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Table of Contents

Title	Page Number
Disclaimer	1
Table of Contents	2
List of Tables	3
List of Figures	4
Abstract	5
Executive Summary	6
Introduction	8
Calculation of Effective Tax Rates	10
Oil and Gas Extraction	12
Oil and Gas Refining	17
Retail Gasoline Stations	19
Natural Gas Distribution and Pipeline Transportation of Natural Gas	25
Coal Mining	29
Electricity Generated with Fossil Fuels	33
Summary Impacts	40
Works Cited	45

List of Tables

Table	Title	Page
1	Tax and Income Data used in the Calculation of New Mexico Effective Tax Rates	10
2	Effective Tax Rates	11
3	New Mexico Oil and Natural Gas, Production, Price and Market Value 2007 and 2008	13
4	Employment in New Mexico's Oil and Gas Industry 2007 and 2008	13
5	2008 New Mexico Economic Impacts of Oil and Gas Extraction, Drilling and Support Activities	14
6	Oil and Gas Contributions to the New Mexico General Fund 2006-2008	15
7	Indirect Taxes From Oil and Gas Extraction in New Mexico	16
8	Employment in NAICS 3241 (Petroleum and Coal Products Manufacturing in the United States and New Mexico (2008)	17
9	Estimated Economic Impacts of Oil Refineries in New Mexico: 2008	18
10	Indirect Taxes From Oil Refining in New Mexico: 2008	18
11	Economic Impact of Gasoline Retail Stations: Alternative Scenarios	22
12	Indirect Taxes From Gasoline Retailing in New Mexico: 2008	24
13	Economic Impacts of Natural Gas Distribution in New Mexico 2008	27
14	Economic Impacts of Pipeline Transportation of Natural Gas in New Mexico 2008	27
15	Total Impact of Pipeline Transportation and Distribution of Natural Gas in New Mexico 2008	27
16	Indirect Taxes From Natural Gas Distribution and Pipeline Transportation in New Mexico	28
17	Economic Impacts of Coal Mining In New Mexico	30
18	Direct Tax Payments from Coal Mining in New Mexico FY 2007 and FY 2008	31
19	Indirect Taxes From Coal in New Mexico: 2008	32
20	Ten Largest Plants by Generation Capacity in New Mexico, 2007	34
21	Estimated Economic Impacts of Fossil Fuel Electricity Generation in New Mexico 2008	38
22	Indirect Taxes From Fossil Fuel Electricity Generation in New Mexico: 2008	39
23	Economic Impact Summary : Value Added in 2008	40
24	Economic Impact Summary Value Added as Percent of 2008 GDP	40
25	Economic Impact Summary 2008: Employment	41
26	Economic Impact Summary 2008: Employment as Percent of Total Employment	41
27	Economic Impact Summary 2008: Employment as Percent Private Sector Employment	42
28	Economic Impact Summary 2008: Labor Income	42
29	Economic Impact Summary 2008: Labor Income as Percent of Total Labor Income	42
30	Economic Impact Summary 2008: Direct Taxes from Fossil Fuel Industries	43
31	Economic Impact Summary 2008: Indirect Taxes from Fossil Fuel Industries	44
32	Economic Impact Summary 2008: Direct and Indirect Taxes from Fossil Fuel Industries	44

List of Figures

Figure	Title	Page
1	New Mexico Retail Gasoline Stations: 2007	19
2	Employees in NM Gasoline Retail Stations	20
3	2007 Average Payroll Per Employee in New Mexico Retail Gasoline Stations	21
4	Motor Fuel Tax Collections in New Mexico Millions of Dollars	23
5	New Mexico Coal Production: 1882-2008 1,000s of Short Tons	29
6	Coal Prices in the United States and New Mexico: 1949-2007	30
7	NM Electricity Generation: 1990 to 2008 Millions of Megawatt Hours	33
8	New Mexico Generation by Fuel Type: 2005 to 2008	35
9	New Mexico Coal Consumption for Electricity Generation	36
10	New Mexico Natural Gas Consumption for Electricity Generation	36
11	New Mexico Employment in Fossil Fuel Electrical Generation	37
12	Average Annual Pay in New Mexico Fossil Fuel Power Generation and All Jobs	38

Abstract

This report examines the comprehensive economic impact of the fossil fuel industry in New Mexico in 2008. Two fossil fuel industries dominate the state's energy sector. These industries are (1) oil and gas extraction and (2) coal mining. Previous reports (Peach, Delgado and Starbuck 2009, Peach and Starbuck 2009) examined the economic impact of these two industries in New Mexico and updated conclusions from these reports are incorporated in this report. Fossil fuel related industries analyzed in this report not covered in the previous reports are: (1) fossil fuel fired electrical generation, (2) natural gas distribution and pipeline distribution of natural gas, (3) oil refining, and (4) retail gasoline distribution. Due to lack of adequate data, pipeline transportation of crude oil and ethanol processing are not included. For each industry listed, this report contains a brief description of the industry and economic impacts for the most recent year for which data are available (generally 2008). The impacts presented include estimates of value added, employment, labor income, and state fiscal impacts. The impact estimates were generated using IMPLAN economic modeling software.

Executive Summary

This report provides a comprehensive analysis of the impact on the New Mexico economy of fossil fuel industries in 2008. This report is one of a series of reports on the impact of fossil fuels in New Mexico. This report has been prepared as part of New Mexico State University's Arrowhead Center's PROSPER project funded by a U.S. Department of Energy Grant, National Energy Technology Laboratory (NETL), Award Number DE-NT0004397.

Two fossil fuel industries dominate the state's energy sector. These industries are (1) oil and gas extraction and (2) coal mining. Previous reports (Peach, Delgado and Starbuck 2009, Peach and Starbuck 2009) examined the economic impact of these two industries in New Mexico and updated conclusions from these reports are incorporated in this report. Fossil fuel related industries analyzed in this report but not covered in the previous reports are: (1) fossil fuel fired electrical generation, (2) natural gas distribution and pipeline distribution of natural gas, (3) oil refining, and (4) retail gasoline distribution. Due to lack of adequate data, pipeline transportation of crude oil and ethanol processing are not included.

For each industry listed, this report contains a brief description of the industry and economic impacts for the most recent year for which data are available (generally 2008). The impacts presented include estimates of value added, employment, labor income, and state fiscal impacts.

Direct, indirect, induced and total impact effects are presented for value added, employment and labor income. Direct effects are the result of economic activity in the sector under consideration. Direct effects can be calculated using industry output, value added or employment. Indirect effects represent changes in inter-industry purchases as they respond to the new demands of the directly affected industries. Indirect effects reflect the interdependence of industries. Induced effects reflect changes in spending from households as income increases or decreases due to the changes in production. The total effect is simply the sum of the direct, indirect and induced effects.

The value added, employment and labor income impacts were calculated using IMPLAN PRO version 2.0 software. IMPLAN (Pro Version 2.0) is economic modeling software developed by the Minnesota IMPLAN Group (<http://implan.com>) to conduct economic impact analysis. The IMPLAN model is based on the national input-output model produced by the U.S. Department of Commerce, Bureau of Economic Analysis.

State fiscal impacts were calculated using effective tax rates as a percent of labor income calibrated to the most recent data available.

Major findings of the analysis follow:

- In 2008, New Mexico's fossil fuel energy sectors produced \$11.9 billion in direct value added or 14.9 percent of state GDP. Accounting for the indirect and induced effects, New Mexico's fossil fuel energy sectors contributed \$16.0 billion in value added or 20.1 percent of state GDP.
- Direct employment in the fossil fuel energy sectors accounted for 27,809 jobs or 3.4 percent of total jobs in the state. Of the direct jobs in fossil fuel industries, 15,904 or 57.2 percent were in the oil and gas extraction sector. Total jobs including indirect and induced employment generated by fossil fuel energy sectors were 65,164 or 7.9 percent of the state total.

- Direct employment in fossil fuel energy industries resulted in \$1.9 billion in labor income or 5.0 percent of the state total.
- The fossil fuel industries accounted for \$1.5 billion in direct revenue to the state or 25.7 percent of state revenues in 2008.
- Additional indirect taxes totaled \$250.1 million from direct economic activity and a total of \$424.4 million in taxes from indirect economic activity.
- The total revenue impact from fossil fuels was \$1.9 billion or 33.2 percent of state revenue.

Introduction

This report is one of a series of reports on the impact of energy in New Mexico. This report has been prepared as part of New Mexico State University's Arrowhead Center's PROSPER project funded by U.S. Department of Energy Grant Award Number DE-NT0004397.

New Mexico is a state rich in natural resources including timber, agricultural resources, oil, natural gas, coal, and uranium. The extraction and use of these resources provides important economic benefits including: output, value added, employment, income, and tax revenues for New Mexicans. This report provides a comprehensive analysis of the impact of fossil fuels on the New Mexico economy in 2008. After an intensive literature search, no other attempt to capture the economic impacts of all fossil fuel sectors for any state was located.

Two fossil fuel industries dominate the state's energy sector. These industries are (1) oil and gas extraction and (2) coal mining. Previous reports (Peach, Delgado and Starbuck 2009, Peach and Starbuck 2009) examined the economic impact of these two industries in New Mexico and updated conclusions from these reports are incorporated in this report. Fossil fuel related industries analyzed in this report not covered in the previous reports are: (1) fossil fuel fired electrical generation, (2) natural gas distribution and pipeline distribution of natural gas, (3) oil refining, and (4) retail gasoline distribution. Due to lack of adequate data, pipeline transportation of crude oil and ethanol processing are not included. For each industry listed, this report contains a brief description of the industry and economic impacts for the most recent year for which data are available (generally 2008). The impacts presented include estimates of value added, employment, labor income, and state fiscal impacts.

Direct, indirect, induced and total impact effects are presented for value added, employment and labor income. Direct effects are the result of economic activity in the sector under consideration. Direct effects can be calculated using industry output, value added or employment. Indirect effects represent changes in inter-industry purchases as they respond to the new demands of the directly affected industries. Indirect effects reflect the interdependence of industries. For example, the automobile industry requires inputs from many other industries in order to produce a vehicle. Induced effects reflect changes in spending from households as income increases or decreases due to the changes in production. In other words, workers in an industry receive income in the form of wages and spending from this added income produces additional economic activity. The total effect is simply the sum of the direct, indirect and induced effects.

The impacts were calculated using IMPLAN PRO version 2.0 software. IMPLAN (Pro Version 2.0) is economic modeling software developed by the Minnesota IMPLAN Group (<http://implan.com>) to conduct economic impact analysis. The IMPLAN model is based on the national input-output model produced by the U.S. Department of Commerce, Bureau of Economic Analysis. Models for local areas (states and counties) are customized versions of the national model using commonly accepted techniques of regional analysis. The models are often used to evaluate changes in energy demands, new projects (e.g., construction) or the establishment of a new firm in a local area. The IMPLAN models were originally developed for the US Forest Service in the late 1970s and early 1980s. The current vendor (MIG, Inc.) was a technology transfer product of the original Forest Service work. Additional information on the IMPLAN modeling approach can be found in Peach and Starbuck, 2009.

The economic impacts are presented in six broad categories. Each category may contain more than a single sector as listed in the North American Industrial Classification System codes (NAICS codes). The six broad categories and their corresponding NAICS codes included in the report are listed below.

- Oil and Gas Extraction
 - NAICS 2111 (Oil and Gas Extraction)
 - NAICS 213111 (Drilling Oil and Gas Wells)
 - NAICS 213112 (Support Activities for Oil and Gas Extraction)
- Petroleum Refineries
 - NAICS 32411 (Petroleum Refineries)
- Gasoline Retailers
 - NAICS 44711 (Retail Gasoline Stations)
- Natural Gas Distribution and Pipeline Transportation of Natural Gas
 - NAICS 2212 (Natural Gas Distribution)
 - NAICS 4862 (Pipeline Transportation of Natural Gas)
- Coal Mining
 - NAICS 2121 (Coal Mining)
- Generation of Electricity from Fossil Fuels
 - NAICS 221112 (Fossil Fuel Electric Power Generation)

Estimates of state tax revenue for each fossil fuel sector are reported. These taxes include taxes applied directly to fossil fuel extraction such as the severance tax, the resources excise tax, the conservation tax, the natural gas processors tax. Wherever possible, the direct taxes on fossil fuel energy sectors are reported from documents issued by the State of New Mexico.

In addition to these direct taxes on fossil fuels, estimates of state taxes collected as the result of economic activity generated in the fossil fuel sectors of the economy are also estimated. Workers receive income from employment in the fossil fuel sectors and this income generates tax revenue in New Mexico in the form of gross receipts taxes, personal income taxes, corporate income taxes, and a tax category called 'other taxes.' Further, economic activity in the fossil fuel sectors generates additional employment in other sectors of the economy known as indirect and induced employment. Workers whose employment was created due to the indirect and induced economic activity also receive income and pay the same kind of taxes as workers directly employed in the fossil fuel sector. The indirect taxes were calculated on the basis of effective tax rates. A detailed explanation of how these rates were calculated is presented in the next section.

Calculation of Effective Tax Rates

The indirect tax revenue calculations in each sector are based on effective tax rates reflecting the proportion of labor income paid in New Mexico in each tax category. Labor income is one of the impact variables produced by the IMPLAN economic modeling software. Total personal income (TPI) has often been used for effective tax rate calculations, but does not correspond directly to an IMPLAN impact variable. Labor income includes wage and salary disbursements and proprietor's income.

For the purpose of estimating tax revenue, the important issues are (a) the stability of the effective tax rates from year to year, and (b) capturing all tax revenue. Labor income and TPI based effective tax rates satisfy both criteria. Labor income based effective tax rates were selected for consistency with the IMPLAN output variables.

The calculation of the effective tax rates is shown in Tables 1 and 2 below. Table 1 contains the raw data. Table 2 contains the effective tax rates which are simple proportions of the data presented in Table 1. The effective tax rates from 2000 to 2008 are used throughout the report.

Year	GRT	PIT	CIT	All Other	Total	IMPLAN LABOR INCOME
2000	\$2,006,930	\$880,859	\$159,338	\$696,051	\$3,743,178	\$24,528,034
2001	\$2,083,196	\$830,006	\$190,673	\$898,371	\$4,002,246	\$26,948,772
2002	\$1,882,878	\$982,891	\$124,327	\$637,959	\$3,628,055	\$27,565,904
2003	\$1,873,420	\$923,113	\$101,456	\$709,167	\$3,607,156	\$28,777,716
2004	\$2,083,440	\$1,007,248	\$138,196	\$772,896	\$4,001,780	\$30,684,439
2005	\$2,170,521	\$1,086,015	\$242,462	\$979,323	\$4,478,321	\$32,540,997
2006	\$2,387,718	\$1,123,954	\$377,185	\$1,221,826	\$5,110,683	\$34,712,424
2007	\$2,646,901	\$1,177,918	\$459,880	\$1,242,518	\$5,527,217	\$36,329,019
2008	\$2,663,292	\$1,213,394	\$403,524	\$1,394,320	\$5,674,530	\$37,887,754

GRT includes gross receipts and selective sales taxes

PIT refers to personal income taxes

CIT refers to corporate income taxes

IMPLAN Labor Income calculated from Bureau of Economic Analysis data and includes wage and salary disbursements and proprietor's income.

Sources: New Mexico Tax Data from U.S. Bureau of the Census, "State Government Tax Revenue, <http://www.census.gov/govs/statetax/0832nmstax.html>. IMPLAN Labor Income calculated from Bureau of Economic Analysis, State Income and Employment Summary (SA04), <http://www.bea.gov/regional/>. IMPLAN Labor Income includes wage and salary disbursements and proprietor's income but excludes dividends, interest, and rent.

Table 2: Effective Tax Rates

Year	GRT	PIT	CIT	All Other	Total
2000	0.0818	0.0359	0.0065	0.0284	0.1526
2001	0.0773	0.0308	0.0071	0.0333	0.1485
2002	0.0683	0.0357	0.0045	0.0231	0.1316
2003	0.0651	0.0321	0.0035	0.0246	0.1253
2004	0.0679	0.0328	0.0045	0.0252	0.1304
2005	0.0667	0.0334	0.0075	0.0301	0.1376
2006	0.0688	0.0324	0.0109	0.0352	0.1472
2007	0.0729	0.0324	0.0127	0.0342	0.1521
2008	0.0703	0.0320	0.0107	0.0368	0.1498
Average	0.0710	0.0331	0.0075	0.0301	0.1417
Std. Deviation	0.0051	0.0016	0.0030	0.0048	0.0099

Effective tax rates = specified tax divided by IMPLAN Labor Income.

Source: New Mexico Tax Data from U.S. Bureau of the Census, "State Government Tax Revenue,
<http://www.census.gov/govs/statetax/0832nmstax.html>

IMPLAN Labor Income calculated from

Bureau of Economic Analysis, State Income and Employment Summary (SA04)

<http://www.bea.gov/regional/spi/action.cfm>

Oil and Gas Extraction

Background

This section provides estimates of the economic impact of oil and gas extraction industries in New Mexico during calendar year 2008. Impact estimates are provided for output, value added, employment and labor income. Estimates of the fiscal impacts of oil and gas extraction in New Mexico are also presented. Direct, indirect, induced and total impact effects are presented for both employment and labor income. Direct effects are the result of changes in the industries to which a final demand change was made. Indirect effects are the changes in inter-industry purchases as they respond to the new demands of the directly affected industries. Induced effects typically reflect changes in spending from households as income increases or decreases due to the changes in production. The total effect is simply the sum of the direct, indirect and induced effects.

Energy prices in 2008 were highly volatile. In 2008, the marketed value of New Mexico oil and natural gas production reported to the New Mexico Taxation and Revenue Department was \$19.1 billion (Table 1). Natural gas accounted for slightly more than two-thirds (67.1 percent) of total market value. New Mexico was the fourth largest producer of marketed natural gas in the US and accounted for 6.9 percent of total production (EIA 2009, Natural Gas Withdrawals and Production).

New Mexico's 62.2 million barrels of oil production in 2008 accounted for 3.4 percent of total US production and the state ranked sixth among oil producing states (Table 3 and EIA 2009, Crude Oil Production)¹. New Mexico's oil and gas production during the last two years has not been highly sensitive to price changes. As shown in Table 3, the average price received for New Mexico oil increased nearly fifty percent (48.5 percent) between 2007 and 2008, while production increased by only 3.3 percent –from 60,198 thousand barrels to 62,214 thousand barrels. During the same period, natural gas prices increased by 30.1 percent (from \$7.01 to \$9.12), while natural gas production declined slightly from 1.464 trillion cubic feet to 1.403 trillion cubic feet.

¹ The New Mexico crude oil production figure of 62.2 million barrels is from the New Mexico Taxation and Revenue Department (NMTRD) (See Table 3) and differs from the EIA figure of 59.4 million barrels. The NMTRD figure is used for consistency with reported fiscal impacts and makes little difference in terms of the NM percent of national production.

Table 3. New Mexico Oil and Natural Gas, Production, Price and Market Value 2007 and 2008		
Oil	Quantity	Units
2007 Volume	60,198	1,000s of barrels
2008 Volume	62,214	1,000s of barrels
2007 Price	\$67.81	\$ per barrel
2008 price	\$100.71	\$ per barrel
Natural Gas	Quantity	Units
2007 Volume	1.464	Trillion Cubic Feet
2008 Volume	1.403	Trillion Cubic Feet
2007 Price	\$7.01	\$ per 1,000 Cubic Feet
2008 price	\$9.12	\$ per 1,000 Cubic Feet
Market Value	Quantity	Units
2007 Oil	\$4,081.80	Millions of \$
2007 Natural Gas	\$10,275.80	Millions of \$
2007 Oil and Natural Gas	\$14,357.60	Millions of \$
2008 Oil	\$6,265.70	Millions of \$
2008 Natural Gas	\$12,803.50	Millions of \$
2008 Oil and Natural Gas	\$19,069.20	Millions of \$

Source: New Mexico Department of Taxation and Revenue, ONGARD System, Downloaded August 1, 2009

While prices received for New Mexico oil and natural gas increased substantially between 2007 and 2008, employment in oil and gas extraction industries increased by only 5.4 percent. Thus, while prices have been highly volatile, employment and activity in the sector has been relatively stable. Table 4 provides the employment values for the three sectors of the oil and gas industry (oil and gas extraction, drilling oil and gas wells, and support activities for oil and gas extraction). As can be seen in Table 4, the support activities for oil and gas extraction comprise the largest portion of employment related to the oil and gas industry in New Mexico.

Table 4. Employment in New Mexico's Oil and Gas Industry 2007 and 2008			
	NAICS CODE	2007	2008
Oil and gas extraction	21111	3,864	4,310
Drilling oil and gas wells	213111	2,526	2,664
Support Activities for Oil and Gas Extraction	213112	8,703	8,930
Total Oil and Gas Employment		15,093	15,904

Source: U.S. Bureau of Labor Statics, Quarterly Census of Employment and Wages.

Economic Impacts

Estimates of the output, value added, employment and labor income impacts of oil and gas extraction in New Mexico in 2008 are presented in Table 5. The direct employment figure in Table 5 is the 2008 total

for oil and gas extraction, oil and gas wells, and support activities for oil and gas from the Bureau of Labor Statistics and presented earlier in Table 4. Direct employment generates \$1.2 billion in labor income or \$77,653 per job. The direct output estimate (\$19.1 billion) is the total value of sales of oil and gas reported by the New Mexico Department of Taxation and Revenue during 2008. The direct value added figure has been estimated from Bureau of Economic Analysis GDP accounts (<http://www.bea.gov/regional/gsp/>).

The indirect and induced impacts are estimates calculated using IMPLAN software. The total value added estimate is \$11.9 or 14.9 percent of 2008 New Mexico GDP. The total employment impact is 41,718 jobs or 5.1 percent of New Mexico's total private sector employment in 2008.

	Direct	Indirect	Induced	Total
Output*	\$19,069	\$2,071	\$1,218	\$22,359
Value Added*	\$10,289	\$984	\$671	\$11,944
Employment (jobs)	15,904	14,178	11,636	41,718
Labor Income*	\$1,235	\$655	\$366	\$2,256
Labor income per job	\$77,653	\$49,148	\$31,454	\$54,077

*Millions of 2008 Dollars.

Source: Author Calculations using IMPLAN Pro Version 2.0

Fiscal Impacts of Oil and Gas Extraction in New Mexico

The oil and gas industry in New Mexico provides substantial revenue to the state. Revenue from the industry is used to fund schools and hospitals throughout the state. The key revenue sources are the Oil and Gas Emergency School Tax, Federal Mineral Leasing royalties, and earnings on the Land Grant Permanent Fund and Severance Tax Permanent Fund.

According to the most recent "Consensus Revenue Estimates" (August 14, 2009), the oil and gas industry in New Mexico is expected to be responsible for 17.9 percent of FY 2009 General Fund Revenues². The percentage of General Fund Revenues accounted for by the oil and Gas industry is expected to decline from FY 2010 to FY 2014 due to falling projections of production and price variability.

Direct revenues for Fiscal Years 2006 through 2008 are reported in Table 6. Final figures for FY 2009 (July 1, 2008 through June 30, 2009) have not yet been published, but estimated oil and gas tax revenues are presented for FY 2009. For consistency with the impact analysis presented above, FY2008 and FY2009 tax revenues have been averaged to produce an estimate for calendar year 2008. These figures will be updated and a revised report released as soon as possible.

² The percent of general fund revenue reported in the Consensus Revenue Forecast (August 14, 2009) was 25.8 percent. Laird Graeser of the New Mexico Department of Finance and Administration provided the revised figure of 17.9 percent in a telephone conversation with Anthony V. Popp (September 28, 2009). The previous figure had been mis-calculated.

As can be seen in Table 6, the largest sources of oil and gas revenue are from Federal Minerals Leasing (\$564.2 million in FY 2008), the oil and gas school tax (\$557.8 million in FY 2008), and State Land Office Royalties (\$459.9 million in FY 2008).

State General Fund	FY 2006	FY 2007	FY 2008	FY2009*	CY 2008**
Oil & Gas Emergency School Tax	483.2	431.8	557.7	370.0	463.9
O&G Conservation Tax	22.6	19.5	27.1	18.4	22.8
Natural Gas Processors Tax	26.8	35.6	30.6	40.2	35.4
Federal Minerals leasing	556.5	501.0	564.2	507.0	535.6
State Land Office	52.7	50.4	46.1	36.4	41.3
Total General Fund	1,141.8	1,038.3	1,225.7	972	1,098.9
Severance Tax Permanent Fund	171.8	170.9	177.2	191.3	184.3
State Land Office Royalties	405.3	390.5	459.9	433.2	446.6
Total State Revenues	1,718.9	1,599.7	1,862.8	1,596.5	1,729.7

* Estimated from New Mexico Consensus Revenue Forecasts, August 14, 2009

** Average of Fiscal Years 2008 and 2009.

Source: New Mexico State Board of Finance, General Revenue Estimates, Fiscal Years 2006 through 2008.

In addition to taxes paid by the oil and gas industry as previously described, it is possible to provide rough estimates of indirect taxes paid by the oil and gas industry in the state. Oil and gas extraction generates income for workers both directly and indirectly. The estimated labor income in 2008 from direct, indirect, and induced employment due to oil and gas extraction in the state was \$2.256 billion. Labor income includes proprietor's income plus wages and salaries. This income is also taxed.

Effective tax rates based on labor income (described earlier in this report) are used to estimate additional New Mexico tax revenue due to oil and gas extraction for the three taxes that provide nearly 80 percent of non-mineral tax revenue. The Gross Receipts Tax (GRT), the Personal Income Tax (PIT) and the Corporate Income Tax (CIT) accounted for 78.8 percent of tax revenue between 2000 and 2008. Taxes other than GRT, PIT, and CIT are not reported for oil and gas extraction because such taxes include direct taxes on oil and gas extraction (such as the severance tax reported separately).

Table 7 below contains estimates of these additional taxes. Labor income and taxes are measured in millions of 2008 dollars. The additional taxes estimated below totaled \$251.9 million in 2008 or approximately 4.4 percent of estimated FY 2009 revenue. Approximately 40% of GRT is distributed to municipalities and counties.

Table 7. Indirect Taxes From Oil and Gas Extraction in New Mexico

Tax	Tax Rate	Labor Income*	Estimated Taxes*
GRT	0.0710	\$2,256	\$160.2
PIT	0.0331	\$2,256	\$74.6
CIT	0.0075	\$2,256	\$17.0
Total	0.1116	\$2,256	\$251.7

* Millions of Dollars

GRT refers to NM Gross Receipts and selective sales taxes

PIT refers to the NM Personal Income Tax

CIT refers to the NM Corporate Income Tax

Source: Author Calculations on effective tax rates and IMPLAN impact results

Oil Refining

Background

New Mexico has three oil refineries. The Navajo Refinery in Artesia is owned by the Holly Corporation. Refineries in Bloomfield and Gallup are owned by Western Refining Southwest, Inc. The Navajo Refinery in Artesia is the largest of the three refineries with an estimated capacity of 85,000 barrels per calendar day³. The combined operating capacity of the three refineries in 2008 was 132,600 barrels per calendar day (EIA, "Refinery Capacity Report" 2008). In 2008, New Mexico refineries processed 39.2 million barrels of crude oil or approximately 63 percent of the 62 billion barrels of crude oil extracted in the state. (EIA, "Refinery Capacity Report" 2008).

Estimated employment in 2008 in New Mexico's three refineries is 536 jobs. Employment in the three New Mexico refineries is not disclosed by the U.S. Bureau of Labor Statistics (BLS) because of the small number of firms (NAICS Code 32411). The companies owning the refineries also do not reveal refinery specific employment data. An estimate of employment in New Mexico's refineries was obtained by using the BLS data reported in Table 8.

Table 8. Employment in NAICS 3241 (Petroleum and Coal Products Manufacturing in the United States and New Mexico (2008)

NAICS Code	Sector Name	US Employment	NM Employment
3241	Petroleum and Coal Products Manufacturing	116,252	830
32411	Petroleum Refineries	75,108	?

Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages, <http://www.bls.gov/cew/> (Downloaded Sept 22, 2009)

The estimate is based on the national ratio of employment in NAICS Code 32411 to NAICS Code 3241. This ratio is 0.46 and has remained relatively stable for several years. The estimate is simply this ratio times the 830 jobs in NM in Petroleum and Petroleum Products Manufacturing (=536). An upper bound on this estimate is the 830 jobs reported in NAICS code 3241. The IMPLAN economic model lists 549 jobs in oil refineries in 2007. Press discussions of the refineries also suggest that the estimate of 536 jobs in 2008 in New Mexico oil refineries is appropriate.

Economic Impacts

The economic impacts of oil refineries in New Mexico in 2008 were computed using IMPLAN Pro Version 2.0. The economic impacts are summarized in Table 9. The refining industry in New Mexico (2008) directly contributed 536 jobs, \$336 million in value added and \$118 million in labor income. The total

³ Barrels per calendar day refer to the quantity of input that a refinery can process under usual conditions in a 24 hour period. Capacity can also be expressed as barrels per stream day which refers to the maximum quantity of inputs that a refinery can process under optimum conditions in a 24 hour day. Input is a subtle concept. In general, the largest category of refinery input is fresh (new) crude oil, but "oil" refineries also process some liquid gas from oil wells, some previously processed (used) oil, and a number of additives such including ethanol.

impacts of refining in the state were nearly \$2.0 billion in value added; 1,929 jobs (2.4 percent of employment covered in the QCEW) and \$574.0 million in labor income.

	Direct	Indirect	Induced	Total
Output	\$3,883.5	\$2,625.6	\$497.7	\$7,006.8
Value Added	\$336.8	\$1,332.9	\$274.1	\$1,993.8
Employment	\$0.0	\$0.0	\$0.0	\$0.0
Labor Income	\$118.0	\$436.7	\$19.3	\$574.0

Source: Author computations using IMPLAN Pro Version 2

Fiscal Impacts of oil refineries in New Mexico

In 2008, New Mexico oil refineries paid \$11,666,169 in Gross Receipts Taxes in New Mexico (New Mexico Department of Taxation and Revenue, RP80 Reports, 2009). In addition, refinery employees and employees created through direct and indirect impacts of refining also pay taxes. The estimated labor income in 2008 from direct, indirect, and induced employment due to oil and gas extraction in the state was \$574.0 million. Labor income includes proprietor’s income plus wages and salaries. This income is also taxed. Estimates of effective tax rates discussed earlier in this report are used here to estimate additional New Mexico tax revenue due to oil and gas extraction for the three taxes that provide nearly 80 percent of non-mineral tax revenue. The Gross Receipts Tax (GRT), the Personal Income Tax (PIT) and the Corporate Income Tax (CIT) accounted for 78.96 percent of tax revenue between 2000 and 2007 (Peach and Popp 2008).

Table 10 below contains estimates of these additional taxes. Labor income and taxes are measured in millions of 2008 dollars. The additional taxes estimated below totaled \$64.1 million in 2008. The sum of the \$11.7 million dollars of direct GRT taxes paid by oil refineries results in total taxes paid of \$75.8 million –or 1.3 percent of 2008 state tax revenue. No data are available from the New Mexico Department of Taxation and Revenue for the direct corporate income tax payments of oil refineries.

Tax	Tax Rate	Labor Income*	Estimated Taxes*
GRT	0.0710	\$574.0	\$40.8
PIT	0.0331	\$574.0	\$19.0
CIT	0.0075	\$574.0	\$4.3
Total	0.1116	\$574.0	\$64.1

* Millions of Dollars

Source: Author Calculations on effective tax rates and IMPLAN impact results

Retail Gasoline Stations

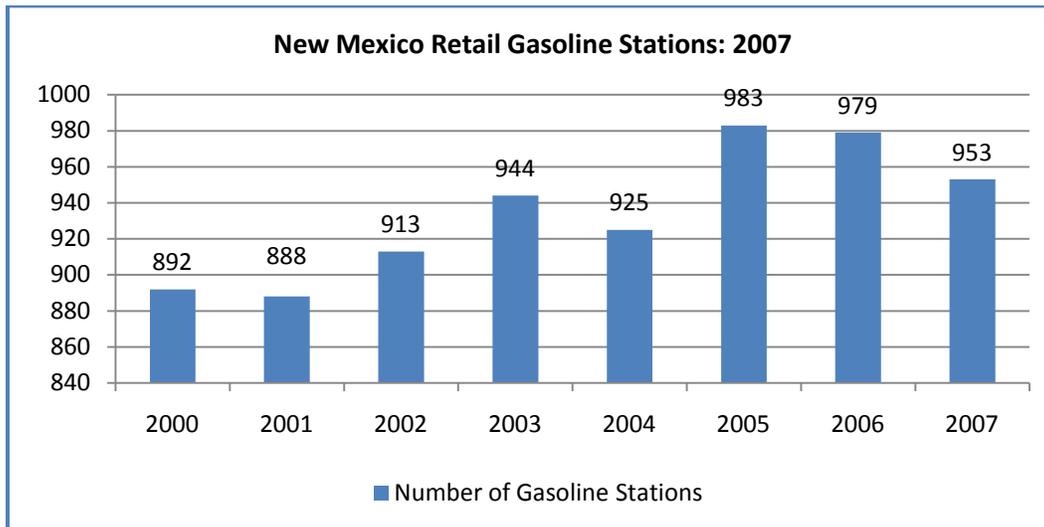
Background

This section contains an assessment of the economic impact of retail gasoline sales in New Mexico. Defining a gasoline retailer is not straight-forward because many types of retail establishments may sell gasoline and other types of motor vehicle fuel such as ethanol and diesel. The definition used in this section is North American Industrial Classification System (NAICS) code 4471 (Gasoline Stations). Establishments in NAICS 4471 may or may not include a convenience store and may or may not perform automotive repair services.

The assessment of economic impacts takes into account the ratio of fuel to non-fuel sales in convenience stores. Historical data on retail gasoline establishments in New Mexico are available through calendar year 2007. New Mexico tax revenue (gross receipts tax and taxes on motor fuels) are available for 2008.

In 2007, New Mexico had 953 gasoline retailers—a small decrease from 2005 and 2006⁴ (Figure 1). Included in this category were 775 convenience stores (81.3 percent of all gasoline stations) selling gasoline and other motor fuels (NAICS 44711).

Figure 1



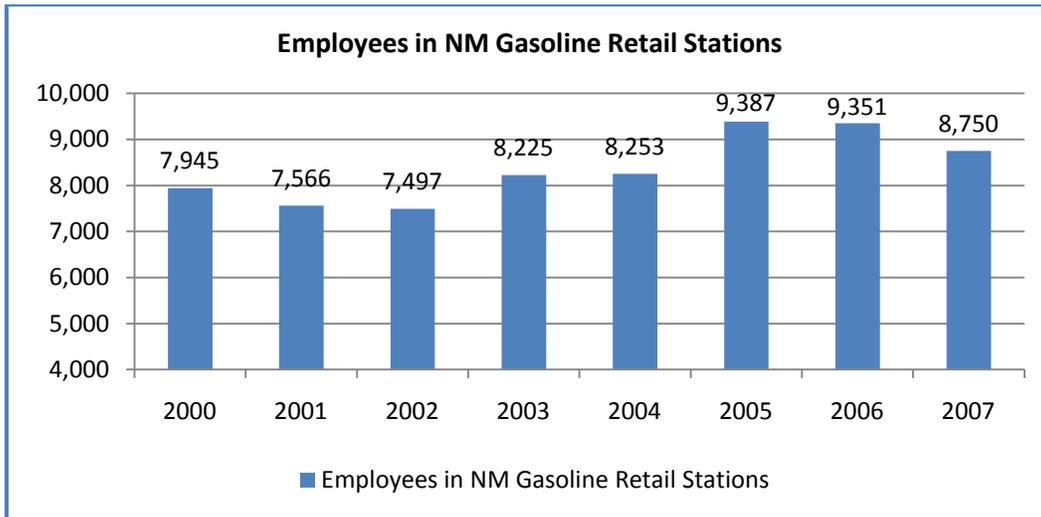
Source: U.S. Bureau of the Census, County Business Patterns, 2000 through 2007.

http://www.census.gov/epcd/nonemployer/2007/nm/NM000_44.HTM

⁴ Data on the number of establishments, employees, and payroll for retail gasoline stations in New Mexico are from U.S. Bureau of the Census, County Business Patterns (CBP), 2000 to 2007. CBP data for 2008 are not yet available. Tax data from the New Mexico Department of Taxation and Revenue for 2008 are available and have been used to calculate the fiscal impact of retail gasoline stations.

New Mexico gasoline station employment and average payroll per employee for the years 2000 through 2007 are displayed in Figures 2 and 3 below. In 2007, there were 8,750 payroll employees in New Mexico gasoline stations, with 6,332 (72.4 percent) of these jobs in gasoline stations with convenience stores⁵. Gasoline station employees accounted for 8.8 percent of New Mexico's total retail trade employment and 1.3 percent of private sector employment in the state.

Figure 2

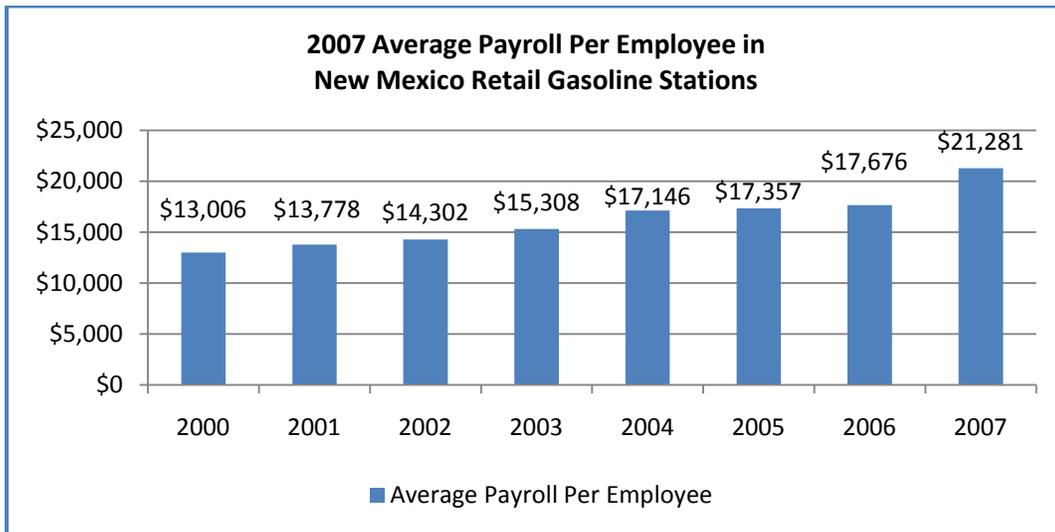


Source: U.S. Bureau of the Census, County Business Patterns, 2000 through 2007.

http://www.census.gov/epcd/nonemployer/2007/nm/NM000_44.HTM

⁵ The number of employees in the CBP data reported here include full and part-time employees during the week of March 12.

Figure 3



Source: U.S. Bureau of the Census, County Business Patterns, 2000 through 2007.

http://www.census.gov/epcd/nonemployer/2007/nm/NM000_44.HTM

In 2007, the average annual payroll per employee in New Mexico gasoline stations was \$21,281⁶. This figure was 77.3 percent of the average annual payroll for all retail employees in the state (\$27,394) and 62.4 percent of the average annual payroll for all private sector employees (\$34,086).

Economic Impacts

A problem with assessing the economic impact of gasoline retailers is that it is not possible to uniquely identify labor efforts related to gasoline sales. In a convenience store a worker may sell gasoline and perform other duties. A second problem is that the data on employment and employee compensation for NAICS 7411 (gasoline stations) does not include all firms selling motor fuels at the retail level. So-called big-box retailers selling motor fuels are not included in this category. Using all labor reported for NAICS 7411 would result in an over-estimate of economic impacts in this sector. The under-reporting of firms in NAICS 7411 would result in an under-estimate of economic impacts. The magnitude of the under or over estimation is unknown.

As a result, two economic impact scenarios for New Mexico gasoline retailers are presented in Table 11 below. In the first (High Case) scenario, all employees reported in sector 7411 are used as the basis for the impact analysis. While the high case scenario results in an over-estimate of impacts because it attributes all employment in the sector to gasoline sales, this scenario does not capture the impacts of gasoline sales for firms (such as discount stores) that are not reported. The second (Low Case) scenario is based on allocating employment in NAICS 7411 according to the percentage of gasoline sales (71.2) at convenience stores reported by the National Association of Convenience Stores (2009). The procedure

⁶In the County Business Patterns data, payroll "...includes all forms of compensation, such as salaries, wages, reported tips, commissions, bonuses, vacation allowances, sick-leave pay, employee contributions to qualified pension plans, and the value of taxable fringe benefits."

<http://www.census.gov/econ/cbp/definitions.htm>

of allocating employment based on sales is less than satisfactory because sales of gasoline and other items are often joint events. Given the available data the options for alternative procedures are limited. The mean of the high and low scenarios is also presented and is used in the calculation of indirect taxes.

Table11: Economic Impact of Gasoline Retail Stations: Alternative Scenarios

Dollar figures in millions

High Case Scenario				
	Direct	Indirect	Induced	Total
Output	\$512.4	\$103.3	\$144.2	\$759.9
Value Added	\$378.6	\$58.6	\$79.4	\$516.6
Employment	8,750	947	1,402	11,099
Labor Income	\$196.9	\$32.8	\$44.1	\$273.7
Low Case Scenario				
	Direct	Indirect	Induced	Total
Output	\$364.8	\$73.5	\$102.7	\$541.0
Value Added	\$269.5	\$41.7	\$56.6	\$367.8
Employment	6,230	674	998	7,902
Labor Income	\$140.2	\$23.3	\$31.4	\$194.9
Mean of High and Low Cases				
	Direct	Indirect	Induced	Total
Output	\$438.6	\$88.4	\$123.4	\$650.4
Value Added	\$324.1	\$50.1	\$68.0	\$442.2
Employment	7,490	811	1,200	9,501
Labor Income	\$168.5	\$28.0	\$37.8	\$234.3

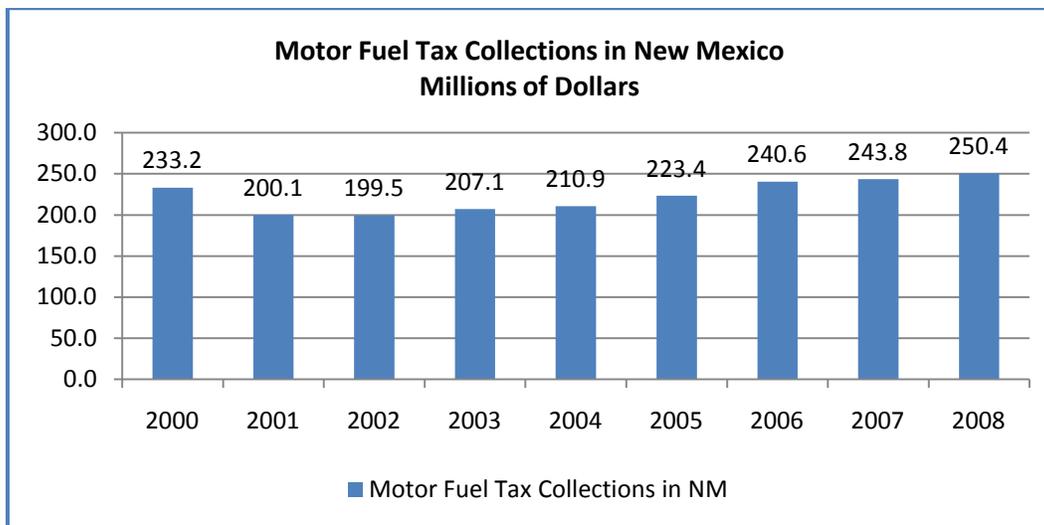
Source: Author computations using IMPLAN Pro Version 2

Fiscal Impacts of Gasoline Retail Sales

New Mexico imposes an excise tax on the sale of motor fuels, including gasoline, diesel, and aviation fuel. There are limited exceptions to this tax for sales to government entities and sales on tribal lands. Currently, the tax on gasoline (including ethanol) sold at the retail level is 18.4 cents per gallon. The tax on diesel fuel is 24.4 cents per gallon.

New Mexico releases total motor fuel tax data, but does not release the data by category. In 2008, the Legislative Finance Committee estimated that gasoline taxes in FY2008 were \$141.977 million or 55.7 percent of total motor fuel taxes (New Mexico Legislative Finance Committee, 2008). New Mexico Motor Fuel Tax collections from 2000 through 2008 are displayed in Figure 4.

Figure 4



Source: U.S. Bureau of the Census, "State Government Tax Collections"
<http://www.census.gov/govs/statetax/0032nmstax.html> Downloaded Sept 21, 2009.

In 2008, motor fuel taxes of \$250.4 million were 4.2 percent of total tax collections in New Mexico (\$5.675 billion). On a per capita basis, New Mexico motor fuel taxes have remained relatively stable. In 2000, each New Mexican paid \$128.07 in motor fuel taxes and this figure had decreased modestly to \$126.20 in 2008.

In addition to motor fuel taxes, the employment and labor income from retail gasoline stations also generate revenue for the state. Gasoline station employees and jobs created through direct and indirect impacts of retail gasoline sales also pay taxes. The estimated labor income from direct, indirect, and induced employment due to gasoline retailing in the state was \$234.3 million. Labor income includes proprietor's income plus wages and salaries. This income is also taxed. Estimates of effective tax rates as a percent of labor income discussed earlier in this report are used here to estimate additional New Mexico tax revenue due to gasoline retailing. The three taxes provide nearly 80 percent of tax revenue. The Gross Receipts Tax (GRT), the Personal Income Tax (PIT) and the Corporate Income Tax (CIT) accounted for 78.96 percent of tax revenue between 2000 and 2007 (Peach and Popp 2008).

Table 12 below contains estimates of these additional taxes. Labor income and taxes are measured in millions of 2008 dollars. The additional taxes estimated below totaled \$21.7 million in 2008. Adding in \$142.0 million dollars of motor fuel taxes paid by gasoline stations results in total taxes paid of \$163.7 million –or 2.9 percent of 2008 taxes collected in 2008. If all motor fuel taxes are included, motor fuel retailing accounted for 4.8 percent of state tax collections in 2008. Missing from these calculations are corporate income taxes paid directly by firms owning gasoline retail stations.

Tax	Tax Rate	Labor Income*	Estimated Taxes*
GRT	0.0710	\$195	\$13.8
PIT	0.0331	\$195	\$6.4
CIT	0.0075	\$195	\$1.5
Total	0.1116	\$195	\$21.7

* Millions of Dollars

Source: Author Calculations on effective tax rates and IMPLAN impact results

Natural Gas Distribution and Pipeline Transportation of Natural Gas

Background

The distribution of natural gas is the final step in the process from wellhead to consumer. The process of distribution is done via large and small diameter pipelines that run from wellhead to end user. The distribution market is comprised of two main components: (1) large, industrial, commercial, and electricity generation customers; and (2) local distribution companies that deliver natural gas to consumers. The industry is comprised of both investor owned companies and publically owned and operated natural gas systems (Natural Gas Supply Association, 2009). The distribution of natural gas begins with collection at the wellhead and then is processed and transferred multiple times before it reaches the end user. Depending on the quality of the gas extracted from the wellhead the fuel is gathered and sent to a natural gas processing plant or directly to the mainline transmission grid. The pipeline-quality fuel is either transported by pipeline to consumers or placed in underground storage for future use. Storage allows the system to meet peak demands and smooth the differences between supply of fuel and demand.

The key steps to end use from wellhead are: (1) gathering lines; (2) processing plants; (3) mainline transmission systems; (3) market hubs/centers; (4) underground storage facilities; and (5) peak shaving. In the producing area, the primary pipeline infrastructure is involved in 'gathering' the fuel from the diffuse wellhead locations. The fuel produced at the wellhead is typically a mixture of methane, other hydrocarbons, and non-hydrocarbon materials. The key hydrocarbons extracted from the wellheads are: (1) methane; (2) ethane; (3) propane; (4) butane; and (5) pentane. The typical non-hydrocarbon contaminants (in gaseous phase or in solution with crude oil) are: (1) water vapor; (2) carbon dioxide; (3) helium; (4) hydrogen sulfide; (5) and nitrogen (EIA "About US Natural Gas Pipelines", 2009).

The natural gas pipeline network in the United States is highly integrated and transports natural gas between almost all locations within the lower 48 states. EIA reports that there are more than 210 natural gas pipeline systems, and more than 305,000 miles of inter and intra state pipelines in the US. The system has more than 1,400 compressor stations; 11,000 delivery points; 5,000 receipt points; and 1,400 interconnection points. In the US there are currently 24 hubs (market centers) and 49 locations for natural gas to be imported/exported, in addition to 8 Liquefied Natural Gas import facilities (EIA "About US Natural Gas Pipelines", 2009). According to EIA, the San Juan Basin in New Mexico and the Piceance Basis of Colorado has 2.2 billion cubic feet per day of natural gas pipeline capacity entering the southwest region.

Most of this distribution capacity is redirected toward Arizona and California though the El Paso Natural Gas Company, Transwestern Pipeline Company, and TransColorado Gas Transmission Company Systems. Additional capacity (0.4 billion cubic feet per day) is associated with bi-directional border crossings with Mexico and operational flows between the southwestern and southeastern production areas. The 13 hubs in the southwestern region direct much of the natural gas flow from the production areas to the final use areas. In New Mexico, the Public Service Company of New Mexico is the owner/operator of the main trunk/grid. The Blanco Hub is the key distribution facility for New Mexico (US Energy Information Administration "About US Natural Gas Pipelines", 2009).

In the US each day more than 70 million customers receive natural gas from the natural gas distribution system. More than 20 trillion cubic feet of natural gas are used each year, or approximately 22% of the total energy used in the US each year. 92% is residential, 7% is commercial, and 1% is large industrial and electric power generation. Although only 1% of the customers are large industrial/electric power

generation users, they consume more than 60% of the natural gas by end user type. Currently there are more than 1,500 companies involved in the distribution process. Some of the companies serve less than 100 customers, while others serve millions. According to the EIA the end-use market place for natural gas has become more competitive as market forces combined with mandated restructuring of pipeline transmissions operations in the 1990s and increasing competition for large-volume natural gas customers. The key regulatory rule change was Federal Energy Regulatory Commission (FERC) Order 436 and Order 636 which provided opportunities for large-volume natural gas users to contract directly with mainline transmission companies (EIA "Distribution of Natural Gas: The Final Step in the Transmission Process" 2008, pp. 1-2). FERC Order 636 helped open the door to unbundled services and now 23 states have implemented choice programs for customers, which forces local distribution companies to offer transportation-only services to end users (EIA "Distribution of Natural Gas: The Final Step in the Transmission Process" 2008, pp. 6).

The majority of fuel is delivered by Local Distribution Companies (LDC) and accounted for more than 60% of the 19.9 trillion cubic feet of natural gas delivered in 2006. The remaining 40% was delivered directly to end users via main pipeline systems. These pipeline systems delivered approximately 98% of the electricity for electric power generation, and accounted for 6.2 trillion cubic feet (31%) of all end-use natural gas (EIA "Distribution of Natural Gas: The Final Step in the Transmission Process" 2008, pp. 1).

In the past 10 years there have significant changes in the natural gas sector that have altered the use and distribution. Natural gas has been increasingly used for electricity generation and use has declined in all other sectors. Per customer use in the residential sector was approximately 84,000 cubic feet per year in 2000, which was a decline of 12% since 1996. By 2006, that average declined to only 68 thousand cubic feet by 2006. During this same period, industrial use decreased by 25%, but natural gas for electric power generation increased by 130%. The decline in industrial uses of natural gas is attributed to the increase in price over this time period. The increase in price led to substantial declines in the use of natural gas for the production of nitrogen based fertilizer. Since 2000, imports of nitrogen based fertilizers increased by more than 3 fold and almost half of the fertilizer used in the US is now foreign sourced. This in addition to the ability of many large industrial plants to switch fuel sources led to the decline in natural gas for industrial uses (EIA "Distribution of Natural Gas: The Final Step in the Transmission Process" 2008, pp. 4-5).

Economic Impacts

In New Mexico in 2008, there were 16 natural gas distribution firms (NAICS Code 2212), 6 of these firms were local government organizations. Employment in natural gas distribution totaled 761 jobs with local government accounting for 321 of these jobs. Average annual pay in natural gas firms in 2008 was \$70,019 for private firms (184.7 percent of average annual pay in the state) and \$40,401 for local government firms (106.6 percent of average annual pay in the state). (Source: Bureau of labor statistics, Quarterly Census of Employment and Wages, <http://www.bls.gov/cew/>).

In addition to natural gas distribution firms, 39 firms were engaged in pipeline distribution of natural gas (NAICS 4862) in New Mexico in 2008. All of the firms in pipeline distribution of natural gas were in the private sector. Employment in these firms totaled 804 with average annual pay of \$68,693 (181.2 percent of the average for all payroll employees).

The economic impacts of natural gas distribution and natural gas pipeline transportation are reported in Tables 13, 14 and 15 below. The estimated impacts were calculated using IMPLAN Pro Version 2.0. The

estimated impacts for pipeline distribution were adjusted downward to reflect previously estimated indirect and induced impacts due to oil and gas extraction.

Table 13. Economic Impacts of Natural Gas Distribution in New Mexico 2008
(millions of dollars)

	Direct	Indirect	Induced	Total
Value Added	\$129.5	\$129.9	\$46.3	\$305.7
Employment	761	1,184	818	2,763
Labor Income	\$62.2	\$71.0	\$25.7	\$158.9

Source: Author calculations using IMPLAN Pro Version 2.0

Table 14. Economic Impacts of Pipeline Transportation of Natural Gas in New Mexico 2008

	Direct	Indirect	Induced	Total
Value Added	\$106.5	\$65.8	\$73.7	\$246.0
Employment	804	1,411	1,342	3,557
Labor Income	\$84.3	\$115.6	\$41.6	\$241.5

Source: Author calculations using IMPLAN Pro Version 2.0

Table 15. Total Impact of Pipeline Transportation and Distribution of Natural Gas in New Mexico 2008

	Direct	Indirect	Induced	Total
Value Added	\$235.9	\$195.7	\$120.0	\$551.7
Employment	1,565	2,595	2,160	6,320
Labor Income	\$146.5	\$186.6	\$67.4	\$400.4

Source: Author computations using IMPLAN Pro Version 2

The impact of natural gas distribution and pipeline transportation in 2008 in New Mexico included 1,565 direct jobs, \$146.5 million in direct labor income and \$235.9 million of value added. The total impacts including direct, indirect and induced effects are 6,320 jobs, \$400.5 million of labor income, and \$551.7 million in value added.

Fiscal Impacts of Natural Gas Distribution and Natural Gas Pipeline Transportation

In 2008, Natural Gas distribution firms paid \$31.8 million in New Mexico Gross Receipts taxes (GRT) on Gross Receipts of \$653.2 and taxable gross receipts of 480.4 million dollars. Pipeline transportation paid a total of \$209.6 thousand dollars in gross receipts taxes, but it is not possible to separate natural

gas pipeline transportation from crude oil transportation. (Source: receipts (New Mexico Department of Taxation and Revenue, RP80 Reports, <http://www.tax.state.nm.us/pubs/rp806d.htm>).

Direct employees and the employment created through direct and indirect impacts of natural gas distribution and pipeline transportation of natural gas also pay taxes. The estimated labor income in 2008 from direct, indirect, and induced employment from this sector is \$400.4 million. Labor income includes proprietor’s income plus wages and salaries. This income is also taxed. Estimates of effective tax rates as a percent of labor income are used here to estimate additional New Mexico tax revenue due natural gas distribution and pipeline transportation. The Gross Receipts Tax (GRT), the Personal Income Tax (PIT) and the Corporate Income Tax (CIT) accounted for 78.96 percent of tax revenue between 2000 and 2008.

Table 16 below contains estimates of these additional taxes. Labor income and taxes are measured in millions of 2008 dollars. The additional taxes estimated below totaled \$44.7 million in 2008.

Table 16. Indirect Taxes From Natural Gas Distribution and Pipeline Transportation in New Mexico: 2008

Tax	Tax Rate	Labor Income*	Estimated Taxes*
GRT	0.0710	\$400.4	\$28.4
PIT	0.0331	\$400.4	\$13.2
CIT	0.0075	\$400.4	\$3.0
Total	0.1116	\$400.4	\$44.7

* Millions of Dollars

Source: Author Calculations on effective tax rates and IMPLAN impact results

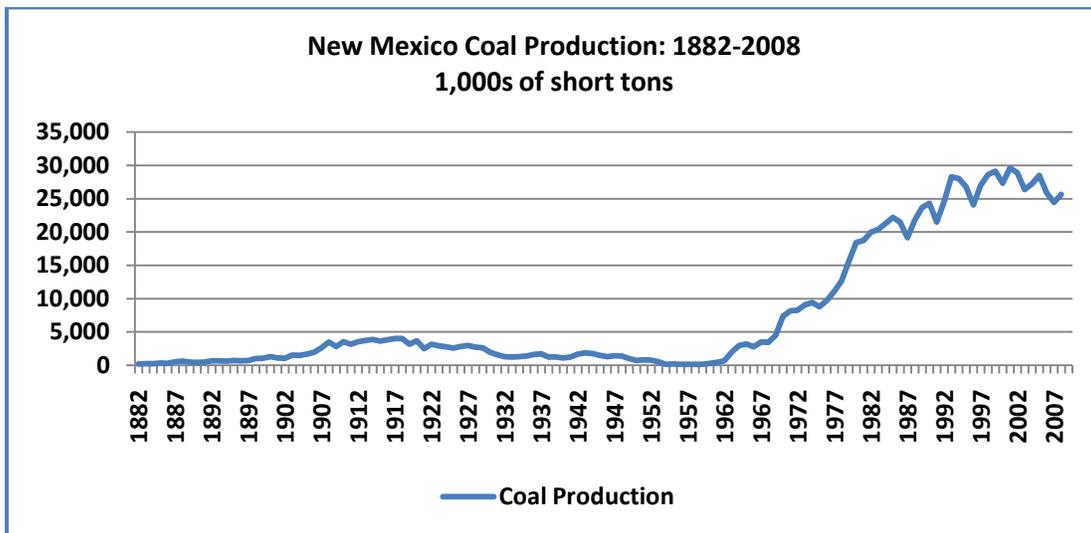
Coal Mining

Background

In 2008 New Mexico produced 25.6 million short tons of coal. Production in the state's surface mines totaled 18.6 million short tons or 72.5 percent of total production (EIA September 2009 Coal Production and Number of Mines by State). New Mexico's 2008 coal production was 4.9 percent greater than the state's production in 2007 (24.5 million short tons).

Employment in New Mexico's coal mines totaled 1,445 jobs in 2008, a 6.6 percent increase from 2007 employment of 1,345 jobs (EIA, Coal Mining Productivity by State and Mine Type). Coal production in New Mexico from 1882 to 2008 is displayed in Figure 5.

Figure 5

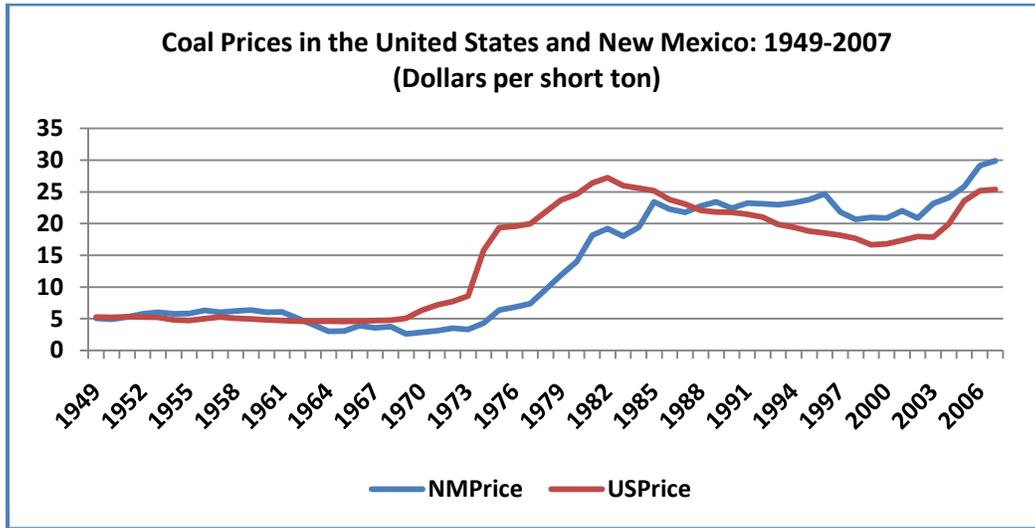


Source: Peach and Starbuck, 2009.

New Mexico has an estimated 483 million short tons of economically recoverable coal, which represents 2.6 percent of the total estimated US coal reserves in 2007 (EIA, Coal Reserves by State). The majority of the coal resources in New Mexico are in the San Juan Basin (SJB) which contains large areas of alternating sandstone and shale beds. The basin contains two main coal bearing deposits, the Fruitland and the Mesa Verde.

In 2008, the average sales price of coal in New Mexico was \$33.16 (EIA, Annual Coal Report, 2008). In 2007 New Mexico coal prices averaged \$28.27 per ton. Coal prices in New Mexico and the US from 1949 to 2007 are displayed in Figure 6.

Figure 6



Source: Peach and Starbuck, 2009.

Economic Impacts

In 2008, the sales value of coal mined in New Mexico was \$850.4 million (25.6 million short tons times the average price of \$33.16 per short ton). The 2008 value of coal produced reflected an increase in both volume and price. The 2008 sales value represented an increase of 26.2 percent from the 2007 value of \$673.9 based on 24.4 million short tons of production at an average sales price of \$27.62.

The economic impacts of coal mining in New Mexico in 2008 are reported in Table 17. Direct employment in coal mining of 1,445 jobs resulted in total employment in New Mexico of 3,432 jobs. Direct labor income from coal mining was \$148.2 million and the direct and indirect labor income resulted in total labor income of \$228.3 million.

Table 17. 2008 Economic Impacts of Coal Mining in New Mexico

Value	Direct	Indirect	Induced	Total
Output	\$850.4	\$252.7	\$209.0	\$1,312.1
Value Added	\$466.9	\$122.3	\$115.0	\$704.2
Employment	1,445	821	1,166	3,432
Labor Income	\$148.2	\$43.4	\$36.7	\$228.3

Source: Author computations using IMPLAN Pro Version 2

Fiscal Impacts of Coal Mining in New Mexico: 2008

New Mexico coal production generates substantial tax revenues, rents and royalties for 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 subject to a property tax. In addition, the State of New Mexico receives rental and royalty income from coal leases on state and Indian owned land. For 2008, the statutory tax rates were as follows: surtax on surface coal was (\$.80) per short ton and (\$0.77) per short ton for mined underground coal. The severance surtax on coal is indexed to inflation using the producer price index. In addition to the indexed surtax, the state collects a fixed severance tax of (\$0.57) per short ton for surface coal and (\$0.55) per short ton for underground coal. Taxes actually paid differ from these nominal or stated tax rates because of various deductions, exclusions, and special circumstances.

A summary of actual taxes, rents, and royalties is presented in Table 18 for fiscal years 2007 and 2008. The New Mexico Fiscal Year is from July 1 to June 30. FY2008 covers the second half of calendar year 2007 and the first half calendar year 2008. Data for Fiscal Year 2009 are not yet available. Using FY2008 data will undoubtedly under-estimate direct taxes paid by the coal mining industry in New Mexico in calendar year 2008, due to increases in both the price of coal and the volume of coal produced. Given the complexity of tax codes, using actual data for FY 2008 to estimate these taxes for calendar year 2008 is preferred to alternative estimation procedures.

Table 18. Direct Tax Payments from Coal Mining in New Mexico FY 2007 and FY 2008.

	FY 2007	FY 2008
Severance Tax and Surtax	\$17,015,047	\$17,145,895
Resources Excise Tax	\$4,965,852	\$4,432,200
Conservation Tax	\$1,257,971	\$1,133,085
Property Tax	\$5,980,438	\$6,071,098
Gross Receipts Tax	\$18,201,471	\$35,369,395
Sub-Total	\$47,420,779	\$64,151,673
Rental and Royalty Income on State Lands		
Rental Income	\$22,695	\$44,240
Royalty Income	\$2,154,127	\$4,631,632
Sub-Total	\$2,176,822	\$4,675,872
State Only Sub-Total	\$49,597,601	\$68,827,545
MMS Disbursements	\$4,502,057	\$6,859,349
Direct Taxes, Rents, and Royalties Total	\$54,099,658	\$75,686,894

Sources: (1) Severance Tax, Resources Excise Tax, Conservation Tax, Property Tax and Gross Receipts Tax data along with price per ton, production and total value are from: New Mexico State Board of Finance, Continuing Disclosure Report, FY 2007 (Table 19, p. 31) and FY2008 (Table 19, p. 33). (2) Rental and Royalty Income on State Lands are from: New Mexico State Land Office, Annual Report 2007 p. 3 and 2008, p. 4. (3) Rental and royalty income on Federal Lands are as reported by Mineral, Management Service (MMS) of the U.S. Department of Interior for FY07 and FY08. Federal Lands include Indian Lands. The federal fiscal year is from Oct 1 through September 30. These data are not directly comparable to the data reported by the New Mexico State Board of Finance or the New Mexico State Land Office for New Mexico Fiscal Years 2007 and 2008.

In addition to the direct taxes described above and displayed in Table 2, coal mining adds to state tax receipts indirectly. For example, the 1,390 coal mining workers received \$141.9 million in labor income for the work they performed. This income is spent and taxed. The income coal mine workers receive is subject to the state Personal Income Tax. When a coal mine worker purchases goods or services, those purchases are subject to the Gross Receipts Tax (GRT). The GRT revenues generated in this fashion are distinct from the GRT on coal reported in Table 18 above. Incorporated businesses in the state that provide goods and services to coal workers are also subject to Corporate Income Tax (CIT).

Effective tax rates based on labor income discussed earlier in this report were used to estimate the indirect taxes generated by the coal mining industry. No estimate of property taxes is reported in Table 19. There are simply too many unknown variables to provide a reasonable estimate of indirect property taxes.

	Tax	Tax Rate	Labor Income*	Estimated Taxes*
GRT		0.0710	\$228	\$16.2
PIT		0.0331	\$228	\$7.5
CIT		0.0075	\$228	\$1.7
Total		0.1116	\$228	\$25.5

* Millions of Dollars

Source: Author Calculations on effective tax rates and IMPLAN impact results

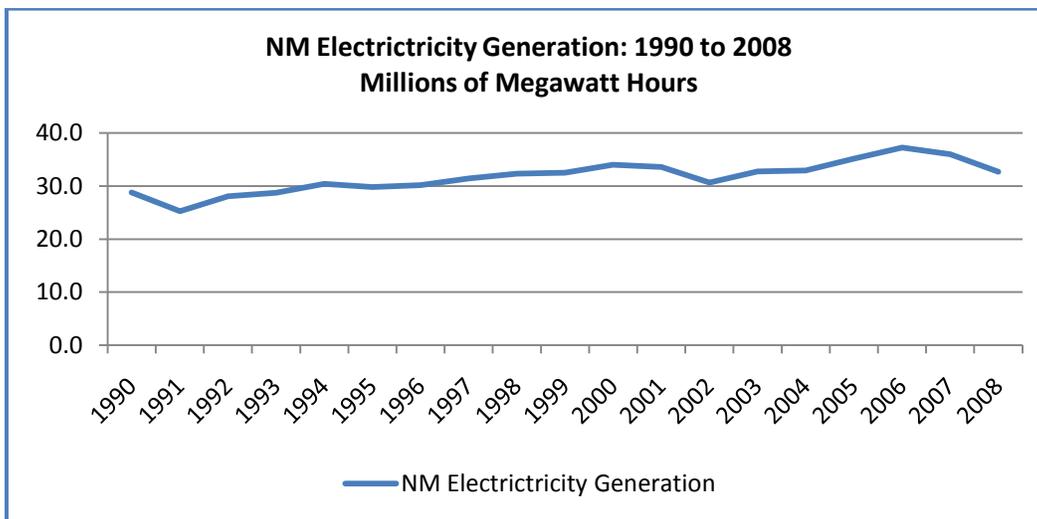
The total tax, rental, and royalty revenue to the state of New Mexico from Tables 18 and 19 is \$101.2 million from coal mining activities in 2008. Direct tax, rental and royalty payments accounted for \$75.7 million (74.8 percent of the total). Indirect taxes (PIT, CIT, and GRT) contributed \$25.5 million (25.2 percent of the total).

Electricity Generated by Fossil Fuels

Background

In 2008, New Mexico produced 32.7 million megawatt hours of electricity (Figure 7). New Mexico's electricity production in 2007 was 36.0 million megawatt hours. State production figures in both 2007 and 2008 were less than the 2006 peak of 37.3 million megawatt hours. New Mexico generation patterns are consistent with the national trend. In the United States, electricity generation (net) decreased by 6.8 percent from June 2008 to June 2009. This was the 11th consecutive month that net generation was down compared to the same calendar month in the prior year (EIA: Electric Power Monthly, September 2009 edition, http://www.eia.doe.gov/cneaf/electricity/epm/epm_sum.html).

Figure 7



Source: (1) 1990 to 2007, EIA, 2009, Electric Power Annual, 2007, "Net Generation by State" http://www.eia.doe.gov/cneaf/electricity/epa/epa_sprdshts.html . 2008 data compiled from EIA-923 database: http://www.eia.doe.gov/cneaf/electricity/epa/epa_sprdshts.html

In the early 2000's, electricity generated from fossil fuels accounted for about 95 percent of total electricity generated in New Mexico (Figure 8). Coal has been the dominant fuel for electricity generation in New Mexico since the late 1960s. In 1992 coal-fired generation accounted for 90.3 percent of total generation in the state. In the early 2000's, the proportion of electricity in New Mexico generated with natural gas has been increasing and the share of coal-fired generation has been decreasing (Figure 8). The share of electricity generated with natural gas in the state more than doubled between 2005 (11.9 percent) and 2008 (23.7 percent). The share of electricity generation from wind also more than doubled between 2005 (2.3 percent) and 2008 (5.0 percent). There is no solar generation of electricity in New Mexico as of mid-2009. The Public Service Company of New Mexico (PNM 2007) has plans for a solar generation facility but this plant will not be operational before 2012. A geothermal plant in Hidalgo County, NM is in the advanced planning stages.

The ten largest generating plants in the state (2007) are displayed in Table 20.

Table 20. Ten Largest Plants by Generation Capacity in New Mexico, 2007

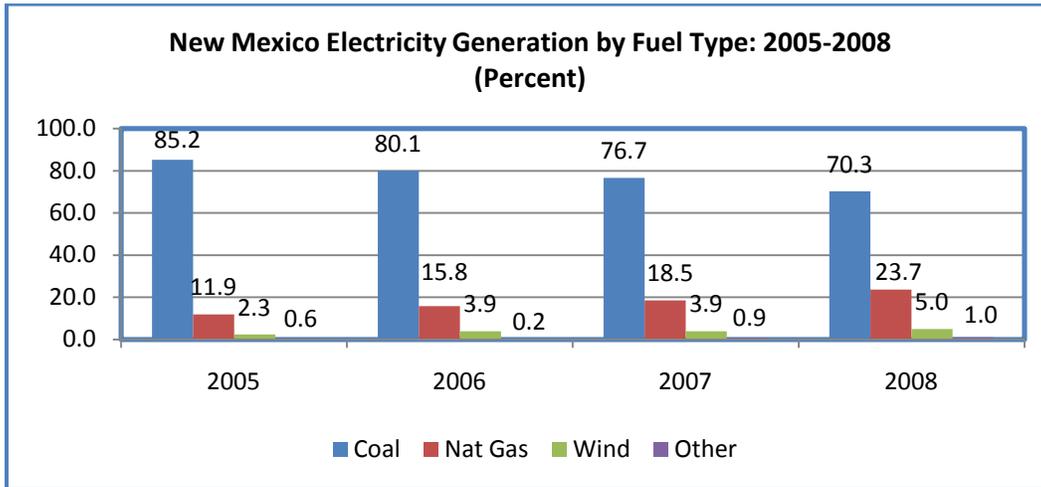
Plant	Primary Energy Source or Technology	Operating Company	Net Summer Capacity (MW)
1. Four Corners	Coal	Arizona Public Service Co	2,060
2. San Juan	Coal	Public Service Co of NM	1,643
3. Luna Energy Facility	Gas	Public Service Co of NM	559
4. Cunningham	Gas	Southwestern Public Service Co	485
5. Escalante	Coal	Tri-State G & T Assn, Inc	247
6. Rio Grande	Gas	El Paso Electric Co	236
7. Afton Generating Station	Gas	Public Service Co of NM	236
8. New Mexico Wind Energy Center	Other Renewables	FPL Energy New Mexico Wind LLC	204
9. Maddox	Gas	Southwestern Public Service Co	179
10. Pyramid	Gas	Tri-State G & T Assn, Inc	158

MW = Megawatt.

Source: Energy Information Administration, Form EIA-860, "Annual Electric Generator Report."

New Mexico state law requires 20 percent of electricity to be generated from renewable fuel sources by 2020. To meet this standard, coal fired generation as a percent of total generation is likely to decrease over the next several years. The future share of natural gas fired generation in the state is uncertain. Natural gas plants in the state are currently used for both peak and off-peak electrical generation and may be used in combination with renewable sources.

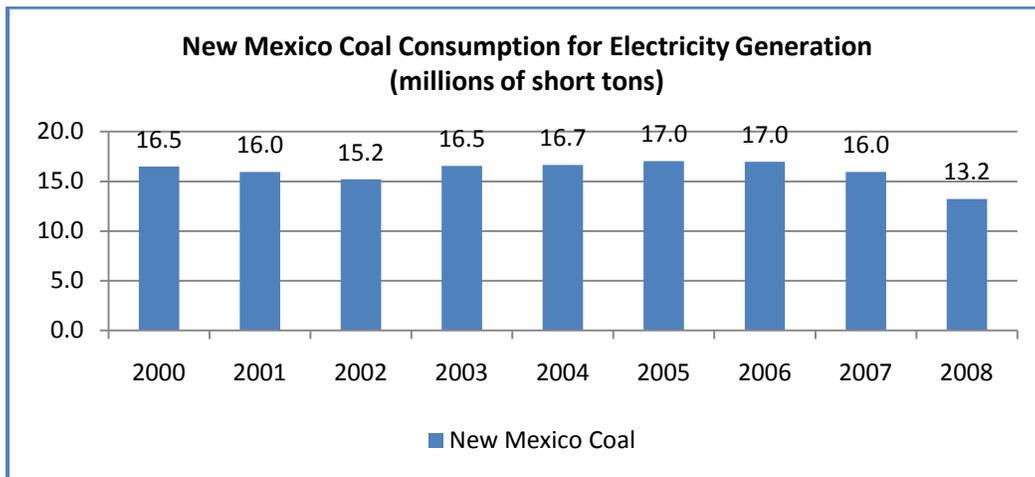
Figure 8



Source: Energy Information Administration: Net Generation by Fuel Type by State, Historical Tables. (http://www.eia.doe.gov/cneaf/electricity/epa/epa_sprdshts.html) and EIA form 923 for 2008 data.

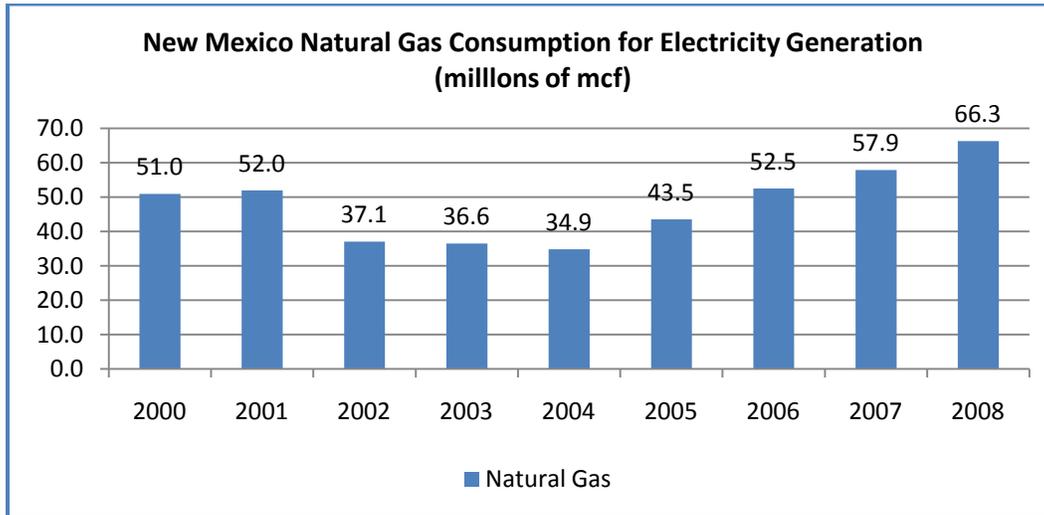
In 2008, New Mexico consumed 13.2 million short tons of coal and 66.3 billion cubic feet of natural gas for electricity generation (Figures 9 and 10 below). Trends in the consumption of coal and natural gas for electricity consumption in the state reflect the shares of electricity generation by fuel type already discussed.

Figure 9



Source: EIA, "Fossil Fuel Consumption for Electricity Generation by State" http://www.eia.doe.gov/cneaf/electricity/epa/epa_sprdshts.html

Figure 10



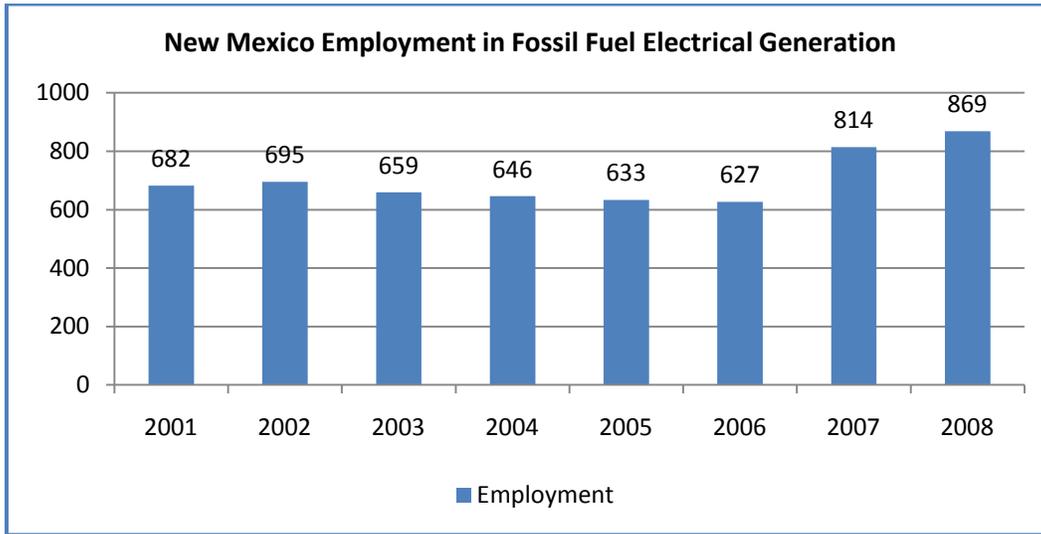
Source: EIA, "Fossil Fuel Consumption for Electricity Generation by State
http://www.eia.doe.gov/cneaf/electricity/epa/epa_sprdshts.html

Employment in electricity generated from fossil fuels in New Mexico (NAICS Code 221112) is displayed for 2001 to 2008 in Figure 11. The data for both employment and pay in the industry are for all workers in the fossil fuel electricity generation sector. Disaggregated data for those working in coal fired versus natural gas fired generation plants are not available. In 2008, there were 869 employees in New Mexico in fossil fuel generation of electricity in the state –or 0.1 percent of the state’s total employment of 825,782.

The jobs in electricity generation are high paying jobs relative to other forms of employment in the state. Figure 12 displays average annual pay (including benefits⁷) for employees in fossil fuel generation of electricity and all jobs in New Mexico from 2001 through 2008. In 2008, the average annual pay of a worker in fossil fuel generation of electricity in New Mexico was \$102,070 or 2.69 times the average annual pay of all state workers (\$37,900).

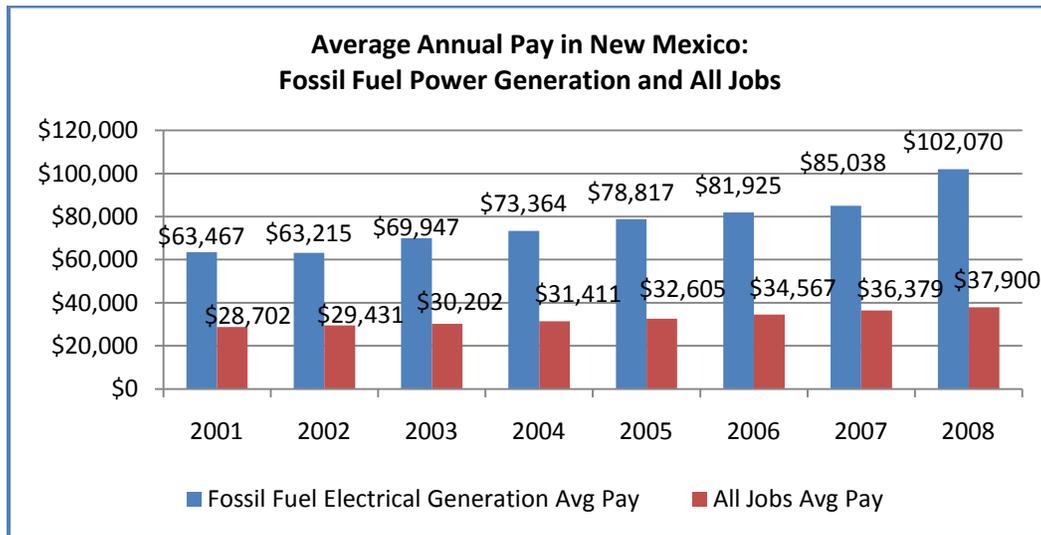
⁷ QCEW Wages represent total compensation paid during the calendar quarter, regardless of when services were performed. Included in wages are pay for vacation and other paid leave, bonuses, stock options, tips, the cash value of meals and lodging. Covered employer contributions for old-age, survivors, and disability insurance; health insurance; UI; workers’ compensation; and private pension and welfare funds are not reported as wages. Employee contributions for the same purposes, however, as well as money withheld for income taxes, union dues, and so forth are reported, even though they are deducted from the worker’s gross pay. (Bureau of Labor Statistics, Employment and Wages, 2007, <http://www.bls.gov/cew/cewbultn07.htm>)

Figure 11



Source: Bureau of Labor Statistics. 2008 QCEW <http://data.bls.gov/PDQ/outside.jsp?survey=en>

Figure 12



Source: Bureau of Labor Statistics. 2008 QCEW <http://data.bls.gov/PDQ/outside.jsp?survey=en>

Economic Impacts

The economic impacts of electricity generation from fossil fuels in New Mexico in 2008 were computed using IMPLAN Pro Version 2.0. The economic impacts are summarized in Table 21. The economic

impacts presented below are for generation only and do not include transmission, distribution, and marketing of electricity. The economic impact estimates do not include fuel costs for coal or natural gas. The economic impacts of oil and gas extraction and coal mining have been reported separately in other sections of this report. Including those impacts here would have resulted in double-counting of the overall impact of fossil fuels in New Mexico.

The industry in New Mexico (2008) directly contributed 869 jobs, \$331 million in value added and \$92.7 million in labor income. The total impacts of in the state were \$386.7 million in value added; 2,262 jobs (2.7 percent of employment covered in the QCEW) and \$149.9 million in labor income.

Table 21. Estimated Economic Impacts of Fossil Fuel Electricity Generation in New Mexico 2008

	Direct	Indirect	Induced	Total
Value Added	\$331.3	\$55.5	\$43.8	\$386.7
Employment	869	638	757	2,264
Labor Income	\$92.7	\$32.8	\$24.5	\$149.9

Source: Author computations using IMPLAN Pro Version 2

Fiscal Impacts of Fossil Fuel Electricity Generation in New Mexico

New Mexico electric utilities paid \$96,784,296 in Gross Receipts taxes in 2008. Gross receipts totaled \$1,766,871,114 with \$1,490,933,282 (84.4 percent) as taxable gross receipts (New Mexico Department of Taxation and Revenue, RP80 Reports, <http://www.tax.state.nm.us/pubs/rp806d.htm>).

Direct employees and the employment created through direct and indirect impacts of fossil fuel electricity generation also pay taxes. The estimated labor income in 2008 from direct, indirect, and induced employment due to fossil fuel generated electricity production in the state was \$149.9 million. Labor income includes proprietor's income plus wages and salaries. This income is also taxed. Estimates of effective tax rates as a percent of labor income discussed earlier in this report were used here to estimate additional New Mexico tax revenue due to oil and gas extraction for the three taxes that provide nearly 80 percent of non-mineral tax revenue. The Gross Receipts Tax (GRT), the Personal Income Tax (PIT) and the Corporate Income Tax (CIT) accounted for 78.96 percent of tax revenue between 2000 and 2008.

Table 22 below contains estimates of these additional taxes. Labor income and taxes are measured in millions of 2008 dollars. The additional taxes estimated below totaled \$48.4 million in 2008. The sum of the direct and indirect taxes paid in this sector was \$145.2 million.

Table 22. Indirect Taxes From Fossil Fuel Electricity Generation in New Mexico: 2008

Tax	Tax Rate	Labor Income*	Estimated Taxes*
GRT&SS	0.0710	\$149.9	\$10.6
PIT	0.0331	\$149.9	\$5.0
CIT	0.0075	\$149.9	\$1.1
Total	0.1116	\$149.9	\$16.7

* Millions of Dollars

Source: Author Calculations on effective tax rates and IMPLAN impact results

Summary Impacts

The economic and fiscal impacts of fossil fuel energy sectors in New Mexico are summarized in Tables 23 through 32.

Estimates of value added in the New Mexico economy in 2008 from fossil fuel energy sectors are presented in Table 23 in millions of dollars and Table 24 as a percent of New Mexico's 2008 Gross Domestic Product (GDP) of \$79.9 billion. GDP is a value added concept. That is, only the value added during each stage of production is included in the GDP accounts produced by the Bureau of Economic Analysis (BEA). Until 2007, BEA included a GDP entry for oil and gas extraction. Budget cuts at BEA resulted in this figure being dropped from the 2008 GDP state level estimates. The estimate of \$10.3 billion in New Mexico (Table 23) is consistent with BEA's 2005 through 2007 estimates as a percent of total state GDP.

In 2008, New Mexico's fossil fuel energy sectors produced \$11.9 billion in direct value added or 14.9 percent of state GDP. Accounting for the indirect and induced effects, New Mexico's fossil fuel energy sectors contributed \$16.0 billion in value added or 20.1 percent of state GDP.

Table 23. Economic Impact Summary: Value Added in 2008
(millions of Dollars)

Industry	Direct	Indirect	Induced	Total
Oil and Gas Extraction	\$10,289.0	\$984.0	\$671.0	\$11,944.0
Oil Refineries	\$336.8	\$1,332.9	\$274.1	\$1,993.8
Retail Gasoline Stations	\$324.1	\$50.1	\$68.0	\$442.2
Natural Gas Distribution	\$129.5	\$129.9	\$46.3	\$305.7
Pipeline Transportation of Natural Gas	\$106.5	\$65.8	\$73.7	\$246.0
Coal Mining	\$466.9	\$122.3	\$115.0	\$704.2
Fossil fuel Electricity Generation	\$331.3	\$55.5	\$43.8	\$386.7
Totals	\$11,944	\$2,741	\$1,292	\$16,023

Table 24. Economic Impact Summary Value Added as Percent of 2008 GDP

Industry	Direct	Indirect	Induced	Total
Oil and Gas Extraction	12.9	1.2	0.8	14.9
Oil Refineries	0.4	1.7	0.3	2.5
Retail Gasoline Stations	0.4	0.1	0.1	0.6
Natural Gas Distribution	0.2	0.2	0.1	0.4
Pipeline Transportation of Natural Gas	0.1	0.1	0.1	0.3
Coal Mining	0.6	0.2	0.1	0.9
Fossil fuel Electricity Generation	0.4	0.1	0.1	0.5
Totals	14.9	3.4	1.6	20.1

The employment impacts of fossil fuel energy sectors in New Mexico are presented in Table 25 and 26. Direct employment in the fossil fuel energy sectors accounted for 27,809 jobs or 3.4 percent of total jobs in the state. Of the direct jobs in fossil fuel industries, 15,904 or 57.2 percent were in the oil and gas extraction sector. Total jobs including indirect and induced employment generated by fossil fuel energy sectors were 65,164 or 7.9 percent of the state total. These jobs are, in general, high productivity and high value added per worker.

For both direct and total jobs in the fossil fuel energy sectors, the percent of state employment is substantially less than the percent of value added in the state economy. Employment in the fossil fuel energy sectors represented a higher percentage of private sector employment (Table 27). Direct fossil fuel energy employment accounted for 4.4 percent of private sector jobs in 2008. Total jobs, including indirect and induced effects accounted for 10.2 percent of private sector employment.

Labor income impact estimates are presented in Table 28 in millions of dollars and Table 29 as a percent of total labor income in the state. Direct employment in fossil fuel energy industries resulted in \$1.9 billion in labor income or 5.0 percent of the state total.

Table 25. Economic Impact Summary 2008: Employment

Industry	Direct	Indirect	Induced	Total
Oil and Gas Extraction	15,904	14,178	11,636	41,718
Oil Refineries	536	1,117	276	1,929
Retail Gasoline Stations	7,490	811	1,200	9,501
Natural Gas Distribution	761	1,184	818	2,763
Pipeline Transportation of Natural Gas	804	1,411	1,342	3,557
Coal Mining	1,445	821	1,166	3,432
Fossil fuel Electricity Generation	869	638	757	2,264
Totals	27,809	20,160	17,195	65,164

Table 26. Economic Impact Summary 2008: Employment as Percent of Total Employment

Industry	Direct	Indirect	Induced	Total
Oil and Gas Extraction	1.9	1.7	1.4	5.1
Oil Refineries	0.1	0.1	0.0	0.2
Retail Gasoline Stations	0.9	0.1	0.1	1.2
Natural Gas Distribution	0.1	0.1	0.1	0.3
Pipeline Transportation of Natural Gas	0.1	0.2	0.2	0.4
Coal Mining	0.2	0.1	0.1	0.4
Fossil fuel Electricity Generation	0.1	0.1	0.1	0.3
Totals	3.4	2.4	2.1	7.9
Total QCEW Employment = 825,782				

Table 27. Economic Impact Summary: Employment as Percent of Private Sector Employment

Industry	Direct	Indirect	Induced	Total
Oil and Gas Extraction	2.5	2.2	1.8	6.5
Oil Refineries	0.1	0.2	0.0	0.3
Retail Gasoline Stations	1.2	0.1	0.2	1.5
Natural Gas Distribution	0.1	0.2	0.1	0.4
Pipeline Transportation of Natural Gas	0.1	0.2	0.2	0.6
Coal Mining	0.2	0.1	0.2	0.5
Fossil fuel Electricity Generation	0.1	0.1	0.1	0.4
Totals	4.4	3.2	2.7	10.2

Total Employment in 2008 from Bureau of Labor Statistics, Quarterly Census of Employment and wages <http://data.bls.gov/PDQ/outside.jsp?survey=en>.
 Total QCEW Private Sector Employment = 638,028

Table 28. Economic Impact Summary 2008: Labor Income (millions of Dollars)

Industry	Direct	Indirect	Induced	Total
Oil and Gas Extraction	\$1,235.0	\$655.0	\$366.0	\$2,256.0
Oil Refineries	\$118.0	\$436.7	\$19.3	\$574.0
Retail Gasoline Stations	\$168.5	\$28.0	\$37.8	\$234.3
Natural Gas Distribution	\$62.2	\$71.0	\$25.7	\$158.9
Pipeline Transportation of Natural Gas	\$84.3	\$115.6	\$41.6	\$241.5
Coal Mining	\$148.2	\$43.4	\$36.7	\$228.3
Fossil fuel Electricity Generation	\$92.7	\$32.8	\$24.5	\$149.9
Totals	\$1,908.9	\$1,382.4	\$551.6	\$3,842.9

Table 29. Economic Impact Summary 2008: Labor Income as Percent of Total Labor Income

Industry	Direct	Indirect	Induced	Total
Oil and Gas Extraction	3.3	1.7	1.0	6.0
Oil Refineries	0.3	1.2	0.1	1.5
Retail Gasoline Stations	0.4	0.1	0.1	0.6
Natural Gas Distribution	0.2	0.2	0.1	0.4
Pipeline Transportation of Natural Gas	0.2	0.3	0.1	0.6
Coal Mining	0.4	0.1	0.1	0.6
Fossil fuel Electricity Generation	0.2	0.1	0.1	0.4
Totals	5.0	3.6	1.5	10.1

Total Labor Income \$37,887.754 million. Source. Table 1.

State fiscal implications of fossil fuel industries in New Mexico are presented in Tables 30 through 32. The direct taxes paid by fossil fuel industries in New Mexico in 2008 are reported in Table 30 in millions of dollars and as a percent of state revenue. The fossil fuel industries accounted for \$1.5 billion in direct revenue to the state or 25.7 percent of state revenues in 2008. The percentage figures differ from those reported in the New Mexico Consensus Revenue forecasts (August 14, 2009). The figures below represent estimates for calendar year 2008, while the state revenue estimates are by Fiscal Year. The figures also differ in the definitions of revenue categories.

The direct tax revenue is likely to be an under-estimate of the taxes paid by the fossil fuel sector because: (a) pipeline transportation of crude oil and ethanol production in the state were not included, (b) cautious estimates of FY2009 tax revenue were used, and (c) corporate income taxes paid directly by fossil fuel firms could not be included due to lack of data.

The indirect taxes generated due to fossil fuel energy sector activity include the gross receipts taxes, personal income taxes, and corporate income taxes resulting from economic activity in those sectors. The indirect taxes are reported in Table 31. These additional taxes totaled \$250.1 million from direct economic activity and a total of \$424.4 million indirect economic activity.

The total of direct and indirect taxes paid as a result of economic activity in the fossil fuel sectors in New Mexico in 2008 are presented in Table 32. The total revenue impact from fossil fuels was \$1.9 billion or 33.2 percent of state revenue.

In sum, the fossil fuel industries in New Mexico in 2008 directly and indirectly accounted for (a) \$16.0 billion in value added or 20.1 percent of the state GDP, (b) 65,164 jobs or 7.9 percent of all jobs in the state, (c) \$1.9 billion in labor income or 5.0 percent of the state total, and (d) \$1.9 billion in state revenue or 33.2 percent of total state revenue.

Table 30. Economic Impact Summary 2008 Direct Taxes from Fossil Fuel Industries (millions of Dollars)

Industry	Direct	Percent of Total	Percent of State Tax Revenue
Oil and Gas Extraction	\$1,098.9	75.4	19.4
Oil Refineries	\$11.7	0.8	0.2
Retail Gasoline Stations	\$142.0	9.7	2.5
Natural Gas Distribution	\$31.8	2.2	0.6
Pipeline Transportation of Natural Gas	\$0.2	0.0	0.0
Coal Mining	\$75.7	5.2	1.3
Fossil fuel Electricity Generation	\$96.8	6.6	1.7
Totals	\$1,457.1	100.0	25.7

Total New Mexico Tax Revenue 2008 \$5,674.5 million. Source. Table 1

Table 31. Economic Impact Summary 2008: Indirect Taxes from Fossil Fuel Industries (millions of Dollars)

Industry	GRT	PIT	CIT	Total	Percent of total
Oil and Gas Extraction	\$160.2	\$74.6	\$17.0	\$251.7	4.4
Oil Refineries	\$40.8	\$19.0	\$4.3	\$64.1	1.1
Retail Gasoline Stations	\$13.8	\$6.4	\$1.5	\$21.7	0.4
Natural Gas Distribution	\$28.4	\$13.2	\$3.0	\$44.7	0.8
Pipeline Transportation of Natural Gas*					0.0
Coal Mining	\$16.2	\$7.5	\$1.7	\$25.5	0.4
Fossil fuel Electricity Generation	\$10.6	\$5.0	\$1.1	\$16.7	0.3
Totals	\$270.1	\$125.7	\$28.6	\$424.4	7.5

*Indirect taxes for pipeline transportation of natural gas included in natural gas distribution

Table 32. Economic Impact Summary 2008: Direct and Indirect Taxes from Fossil Fuel Industries (millions of Dollars)

Industry	Direct	Indirect	Total Taxes	Percent of State Tax Revenue
Oil and Gas Extraction	\$1,098.9	\$251.7	\$1,350.6	23.8
Oil Refineries	\$11.7	\$64.1	\$75.8	1.3
Retail Gasoline Stations	\$142.0	\$21.7	\$163.7	2.9
Natural Gas Distribution	\$31.8	\$44.7	\$76.5	1.3
Pipeline Transportation of Natural Gas				0.0
Coal Mining	\$75.7	\$25.5	\$101.2	1.8
Fossil fuel Electricity Generation	\$96.8	\$16.7	\$113.5	2.0
Totals	\$1,456.9	\$424.4	\$1,881.3	33.2

Total New Mexico Tax Revenue 2008 \$5,674.5 million. Source. Table 1

Pipeline transportation of natural gas included in Natural gas distribution total

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