	\$4,675,872	\$13,637,049	\$9,156,461	\$0.38
<b>Direct Taxes Total</b>	<b>\$68,827,545</b>	<b>\$94,119,189</b>	<b>\$81,473,367</b>	<b>\$3.37</b>
<b>Rental and Royalty Income on Federal Lands Distributed to New Mexico (MMR Disbursements)</b>				
MMR Disbursements	\$6,859,349	\$871,703	\$3,865,526	\$0.16
<b>Direct Taxes, Rents and Royalties Total</b>	<b>\$75,686,894</b>	<b>\$94,990,892</b>	<b>\$85,338,893</b>	<b>\$3.53</b>

Sources:(1) Severance Tax, Resources Excise Tax, Conservation Tax, Property Tax and Gross Receipts Tax, price per ton, and total value are from New Mexico State Board of Finance, 2008, Table 19, p. 33 and New Mexico State Board of Finance, 2009, Table 19, p. 33. (2) Rental and Royalty Income on State Lands are from Lyons, 2008, p. 4 and 2009, p. 4). (3) Rental and Royalty Income on Federal Lands Distributed to New Mexico are as reported by the Bureau of Ocean Energy Management, Regulation and Enforcement, U.S. Department of Interior, Mineral Revenue Management Division. The federal fiscal year is from October 1 through September 30. The New Mexico fiscal year is from July 1 to June 30.

In addition to direct taxes, rents, and royalties on coal production described above and displayed in Table 2, coal mining adds to state tax revenue indirectly. For example, the 1,445 coal mining workers received \$141 million dollars in labor income. This income is spent and taxed. The income coal mine workers receive is subject to the state Personal Income Tax (PIT). When a coal mine worker purchases goods and services, those expenditures are subject to the Gross Receipts tax (GRT). The GRT revenues generated in this fashion are distinct from the GRT on coal production reported in Table 2. Incorporated businesses in the state that provide goods and services to coal mining workers are also subject to the Corporate Income Tax (CIT).

Popp and Peach (2008) calculated effective tax rates for GRT, PIT, and CIT over the last several years as a proportion of personal income. These effective tax rates have been updated and calibrated to labor income as reported by the IMPLAN software. Calculating effective tax rates in this fashion is a common procedure among state revenue analysts. The effective tax rates are reported in Table 3 and were used

to estimate the indirect taxes generated by the coal mining industry. No estimate of indirect property taxes is reported. There are simply too many unknowns to provide a reasonable estimate of indirect property taxes.

**Table 3. Indirect Taxes**

	Tax Rate	Direct	Indirect	Induced	Total
Labor Income		\$141,007,616	\$27,791,852	\$34,525,080	\$203,324,544
Personal Income Tax	0.0314	\$4,425,793	\$872,300	\$1,083,636	\$6,381,729
Corporate Income Tax	0.0072	\$1,015,032	\$200,058	\$248,526	\$1,463,616
Gross Receipts Tax	0.0664	\$9,369,424	\$1,846,664	\$2,294,061	\$13,510,149
<b>Total</b>	<b>0.1050</b>	<b>\$14,810,249</b>	<b>\$2,919,021</b>	<b>\$3,626,223</b>	<b>\$21,355,494</b>

Source: Author Calculations.

The total tax, rental, and royalty revenue from coal mining activities in New Mexico in 2008 is \$106.8 million. Direct tax, royalty, and rental payments totaled \$85.3 million or 79.9 percent of the total.

### Limitations of the Analysis

The economic impacts presented are static (single year) estimates and do not capture the dynamic long-term effects of coal mining on the economic development of New Mexico. These dynamic effects are likely to be important but are not captured in most economic impact studies.

The coal mining industry in New Mexico is particularly important in San Juan and McKinley Counties. The economic impacts presented here are at the state level and do not address the disproportionate impacts at the county level.

The analysis in this report does not address the economic impact of the production of coal-bed methane (CBM) which has been a major source of gas production within the state. The report does not contain an analysis of coal fired electricity production in the state.

Tax, rental, and royalty income data are reported as the average of fiscal years 2008 and 2009, while the base year for the study is calendar year 2008. The data timing problem is unavoidable. Economic models are based on calendar years. State and federal fiscal years do not correspond to calendar years. Any distortion due to the use of averages over fiscal years to represent calendar years is likely to be small because New Mexico coal production and employment have been relatively stable in recent years.

### Summary Conclusions

New Mexico has been producing coal for more than a century, but more than half (52.6 percent) of all coal mined in the state has been produced since 1990. Between 1882 and 2008, New Mexico produced 962.3 million short tons of coal. Between 1990 and 2008, New Mexico produced 506.3 million short tons of coal. New Mexico's economically recoverable reserves (485 million short tons) are substantial and should be sufficient for continued production at current rates for an extended period.

In 2008, New Mexico's coal mines produced 24.1 million short tons of coal. The average price was \$29.91 per short ton (average of FY2008 and FY2009 data reported by the State Board of Finance). The reported sales value of coal produced in New Mexico in 2008 was \$727.3 million.

The coal mining industry in New Mexico contributed about \$1.0 billion in total output and \$553 million in value added –including the direct, indirect and induced effects. Direct coal mining employment in New Mexico in 2008 was 1,445 jobs. Total employment (direct, indirect, and induced) associated with coal mining employment was 3,068. In total, the industry accounted for \$106 million in tax, rental, and royalty income to the state.

The economic impact analysis presented in this report suggests that coal mining is an important sector of the New Mexico economy. The analysis in this report is part of an on-going effort to examine the impact of fossil fuels on the New Mexico economy. Other reports in this series may be found on the PROSPER project website at: <http://arrowhead.nmsu.edu/arrowheadcenter/prosper/index.html>.

Comments on this and other PROSPER project reports are welcome and should be sent to James Peach at [jpeach@nmsu.edu](mailto:jpeach@nmsu.edu).

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## Appendix A: Coal Data Sources and Issues

New Mexico Coal production and value (price) data are available from three sources:

- (1) U.S. Department of Energy, Energy Information Administration, (EIA) *Annual Coal Report 2009* [http://www.eia.doe.gov/cneaf/coal/page/acr/acr\\_sum.html](http://www.eia.doe.gov/cneaf/coal/page/acr/acr_sum.html)
- (2) New Mexico Energy, Minerals and Natural Resources Department (NMEMNRD), *Mining and Minerals Division Annual Report 2009* <http://www.emnrd.state.nm.us/main/Publications.htm> and
- (3) New Mexico State Board of Finance (NMSBOF) Annual Continuing Disclosure Report FY2009 <http://board.nmdfa.state.nm.us/content.asp?CustComKey=293838&CategoryKey=293971&pn=Page&DomName=board.nmdfa.state.nm.us>

Table A-1 displays coal production, price, and value data from these three sources for calendar year 2008. As shown in the table, calendar 2008 data from NMSBOF are the average of Fiscal Years 2008 and 2009. Fiscal years in New Mexico are from July 1 to June 30. As can be seen in Table A1, there is substantial variability in the data. The range in the production figures is 1.6 million tons (NMEMNRD vs NMSBOF). The range in price is \$7.43 per ton (about one-fourth of the reported prices). The reported price and production differences result in large differences in the value of coal produced (\$662.7 million reported by NMEMNRD and \$850.4 million implied by the EIA production and price figure).

Source	EIA	NMEMNRD	NMSBOF FY08	NMSBOF FY09	NMSBOF 2008***
Production*	25,645,000	25,751,868	22,801,290	25,482,801	24,142,045
Price**	\$33.16	\$25.73	\$29.18	\$31.09	\$30.14
Value	\$850,388,200	\$662,697,319	\$665,449,922	\$792,304,607	\$727,520,526
*Production measured in short tons					
**Price in \$ per short ton					
***Average of FY2008 and FY2009, NMSBOF FY2008 data revised from original FY2008 report					

The differences in coal price data may be due to alternative concepts of price. EIA reports three different prices of coal: (1) an open market spot price of coal sold to other coal companies or consumers, (2) a captive price of coal used by the producing coal company or sold to affiliated parent organizations, and (3) a delivered price of coal to electric generating utilities. The EIA price reported in Table A1 is an average annual open market price. The prices reported by NMEMNRD and NMSBOF are average prices based on taxable value of coal produced in the state.

The economic impacts calculated in this report are based on the average production, price, and value figure from NMSBOF (last column of Table A1). The NMSBOF data are consistent with reported taxes on coal in New Mexico. New Mexico tax data on coal are available only from NMSBOF. The New Mexico Department of Taxation and Revenue does not report the tax data because there are so few coal mining firms in the state.

## Appendix B: Data and Data Sources

Table B1: World Coal Production 1980 to 2008

(Millions of Short tons)

Year	World Coal Production	Percent Change
1980	4,181.9	n.a.
1981	4,224.4	1.0
1982	4,381.2	3.7
1983	4,417.8	0.8
1984	4,667.3	5.6
1985	4,893.5	4.8
1986	5,010.5	2.4
1987	5,120.8	2.2
1988	5,236.2	2.3
1989	5,312.9	1.5
1990	5,346.7	0.6
1991	5,019.7	-6.1
1992	4,951.1	-1.4
1993	4,852.3	-2.0
1994	4,939.7	1.8
1995	5,076.7	2.8
1996	5,097.6	0.4
1997	5,122.6	0.5
1998	5,031.9	-1.8
1999	4,902.4	-2.6
2000	4,893.5	-0.2
2001	5,162.0	5.5
2002	5,274.8	2.2
2003	5,666.9	7.4
2004	6,222.8	9.8
2005	6,542.2	5.1
2006	6,769.4	3.5
2007	7,046.9	4.1
2008	7,271.4	3.2

Source: Energy Information Administration, International Energy Statistics, Coal Production,

<http://tonto.eia.doe.gov/cfapps/ipdbproject/iedindex3.cfm?tid=1&pid=7&aid=1&cid=&syid=1980&eyid=2008&unit=TST>

Corrected Spreadsheet sent by Joel Lou, June 8, 2010.



Table B2. Coal Production in Major Producing Nations in 2008  
(Millions of Short Tons)

Rank	Nation	Production	Percent of Total
1	China	2,848.0	39.2
2	United States	1,171.5	16.1
3	India	568.3	7.8
4	Australia	438.5	6.0
5	Russia	356.2	4.9
6	Indonesia	313.2	4.3
7	South Africa	259.6	3.6
8	Germany	214.4	2.9
9	Poland	157.9	2.2
10	Kazakhstan	119.8	1.6
11	Colombia	86.7	1.2
12	Turkey	83.5	1.1
13	Canada	75.1	1.0
14	Greece	72.4	1.0
15	Czech Republic	66.3	0.9
16	Ukraine	65.7	0.9
17	Vietnam	44.0	0.6
18	Korea, North	41.3	0.6
19	Serbia	39.6	0.5
20	Romania	38.3	0.5
21	Bulgaria	31.7	0.4
22	Thailand	19.9	0.3
23	United Kingdom	19.4	0.3
24	Estonia	17.8	0.2
25	Mexico	12.7	0.2

Source: Same as Table B1

Note: The data in this table were used to create Figure 2

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Table B3. US Coal Production by Decade 1820-2000  
(1,000s of Short Tons)

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1820s	0.140
1830s	1.032
1840s	4.535
1850s	12.513
1860s	26.122
1870s	57.220
1880s	122.844
1890s	202.972
1900s	396.956
1910s	577.788
1920s	577.222
1930s	436.984
1940s	614.291
1950s	483.006
1960s	521.985
1970s	688.976
1980s	899.268
1990s	1,045.080
2000s	1,116.455

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Sources: 1820s to 1940s: Erich W. Zimmerman, *World Resources and Industries Revised Edition*, New York: Harper and Row, 1951, (Table 27.4, p. 474)  
1940s to present, Energy Information Administration, "Table 7.2 U.S. Coal Production 1949-2008,"  
<http://www.eia.doe.gov/emeu/aer/coal.html>

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Table B4:

New Mexico Coal Production: 1882 to 2008 (1,000s of Short Tons)							
Year	Production	Year	Production	Year	Production	Year	Production
1882	164	1914	3,878	1946	1,280	1978	12,632
1883	211	1915	3,618	1947	1,443	1979	15,615
1884	221	1916	3,793	1948	1,364	1980	18,425
1885	306	1917	4,001	1949	1,004	1981	18,709
1886	271	1918	4,023	1950	727	1982	19,944
1887	508	1919	3,139	1951	783	1983	20,415
1888	627	1920	3,683	1952	760	1984	21,279
1889	487	1921	2,457	1953	514	1985	22,203
1890	420	1922	3,147	1954	123	1986	21,496
1891	462	1923	2,915	1955	201	1987	19,131
1892	661	1924	2,786	1956	158	1988	21,803
1893	665	1925	2,557	1957	137	1989	23,702
1894	597	1926	2,818	1958	117	1990	24,292
1895	721	1927	2,936	1959	148	1991	21,518
1896	663	1928	2,712	1960	295	1992	24,549
1897	717	1929	2,623	1961	412	1993	28,268
1898	992	1930	1,969	1962	677	1994	28,041
1899	1,051	1931	1,553	1963	1,945	1995	26,813
1900	1,299	1932	1,263	1964	2,969	1996	24,067
1901	1,087	1933	1,226	1965	3,212	1997	27,025
1902	1,049	1934	1,259	1966	2,755	1998	28,597
1903	1,542	1935	1,389	1967	3,463	1999	29,156
1904	1,452	1936	1,597	1968	3,429	2000	27,323
1905	1,650	1937	1,715	1969	4,471	2001	29,618
1906	1,965	1938	1,239	1970	7,361	2002	28,916
1907	2,620	1939	1,230	1971	8,175	2003	26,389
1908	3,468	1940	1,111	1972	8,248	2004	27,250
1909	2,801	1941	1,251	1973	9,069	2005	28,519
1910	3,508	1942	1,669	1974	9,392	2006	25,913
1911	3,148	1943	1,851	1975	8,785	2007	24,451
1912	3,537	1944	1,744	1976	9,760	2008	25,645
1913	3,709	1945	1,484	1977	11,083		

Sources: (1) 1882 to 1926 Kottowski, Frank E. *The Economic Geology of Coal in New Mexico*.

Circular 71, New Mexico Bureau of Mines, Socorro, NM, 1964.

(2) 1942 to 1959 U.S. Bureau of Mines, *Minerals Yearbook*, 1951 (Table 8, p. 315) and 1960, Table 11 (p. 60).

(3) 1960 to 2007 Energy Information Administration, State Energy Data System, Table P6. Energy Production in Physical Units by Source, New Mexico, 1960 - 2006

(4) 2008 Energy Information Administration, *Annual Coal Report 2009*, Table ES2, p. 9.

Table B5

New Mexico Coal Mining Employment: 1970 to 2008			
Year	NM Coal Mining Employment	Year	NM Coal Mining Employment
1970	489	1990	1,781
1971	589	1991	1,845
1972	632	1992	1,906
1973	795	1993	2,070
1974	949	1994	2,153
1975	1,110	1995	2,095
1976	1,176	1996	1,714
1977	1,252	1997	1,579
1978	1,451	1998	1,707
1979	1,755	1999	1,683
1980	1,980	2000	1,644
1981	2,024	2001	1,728
1982	2,113	2002	1,674
1983	1,662	2003	1,415
1984	1,933	2004	1,388
1985	1,933	2005	1,408
1986	1,933	2006	1,372
1987	2,003	2007	1,356
1988	1,776	2008	1,445
1989	1,673		

Sources: (1) 1970 to 2001, U.S. Bureau of Economic Analysis, Regional Economic Information System, [www.bea.gov](http://www.bea.gov)  
(2) 2002 to 2008, Energy Information Administration, Annual Coal Reports (2003 to 2009), Table 21, Coal Mining Productivity by State and Mine Type.

Table B6

Nominal Coal Price by Coal Type in the United States: 1949-2008										
Year	Bituminous	Lignite	Anthracite	Total	Year	Sub-				
						Bituminous	Bituminous	Lignite	Anthracite	Total
1949	4.90	2.37	8.90	5.24	1979	27.31	9.55	6.48	41.06	23.75
1950	4.86	2.41	9.34	5.19	1980	29.17	11.08	7.60	42.51	24.65
1951	4.94	2.44	9.94	5.29	1981	31.51	12.18	8.85	44.28	26.40
1952	4.92	2.39	9.58	5.27	1982	32.15	13.37	9.79	49.85	27.25
1953	4.94	2.38	9.87	5.23	1983	31.11	13.03	9.91	52.29	25.98
1954	4.54	2.43	8.76	4.81	1984	30.63	12.41	10.45	48.22	25.61
1955	4.51	2.38	8.00	4.69	1985	30.78	12.57	10.68	45.80	25.20
1956	4.83	2.39	8.33	5.01	1986	28.84	12.26	10.64	44.12	23.79
1957	5.09	2.35	9.11	5.28	1987	28.19	11.32	10.85	43.65	23.07
1958	4.87	2.35	9.14	5.07	1988	27.66	10.45	10.06	44.16	22.07
1959	4.79	2.25	8.55	4.95	1989	27.40	10.16	9.91	42.93	21.82
1960	4.71	2.29	8.01	4.83	1990	27.43	9.70	10.13	39.40	21.76
1961	4.60	2.24	8.26	4.73	1991	27.49	9.68	10.89	36.34	21.49
1962	4.50	2.23	7.99	4.62	1992	26.78	9.68	10.81	34.24	21.03
1963	4.40	2.17	8.64	4.55	1993	26.15	9.33	11.11	32.94	19.85
1964	4.46	2.14	8.93	4.60	1994	25.68	8.37	10.77	36.07	19.41
1965	4.45	2.13	8.51	4.55	1995	25.56	8.10	10.83	39.78	18.83
1966	4.56	1.98	8.08	4.62	1996	25.17	7.87	10.92	36.78	18.50
1967	4.64	1.92	8.15	4.69	1997	24.64	7.42	10.91	35.12	18.14
1968	4.70	1.79	8.78	4.75	1998	24.87	6.96	11.08	42.91	17.67
1969	5.02	1.86	9.91	5.08	1999	23.92	6.87	11.04	35.13	16.63
1970	6.30	1.86	11.03	6.34	2000	24.15	7.12	11.41	40.90	16.78
1971	7.13	1.93	12.08	7.15	2001	25.36	6.67	11.52	47.67	17.38
1972	7.78	2.04	12.40	7.72	2002	26.57	7.34	11.07	47.78	17.98
1973	8.71	2.09	13.65	8.59	2003	26.73	7.73	11.20	49.87	17.85
1974	16.01	2.19	22.19	15.82	2004	30.56	8.12	12.27	39.77	19.93
1975	19.79	3.17	32.26	19.35	2005	36.80	8.68	13.49	41.00	23.59
1976	20.11	3.74	33.92	19.56	2006	39.32	9.95	14.00	43.61	25.16
1977	20.59	4.03	34.86	19.95	2007	40.80	10.69	14.89	52.24	26.20
1978	22.64	5.68	35.25	21.86	2008	51.45	11.74	16.40	51.02	32.59

Source: Energy Information Administration, Annual Energy Review 2010, Table 7.8

<http://www.eia.doe.gov/emeu/aer/coal.html>

Table B7

Real (2005 Dollars) Coal Price by Coal Type in the United States: 1949-2008										
Year	Bituminous	Lignite	Anthracite	Total	Year	Sub-				
						Bituminous	Bituminous	Lignite	Anthracite	Total
1949	33.83	16.36	61.44	36.17	1979	62.41	21.82	14.81	93.83	54.27
1950	33.19	16.46	63.78	35.44	1980	61.09	23.20	15.92	89.02	51.62
1951	31.47	15.54	63.32	33.70	1981	60.34	23.32	16.95	84.79	50.55
1952	30.81	14.97	59.99	33.00	1982	58.02	24.13	17.67	89.96	49.18
1953	30.57	14.73	61.07	32.36	1983	54.01	22.62	17.20	90.78	45.10
1954	27.84	14.90	53.72	29.49	1984	51.25	20.76	17.48	80.68	42.85
1955	27.19	14.35	48.23	28.28	1985	49.99	20.41	17.34	74.38	40.93
1956	28.15	13.93	48.55	29.20	1986	45.82	19.48	16.91	70.10	37.80
1957	28.71	13.26	51.39	29.79	1987	43.53	17.48	16.75	67.40	35.62
1958	26.87	12.97	50.43	27.97	1988	41.29	15.60	15.02	65.92	32.95
1959	26.12	12.27	46.62	26.99	1989	39.41	14.61	14.26	61.75	31.39
1960	25.33	12.31	43.07	25.97	1990	37.99	13.43	14.03	54.57	30.14
1961	24.46	11.91	43.92	25.15	1991	36.77	12.95	14.57	48.61	28.75
1962	23.61	11.70	41.92	24.24	1992	34.99	12.65	14.12	44.74	27.48
1963	22.84	11.26	44.85	23.62	1993	33.43	11.93	14.20	42.11	25.38
1964	22.80	10.94	45.65	23.51	1994	32.15	10.48	13.48	45.16	24.30
1965	22.34	10.69	42.72	22.84	1995	31.35	9.93	13.28	48.79	23.09
1966	22.26	9.67	39.45	22.55	1996	30.29	9.47	13.14	44.27	22.27
1967	21.97	9.09	38.60	22.21	1997	29.14	8.78	12.90	41.54	21.45
1968	21.35	8.13	39.89	21.58	1998	29.08	8.14	12.96	50.18	20.66
1969	21.73	8.05	42.90	21.99	1999	27.57	7.92	12.72	40.49	19.17
1970	25.91	7.65	45.36	26.07	2000	27.24	8.03	12.87	46.14	18.93
1971	27.92	7.56	47.31	28.00	2001	27.98	7.36	12.71	52.59	19.17
1972	29.21	7.66	46.56	28.99	2002	28.84	7.97	12.02	51.87	19.52
1973	30.98	7.43	48.56	30.56	2003	28.41	8.21	11.90	53.00	18.97
1974	52.21	7.14	72.36	51.59	2004	31.58	8.39	12.68	41.10	20.60
1975	58.96	9.44	96.12	57.65	2005	36.80	8.68	13.49	41.00	23.59
1976	56.67	10.54	95.58	55.12	2006	38.08	9.64	13.56	42.23	24.37
1977	54.54	10.68	92.34	52.85	2007	38.41	10.06	14.02	49.18	24.67
1978	56.04	14.06	87.25	54.11	2008	47.43	10.82	15.12	47.03	30.04

Source: Energy Information Administration, Annual Energy Review 2010, Table 7.8

<http://www.eia.doe.gov/emeu/aer/coal.html>

Conversion to 2005 dollars based on Implicit Price Deflator for GDP

Table B8

U.S. and N.M Coal Price: 1949 to 2008 (Dollars per Short Ton)					
Year	NM Coal Price	US Coal Price	Year	NM Coal Price	US Coal Price
1949	5.09	5.24	1979	11.88	23.75
1950	4.89	5.19	1980	14.01	24.65
1951	5.29	5.29	1981	18.18	26.40
1952	5.76	5.27	1982	19.19	27.25
1953	6.01	5.23	1983	18.00	25.98
1954	5.76	4.81	1984	19.40	25.61
1955	5.83	4.69	1985	23.41	25.20
1956	6.33	5.01	1986	22.26	23.79
1957	6.04	5.28	1987	21.78	23.07
1958	6.20	5.07	1988	22.78	22.07
1959	6.39	4.95	1989	23.42	21.82
1960	6.00	4.83	1990	22.43	21.76
1961	6.07	4.73	1991	23.25	21.49
1962	5.04	4.62	1992	23.14	21.03
1963	4.05	4.55	1993	22.96	19.85
1964	2.99	4.60	1994	23.29	19.41
1965	3.04	4.55	1995	23.80	18.83
1966	3.91	4.62	1996	24.66	18.50
1967	3.54	4.69	1997	21.83	18.14
1968	3.74	4.75	1998	20.68	17.67
1969	2.61	5.08	1999	20.97	16.63
1970	2.83	6.34	2000	20.87	16.78
1971	3.11	7.15	2001	22.02	17.38
1972	3.52	7.72	2002	20.87	17.98
1973	3.29	8.59	2003	23.18	17.85
1974	4.32	15.82	2004	24.09	19.93
1975	6.38	19.35	2005	25.82	23.59
1976	6.83	19.56	2006	29.15	25.16
1977	7.38	19.95	2007	29.91	26.20
1978	9.65	21.86	2008	33.16	31.25

Sources:

- (1) US Nominal Coal Prices, Energy Information Administration Annual Energy Review (2010), Table 7.8
- (2) New Mexico 1949 to 1980, New Mexico Energy, Minerals and Natural Resources Department, Annual Report, 1990, Table 2.2-2 and author calculations from gross volume and sales data.
- (3) New Mexico 1980 to 2008, Energy Information Administration Coal Production Report (1980 to 1984); Coal Industry Annual (1990 to 1997); Annual Coal Report (1998 to 2009).

Table B9

U.S. and N.M Real Coal Prices: 1949 to 2008 (2005 Dollars per Short Ton)					
Year	NM Coal Price	US Coal Price	Year	NM Coal Price	US Coal Price
1949	35.14	36.17	1979	27.15	54.27
1950	33.39	35.44	1980	29.34	51.62
1951	33.70	33.70	1981	34.81	50.55
1952	36.07	33.00	1982	34.63	49.18
1953	37.19	32.36	1983	31.25	45.10
1954	35.32	29.49	1984	32.46	42.85
1955	35.15	28.28	1985	38.02	40.93
1956	36.90	29.20	1986	35.37	37.80
1957	34.07	29.79	1987	33.63	35.62
1958	34.21	27.97	1988	34.01	32.95
1959	34.84	26.99	1989	33.69	31.39
1960	32.27	25.97	1990	31.07	30.14
1961	32.28	25.15	1991	31.10	28.75
1962	26.44	24.24	1992	30.24	27.48
1963	21.02	23.62	1993	29.35	25.38
1964	15.28	23.51	1994	29.16	24.30
1965	15.26	22.84	1995	29.19	23.09
1966	19.09	22.55	1996	29.68	22.27
1967	16.77	22.21	1997	25.82	21.45
1968	16.99	21.58	1998	24.18	20.66
1969	11.30	21.99	1999	24.17	19.17
1970	11.64	26.07	2000	23.54	18.93
1971	12.18	28.00	2001	24.29	19.17
1972	13.22	28.99	2002	22.66	19.52
1973	11.70	30.56	2003	24.63	18.97
1974	14.09	51.59	2004	24.89	20.60
1975	19.01	57.65	2005	25.82	23.59
1976	19.25	55.12	2006	28.23	24.37
1977	19.55	52.85	2007	28.14	24.65
1978	23.89	54.11	2008	30.53	28.77

Sources: Nominal prices from Table B8 were converted to 2005 dollars using the Implicit Price Deflator for GDP from U.S. Bureau of Economic Analysis, National Income and Product Accounts Table 1.1.9 ([www.bea.gov](http://www.bea.gov))