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The Contributions of the Natural Gas Industry to the U.S. National and State Economies

Final Report

PREPARED FOR:

America's Natural Gas Alliance

PREPARED BY:

IHS Global Insight
24 Hartwell Ave.
Lexington, MA 02421
USA

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Table of Contents

EXECUTIVE SUMMARY	1
Results	1
How the Impacts Were Measured	4
1. INTRODUCTION	6
2. DIRECT EMPLOYMENT	7
Summary	7
Step One: Define Direct Employment Categories Based on BLS Data	7
<i>BLS Data Overview</i>	7
<i>BLS Category Descriptions</i>	9
Step Two: Develop Estimation System for Key Upstream Natural Gas Jobs	9
Step Three: Estimate Natural Gas Portions in the Other Categories	10
3. INDIRECT AND INDUCED EMPLOYMENT AND ECONOMIC IMPACT	11
Summary	11
Tracing the Impact of Natural Gas through the Economy.....	11
Methodology for this Study.....	13
Results by Major Industry Grouping.....	13
4. STATE RESULTS AND ANALYSIS	15
Results.....	15
Methodology for State Analysis.....	15
<i>Direct Employment</i>	15
<i>Indirect and Induced Employment and Economic Impacts</i>	16
5. CONCLUSIONS	18
APPENDIX 1: STATE EMPLOYMENT AND ECONOMIC TABLES	19
APPENDIX 2: DIRECT EMPLOYMENT TABLES BY INDUSTRY BY STATE.....	69
APPENDIX 3: DIRECT EMPLOYMENT SYSTEM FOR UPSTREAM JOBS	76
Summary	76
Categorization of Bureau of Labor Statistics Employment.....	76
Upstream Natural Gas Employment Methodology	76
<i>Linear System Calculations</i>	77
APPENDIX 4: COMPLETING THE DIRECT STATE JOB ESTIMATES	86
Jobs in Natural Gas-Only Industrial Categories	86
<i>Pipeline Transportation of Natural Gas</i>	86
<i>Natural Gas Distribution</i>	87
<i>Natural Gas Liquids Extraction</i>	88
Natural Gas Jobs in Combined Oil/Natural Gas Exploration and Production Categories.....	89
<i>Natural Gas Extraction</i>	89
<i>Drilling Natural Gas Wells (Contract or Fee Basis)</i>	89
<i>Support Activities for Natural Gas Operations [upstream] (Contract or Fee Basis)</i>	89
<i>Definition</i>	89
<i>Results for Upstream Natural Gas Industry Employment</i>	90

Natural Gas Jobs in Other Combined Oil/Natural Gas Categories.....	92
<i>Natural Gas Pipeline Construction</i>	92
<i>Manufacture of Field Machinery and Equipment Used in Natural Gas Operations</i>	94
Natural Gas Jobs in Mixed Industrial Categories.....	95
<i>Building/Repairing of Offshore Platforms Used in Natural Gas Drilling/Production</i>	95
<i>Site Preparation Contractors Used in Natural Gas Operations</i>	101
<i>Geophysical Surveying and Mapping Services Used in Natural Gas Exploration and Development</i>	102
<i>Pump and Pumping Equipment Manufacture, Portion Attributable to Natural Gas Wells</i>	104
<i>Air and Gas Compressor Manufacture, Portion Attributable to Natural Gas Lines</i>	105
APPENDIX 5: BLS DATA BACKGROUND.....	108
QCEW Background.....	108
About NAICS Classification.....	109
Industry Categories Used for Natural Gas Direct Employment.....	109
BLS Industry Descriptions.....	110
Use of Other BLS Data in this Study.....	113
APPENDIX 6: MODELS USED IN QUANTIFYING INDIRECT/INDUCED JOBS AND ECONOMIC IMPACT.....	115
IMPLAN Model.....	115
<i>IMPLAN Software</i>	116
<i>Database</i>	117
<i>IMPLAN Multipliers</i>	119
IHS Global Insight Business Market Insight.....	121
<i>Overview</i>	121
<i>Methodology</i>	121
<i>Detailed County Forecasts</i>	123
<i>Business Market Insight Coverage</i>	123
APPENDIX 7: COMPARISON OF STUDIES.....	125
Introduction.....	125
Comparison with the PriceWaterhouseCooper’s 2007 Study of the Oil and Natural Gas Industry.....	126
Comparison with PWC's 2009 Study of the Oil and Natural Gas Industry.....	127
Comparison with Moore Economics’ Study of the Mining Industry.....	128
Summary.....	128
List of Studies.....	128
GLOSSARY.....	130

Executive Summary

The contribution of natural gas to the U.S. energy economy is clear: according to the U.S. Energy Information Administration, it currently constitutes approximately 25% of total primary energy consumption and 29% of primary energy production in the United States, when measured on a Btu-equivalent basis. Natural gas production is almost double that of crude oil. The role of natural gas in the overall U.S. economy is also significant, but its quantification is more complex. This study represents the first systematic attempt to measure the impact of natural gas on the total U.S. as well as on individual states' economies. No previous report has attempted to quantify the economic impact of the natural gas industry at this study's level of detail.

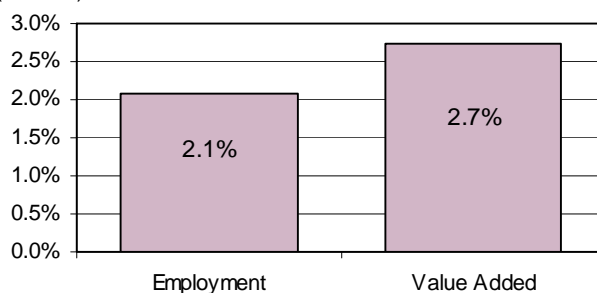
To gauge the place of natural gas in the economy, IHS Global Insight calculated the number of workers, value added, and labor income associated—directly or indirectly—with providing natural gas to consumers. The "induced" impacts caused by the expenditure of natural gas workers' income were also quantified.

Results

Direct, indirect, and induced natural gas related employment equaled 2.1% of total U.S. employment in 2008, while value added from natural gas related activities contributed 2.7% of U.S. output.

Natural Gas Industry Contributions to the U.S. Economy in 2008

(Percent)



Total Natural Gas Employment Was Nearly 3 Million in 2008. IHS Global Insight found 2.8 million jobs attributable to the natural gas industry. More than 600,000 jobs were directly involved in exploring, producing, transporting, and delivering natural gas to consumers or in providing critical supplies or onsite services to the natural gas industry. These jobs are referred to as "direct" jobs. More than 700,000 additional jobs in other industries that supplied the natural gas industry were quantified through modeling techniques; these are referred to as "indirect" jobs. The remaining 1.5 million jobs represent an estimate of the jobs "induced" when workers holding direct and indirect natural gas related jobs spent their income creating a demand for goods and services.

Value Added Economic Impact by Natural Gas Reached \$385 Billion in 2008. The direct economic impact of the natural gas industry, as measured by its value added, is estimated at approximately \$170 billion. Value added equals the value of an industry's output minus the costs of its material and services inputs. Indirect and induced impacts bring the total value added contribution by natural gas to the economy to \$385 billion.

Labor Income from Natural Gas in 2008. Labor income totaled \$70 billion for direct natural gas jobs and over \$180 billion for total (direct, indirect, and induced) jobs.

Natural Gas Impact on the U.S. Economy

	Direct	Indirect & Induced	Total
Employment (Thousands)			
2006	517	1,902	2,420
2007	587	2,106	2,693
2008	622	2,206	2,828
Value Added (Billions of dollars)			
2006	147	184	331
2007	162	202	364
2008	172	213	385
Labor Income (Billions of dollars)			
2006	60	97	157
2007	66	107	173
2008	70	111	181

The Role of Natural Gas Increased During 2006-08. The contributions of the natural gas industry to the U.S. economy increased each year between 2006 and 2008. Direct employment rose by more than 100,000 jobs, while total employment (direct, indirect, and induced) increased by more than 400,000 jobs and value added grew by nearly \$50 billion during the same period.

Natural Gas Contributions Are Spread Across the Country. The influence of the natural gas industry on the economy is spread throughout the continental United States. Although natural gas drilling and production workers are most heavily concentrated in the largest natural-gas producing states, workers in those activities are employed in a majority of the states. Employment in other parts of the natural gas industry, such as transportation and distribution, is even more widespread. In 2008, 33 states had at least 2,000 workers directly involved in natural gas activities, with 22 of these having at least 4,000. All continental states have natural gas related jobs. When indirect and induced jobs are included, 31 states had at least 10,000 jobs related to the natural gas industry.

The economic value of the natural gas industry, as measured by total direct, indirect, and induced value added, accounted for 1% or more of gross state product in 34 states in 2008 and 2% or higher in 17 states.

State-Level Summary of Natural Gas Employment and Economic Contributions in 2008

	Natural Gas Employment (Annual average)				Natural Gas Value Added (\$ millions)			
	Direct	Indirect & Induced	Total	% of State	Direct	Indirect & Induced	Total	% of State
				Total				Total
Alabama	6,583	14,724	21,307	1.1%	1,825	2,950	4,775	2.8%
Alaska	1,703	4,122	5,824	1.8%	611	268	878	1.8%
Arizona	3,337	9,538	12,875	0.5%	811	2,242	3,053	1.2%
Arkansas	9,138	20,668	29,806	2.5%	2,253	3,315	5,568	5.6%
California	43,493	211,720	255,214	1.7%	13,296	23,377	36,673	2.0%
Colorado	30,758	106,968	137,726	5.9%	8,519	9,791	18,309	7.3%
Connecticut	1,694	5,677	7,371	0.4%	507	1,251	1,758	0.8%
Delaware	100	349	449	0.1%	31	97	129	0.2%
Florida	3,448	12,006	15,454	0.2%	832	3,283	4,115	0.6%
Georgia	2,841	8,384	11,224	0.3%	710	2,054	2,764	0.7%
Hawaii	0	0	0	0.0%	0	0	0	0.0%
Idaho	964	2,307	3,272	0.5%	307	588	895	1.7%
Illinois	7,832	37,958	45,790	0.8%	2,129	4,283	6,412	1.0%
Indiana	4,477	12,671	17,148	0.6%	1,191	2,757	3,947	1.5%
Iowa	1,212	2,388	3,600	0.2%	334	724	1,057	0.8%
Kansas	6,134	14,625	20,759	1.5%	2,069	2,231	4,300	3.5%
Kentucky	4,397	9,992	14,389	0.8%	1,429	2,400	3,829	2.4%
Louisiana	62,581	204,010	266,591	13.7%	13,044	11,427	24,471	11.0%
Maine	200	370	571	0.1%	60	110	169	0.3%
Maryland	1,762	5,956	7,718	0.3%	351	1,236	1,587	0.6%
Massachusetts	3,295	11,637	14,932	0.5%	1,049	2,557	3,607	1.0%
Michigan	5,781	17,286	23,067	0.6%	1,844	3,917	5,762	1.5%
Minnesota	2,793	7,731	10,524	0.4%	716	2,032	2,748	1.0%
Mississippi	8,746	18,639	27,385	2.4%	1,495	1,634	3,129	3.4%
Missouri	3,679	9,225	12,904	0.5%	1,150	2,708	3,857	1.6%
Montana	1,620	4,815	6,435	1.4%	483	565	1,049	2.9%
Nebraska	2,286	7,282	9,567	1.0%	685	520	1,205	1.4%
Nevada	2,321	6,000	8,321	0.7%	691	1,476	2,168	1.6%
New Hampshire	252	621	873	0.1%	85	186	271	0.5%
New Jersey	4,880	20,951	25,831	0.6%	1,411	4,105	5,516	1.2%
New Mexico	14,534	31,527	46,062	5.4%	4,303	3,142	7,445	9.3%
New York	7,772	28,875	36,647	0.4%	1,957	6,394	8,352	0.7%
North Carolina	3,104	8,528	11,632	0.3%	803	2,071	2,874	0.7%
North Dakota	1,159	2,579	3,738	1.0%	254	207	461	1.5%
Ohio	9,994	30,380	40,374	0.8%	3,272	6,918	10,190	2.2%
Oklahoma	44,165	130,353	174,519	10.9%	14,789	9,550	24,339	16.6%
Oregon	1,799	5,116	6,915	0.4%	550	1,295	1,845	1.1%
Pennsylvania	12,245	41,308	53,554	0.9%	3,915	9,017	12,932	2.3%
Rhode Island	494	1,632	2,126	0.4%	152	278	431	0.9%
South Carolina	1,152	2,560	3,712	0.2%	364	875	1,239	0.8%
South Dakota	615	1,126	1,742	0.4%	173	273	446	1.2%
Tennessee	3,224	8,681	11,905	0.4%	913	2,658	3,571	1.4%
Texas	249,049	1,020,081	1,269,130	12.0%	69,379	63,229	132,608	10.8%
Utah	8,896	30,339	39,236	3.1%	2,219	3,155	5,374	4.9%
Vermont	96	171	267	0.1%	32	50	82	0.3%
Virginia	4,683	10,362	15,045	0.4%	1,142	2,798	3,939	1.0%
Washington	2,380	8,834	11,214	0.4%	590	1,750	2,340	0.7%
West Virginia	5,652	9,930	15,582	2.0%	1,668	1,317	2,985	4.8%
Wisconsin	1,622	4,101	5,723	0.2%	328	907	1,235	0.5%
Wyoming	21,470	40,836	62,306	20.9%	5,419	2,627	8,045	22.7%
U.S. Total	622,412	2,205,939	2,828,352	2.1%	172,139	212,595	384,735	2.7%

How the Impacts Were Measured

The analysis of the natural gas industry's impact on the U.S. economy was conducted in two parts, as follows.

Part One: Direct Jobs Were Counted. First, direct jobs were measured for the most significant segments of the natural gas industry. The starting point for the analysis was employment data reported by the U.S. Bureau of Labor Statistics (BLS), which sort employment statistics according to the federal government's North American Industrial Classification System (NAICS). A total of 13 industrial categories were identified as being directly related to natural gas, according to the definition of "direct" relationship described previously. Two of the categories (drilling services and support activities for oil and gas operations) were then combined for the analysis of upstream drilling and support activities. The table below shows the natural gas related employment portions of these NAICS categories. Italics indicate estimates by IHS Global Insight to attribute portions of aggregate employment categories to natural gas.

Direct Natural Gas-Related Employment by Industrial Category, U.S. Totals (Annual average workers)

	2006	2007	2008
<i>Natural gas extraction</i>	89,683	99,504	112,064
<i>Drilling and support activities for natural gas operations</i>	148,598	185,514	192,961
Natural gas distribution	115,170	114,941	115,853
<i>Natural gas pipeline construction</i>	56,794	66,137	75,558
<i>Manufacture of field machinery/equipment for natural gas operations</i>	33,794	38,642	41,452
<i>Site preparation services for natural gas operations</i>	25,993	33,329	35,349
Pipeline transportation of natural gas (includes storage)	27,685	27,431	27,078
<i>Geophysical services for natural gas operations</i>	6,108	6,847	7,365
<i>Building/repairing offshore platforms used in natural gas operations</i>	5,111	5,624	5,845
Natural gas liquid extraction	4,670	4,842	5,179
<i>Manufacture of compressors used in natural gas lines</i>	2,196	2,226	2,229
<i>Manufacture of pumps used in natural gas wells</i>	1,431	1,465	1,480
Total Direct Jobs	517,233	586,502	622,412

Note: Italics indicate estimates by IHS Global Insight

Three of 13 industrial categories analyzed were devoted exclusively to natural gas jobs. A variety of methods were used to quantify the portions of the remaining 10 aggregate government employment categories attributable to natural gas and supplement nonpublished-data gaps. These efforts were based on other government and industry information as well as IHS Global Insight in-house data and modeling resources.

For the principal drilling and development employment categories, a methodology was developed to translate expenditures on natural gas drilling and production into jobs. The structure for this system was established by identifying the most important well activities, in consultation with industry experts, and the data were collected from a variety of public and private sources.

Part Two: Model Solutions to Complete the Analysis. Second, the IMPLAN model was used to measure the indirect and induced jobs, value added, and labor income. The IMPLAN model is a widely-used commercially available model based in part on input-output data from the U.S. Bureau of Economic Analysis (BEA). This model traces supply and demand for all products and services using inter-industry and final demand linkages.

For this analysis, the direct natural gas jobs calculated in part one were provided as a key input into a national-level solution of the IMPLAN model. IHS Global Insight's Business Market Insights (BMI) modeling system was then used to provide state-level employment, value added, and labor income figures consistent with the national-level results from the IMPLAN model. The direct employment model results were synchronized with the state-level figures calculated in part one.

1. Introduction

America's Natural Gas Alliance (ANGA) has engaged IHS Global Insight to assess the contributions of the natural gas industry to the U.S. economy. Specifically, IHS Global Insight measured, for the 2006-08 historical period:

- The total number of jobs **directly** attributable to natural gas. These jobs are involved in exploring, producing, transporting, and delivering natural gas to consumers or in providing critical supplies or onsite services to the natural gas industry.
- The total number of jobs **indirectly** involved in providing and delivering natural gas. Indirect employment is defined as the employment in other industries that supply material and labor to the natural gas industry.
- The total number of jobs **induced** by the expenditure of natural gas workers' income.
- The economic value of the natural gas industry as measured by **value added** and labor income associated with these direct, indirect, and induced jobs.
- The **state-level** versions of these measures, in order to assess the contributions of each state in meeting America's natural gas needs.

The analysis was done in two parts. **First**, direct jobs were measured. Government data sets typically combine the oil and natural gas industry for several employment categories, while significant numbers of natural gas related jobs are also embedded in data categories having both energy and non-energy applications. A variety of methods were used to quantify the portions of the aggregate government employment data categories attributable to natural gas. These efforts were based on other government and industry information as well as IHS Global Insight in-house data and modeling resources.

Second, modeling was used to complete the analysis by quantifying the indirect and induced jobs, value added, and labor income, using the direct employment estimates as inputs. The IMPLAN model, a widely-used input-output model, was used in conjunction with IHS Global Insight's Business market Insights modeling system.

The provision of three years of historical data permits a broader understanding of the employment structure in these industries than would a snapshot of a single year of data. The three-year timeframe provides a backdrop against which year-to-year market fluctuations or anomalies can be viewed.

Guide to This Report: Chapters 2 and 3 summarize the methodology and results of this analysis, with Chapter 2 focusing on direct jobs and Chapter 3 devoted to indirect and induced jobs and economic impact. State-level results are summarized and discussed in Chapter 4.

State-level results are detailed in Appendices 1 and 2. Appendices 3-5 provide detail about the direct-employment estimation process, while Appendix 6 provides supplemental information about the model-based analysis. Appendix 7 compares the results of this study with those of similar studies conducted for other portions of the energy industry.

2. Direct Employment

Summary

More than 600,000 workers in 2008 are estimated to have been directly involved in natural gas-related activities, up from more than 500,000 in 2006. "Direct jobs" are generated by upstream exploration and production companies, midstream processing and pipeline transportation companies, downstream local distribution companies, their onsite construction service providers, and their critical suppliers of goods and services.

The analysis of direct employment was conducted within the framework of BLS data in which employment is measured in NAICS industrial categories. For this study, natural gas related portions of several aggregate data categories had to be calculated.

The table below summarizes the resulting direct natural gas related employment in each of 12 industrial categories, which constitute all or parts of 13 NAICS-based industries. State-level data tables for direct employment in these industrial categories are provided in Appendix 2, while direct and total employment figures are sorted by high-level industrial aggregations for each state in Appendix 1.

Direct Natural Gas-Related Employment by Industrial Category, U.S. Totals (Annual average workers)

	Applicable NAICS Category	2006	2007	2008
<i>Natural gas extraction</i>	211111	89,683	99,504	112,064
<i>Drilling and support activities for natural gas operations</i>	213111, 213112	148,598	185,514	192,961
<i>Natural gas distribution</i>	221210	115,170	114,941	115,853
<i>Natural gas pipeline construction</i>	237120	56,794	66,137	75,558
<i>Manufacture of field machinery/equipment for natural gas operations</i>	333132	33,794	38,642	41,452
<i>Site preparation services for natural gas operations</i>	238912	25,993	33,329	35,349
<i>Pipeline transportation of natural gas (includes storage)</i>	486210	27,685	27,431	27,078
<i>Geophysical services for natural gas operations</i>	541360	6,108	6,847	7,365
<i>Manufacture of compressors used in natural gas lines</i>	333912	2,196	2,226	2,229
<i>Manufacture of pumps used in natural gas wells</i>	333911	1,431	1,465	1,480
<i>Building/repairing offshore platforms used in natural gas operations</i>	336611	5,111	5,624	5,845
<i>Natural gas liquid extraction</i>	211112	4,670	4,842	5,179
	Total Direct Jobs	517,233	586,502	622,412

Note: Italics indicate estimates by IHS Global Insight to split natural gas-related employment from larger NAICS data category.

Step One: Define Direct Employment Categories Based on BLS Data

BLS Data Overview

The starting point for the quantification of direct employment was the BLS Quarterly Census of Employment and Wages (QCEW), which provides comprehensive coverage at the six-digit NAICS level. Because of its extensive coverage and thorough updating, this data set is considered definitive. The data are derived from establishments' reports to their state governments related to their contributions to unemployment insurance. The jobs reported represent roughly 97% of all nonfarm jobs in the nation, according to the BLS. Notable exclusions include self-employed individuals (proprietors), such as

landowners with working oil or natural gas wells who contract for production services rather than hire wage or salary workers.

Despite its comprehensiveness, the BLS data had limitations to overcome. Because of overlapping oil and gas activities in many portions of the energy industry—particularly upstream—oil and natural gas employment are combined in several BLS data categories. Other industrial categories serve a broad array of energy and non-energy industries. The natural gas related portions of those employment categories had to be quantified.

Additionally, some of the employment information collected by BLS is not publicly reported if disclosure might reveal individual-company information. Although the suppressed figures are incorporated in higher-level aggregates, the non-disclosure of detailed data prevented full identification of natural gas-related employment in some states. These gaps had to be filled.

**Comparison of Direct U.S. Natural Gas Related Employment with Relevant BLS Employment Categories
(Annual average number of employees)**

	2006	2007	2008
Natural gas liquid extraction (211112)	4,670	4,842	5,179
Pipeline transportation of natural gas (includes storage) (486210)	27,685	27,431	27,078
Natural gas distribution (221210)	115,170	114,941	115,853
Crude petroleum and natural gas extraction (drilling/production etc.) (211111)	130,188	141,239	154,876
<i>Portion attributable to natural gas extraction</i>	<i>89,683</i>	<i>99,504</i>	<i>112,064</i>
Drilling oil and gas wells & support activities for oil & gas operations (contract or fee basis) (213111 & 213112)	250,945	281,625	316,275
<i>Portion attributable to natural gas operations</i>	<i>148,598</i>	<i>185,514</i>	<i>192,961</i>
Oil and gas pipeline construction (237120)	83,408	97,114	111,205
<i>Natural gas pipeline construction</i>	<i>56,794</i>	<i>66,137</i>	<i>75,558</i>
Oil and gas field machinery and equipment, manufacture of (333132)	52,382	60,045	63,847
<i>Manufacture of field machinery/equipment used in natural gas operations</i>	<i>33,794</i>	<i>38,642</i>	<i>41,452</i>
Air and gas compressor manufacturing (333912)	21,964	22,258	22,290
<i>Portion attributable to compressors used in natural gas lines</i>	<i>2,196</i>	<i>2,226</i>	<i>2,229</i>
Pump and pumping equipment manufacturing (333911)	28,613	29,300	29,601
<i>Portion attributable to pumps used in natural gas wells</i>	<i>1,431</i>	<i>1,465</i>	<i>1,480</i>
Geophysical surveying and mapping services (541360)	17,555	18,806	19,035
<i>Portion attributable to natural gas exploration and development</i>	<i>6,108</i>	<i>6,847</i>	<i>7,365</i>
Nonresidential site preparation contractors (on contract or fee basis) (238912)	227,011	231,986	217,184
<i>Portion attributable to natural gas operations</i>	<i>25,993</i>	<i>33,329</i>	<i>35,349</i>
Ship building and repairing (includes oil and gas offshore platforms) (336611) (1)	93,507	99,811	104,441
<i>Building/repairing offshore platforms used in natural gas operations</i>	<i>5,111</i>	<i>5,624</i>	<i>5,845</i>
Total Direct Natural Gas Employment	517,233	586,502	622,412

Natural gas jobs are shaded; italics indicate estimates by IHS Global Insight
(1) Federal government portion excluded from the data for this analysis.

The table above compares U.S. direct employment in the BLS data categories analyzed with the estimated natural gas related portions of each. Except for industry 336611, all natural gas and aggregate figures include both private and government jobs (e.g., those in municipal distribution systems).

- Shading indicates natural gas employment; italics indicate estimates by IHS Global Insight.

BLS Category Descriptions

The BLS's NAICS-based employment data categories used in the direct employment analysis are described briefly below, based on the Department of Census's NAICS definitions. Longer descriptions are included in Appendix 5.

211111 - Crude Petroleum and Natural Gas Extraction: Establishments that explore, develop, and/or produce natural gas or petroleum, including oils from shales or tar sands.

211112 - Natural Gas Liquid Extraction: Establishments that recover liquid hydrocarbons and sulfur from natural gas.

213111 – Drilling Oil and Gas Wells: Establishments that drill oil and gas wells for others on a contract or fee basis.

213112 – Support Activities for Oil and Gas Operations: Establishments that perform support activities for oil and natural gas operations on a contract or fee basis. Site preparation and geophysical work are excluded.

541360 – Geophysical Surveying and Mapping Services: Establishments engaged in gathering, interpreting, and mapping geophysical data for energy, minerals, or other purposes.

238912 – Nonresidential Site Preparation Contractors: Establishments that provide site preparation services for all nonresidential purposes.

333132 – Oil and Gas Field Machinery and Equipment Manufacturing: Establishments that manufacture oil and gas field machinery and equipment.

336611 – Ship Building and Repairing: Establishments that operate a shipyard. Construction of oil and gas offshore floating platforms is encompassed in this category.

486210 – Pipeline Transportation of Natural Gas: Establishments that transport natural gas from processing plants to local distribution systems. Natural gas storage is included in this category.

237120 – Oil and Gas Pipeline Construction: Establishments that build or repair oil and natural gas mainlines and associated structures such as storage tanks and refineries.

221210 – Natural Gas Distribution: Establishments that distribute natural gas delivered to them by companies in industry 486210. Natural gas marketers and brokers are also included.

333911 – Pump and Pumping Equipment Manufacturing: Establishments that manufacture general purpose pumps and pumping equipment. Manufacturers of pumps used in oil and natural gas wells constitute a portion of this industry.

333912 – Air and Gas Compressor Manufacturing: Establishments that manufacture general purpose air and gas compressors. Compressors used in natural gas pipelines should be included.

Step Two: Develop Estimation System for Key Upstream Natural Gas Jobs

The natural gas portions of the aggregate direct employment data categories were estimated using a variety of methods and resources, depending on the nature of each industrial category. For key upstream exploration and production activities, an estimation system was developed based on detailed sets of upstream industry information. This methodology is summarized here and detailed in Appendix 3.

Principal upstream blended oil/gas activities are included in three primary categories of BLS employment: crude oil and natural gas extraction (211111); drilling oil and gas wells by contract or fee (213111); and, support activities for oil and gas operations by contract or fee (213112). A fourth upstream category, nonresidential site preparation (238912), is included in our methodology because the activities occur at the wellhead and are captured by our analysis of drilling expenditures.

Employment in the extraction industry (211111) was shared between natural gas and oil using production shares in each of the 32 producing states. To determine employment in the other principal upstream natural gas industries, IHS Global Insight developed a system for translating expenditures on natural gas drilling and production into jobs by identifying 34 of the most important well activity categories in consultation with industry experts. Expenditures on natural gas drilling provide the most reasonable approach to measuring employment because well costs can vary greatly depending on the geography of each location. Natural gas percentage shares for the 34 categories for completed wells were developed where data were available for specific wells, including Texas, Louisiana, Colorado, and Wyoming, and a common set of percentage shares was developed for the other states by interpolating the data for these four states. Expenditures on dry holes were shared between oil and natural gas in each state to capture that portion of spending and associated employment. The percentage shares of the 34 identified well activity categories for completed wells were adjusted to reflect non-completion and applied to spending on dry holes.

Natural gas employment levels in drilling, support, and site preparation industries were then calculated from the well expenditure data for the sum of completed wells and dry holes based on estimates of the labor versus materials shares of expenditures in each of the 34 categories, multiplied by the labor costs for each type of job. For example, employment in category c is given by:

$$\text{Natural Gas Employment}_c = \text{Expenditure}_c * \text{Labor Share}_c / \text{Wage Rate}_c$$

The necessary information was collected from a variety of public and private sources, including the American Petroleum Institute's Joint Association Survey (JAS) on Drilling Costs. Results were obtained for each of 28 natural gas-producing states included in the JAS data as well as the four natural gas-producing states not reported in the JAS data. Since expenditure data was lacking for these four small natural-gas producing states, natural gas production shares were used to divide employment between oil and natural gas.

Step Three: Estimate Natural Gas Portions in the Other Categories

Quantifying the direct natural gas related jobs in the other aggregate BLS data categories was accomplished with the aid of a variety of government and industry information sources. For instance, industry information about the location and size of the oil and gas platform industry aided the separation of natural gas jobs from the overall shipyard employment category.

Similarly, a variety of information was used to guide the quantification of nonpublished state-level data. For instance, government data from the Department of Energy aided in filling state-level gaps for natural gas pipeline transportation (using state-level line-miles of pipeline data) and natural gas distribution (using state-level data on numbers of customers). Filling gaps in state data was also aided by information provided directly by companies or from individual company websites, and by partial employment information that had been published for previous years.

Appendix 4 discusses in detail the process of completing the state data in each direct employment category.

3. Indirect and Induced Employment and Economic Impact

Summary

More than 700,000 workers are estimated to have been indirectly involved in natural gas related activities in 2008, somewhat more than those estimated to have been in jobs directly related to natural gas. These indirect jobs are located in industries that supply the industries directly related to natural gas. An additional 1.5 million jobs are estimated to have been induced when workers holding direct and indirect natural gas related jobs spent their income creating a demand for goods and services.

Summary of Natural Gas Impact on the U.S. Economy

	Direct	Indirect	Induced	Total
Employment (Average annual workers)				
2006	517,233	620,078	1,282,267	2,419,579
2007	586,502	693,975	1,412,060	2,692,537
2008	622,412	723,121	1,482,818	2,828,352
Value Added (Millions of dollars)				
2006	146,617	81,070	103,260	330,948
2007	161,913	88,720	113,752	364,385
2008	172,139	92,529	120,067	384,735
Labor Income (Millions of dollars)				
2006	60,076	42,586	54,008	156,670
2007	66,086	47,045	59,475	172,606
2008	69,923	48,859	62,451	181,233

Note: Numbers may not sum because of rounding.

The indirect and induced jobs were quantified through input-output modeling, using the IMPLAN model and IHS Global Insight's Business Market Insight modeling system. This modeling effort also produced estimates of value added and labor income related to direct, indirect, and induced natural gas jobs. Value added equals the value of an industry's output minus the costs of its material and services inputs. In 2008, direct, indirect, and induced value added related to natural gas totaled \$385 billion, or 2.7% of total U.S. economic output.

Tracing the Impact of Natural Gas through the Economy

The economic importance and impact of an industry can be traced through all U.S. industrial sectors as well as the macroeconomy. In this section, we define key terms and the conceptual framework that underlies the analysis of the impact of natural gas on the economy. Documentation of the models used is provided in Appendix 6.

The primary objective of this type of study is to present a complete account of how various activities of a given industry—in this case, natural gas—flow through the economy. Any dollar of industrial revenue results in both direct and indirect repercussions on final demand; furthermore, any dollar of trade expenditure also results in indirect repercussions on final demand.

- For example, a theoretical reduction of natural gas production, keeping everything else constant, would lead to less revenue and output in the utility industry. This decline would then result in lower U.S. demand for pipeline and transports, which in turn requires less energy products such

as gasoline and electricity. These repercussions are only a few in the chain resulting from the isolated initial change in an industry.

Since natural gas is a major source of energy for many of the primary goods industries, almost all agriculture, mining, and manufacturing sectors would be indirectly impacted by a change in the natural gas industry. The impact on each industry would have repercussions on all other producing industries, magnifying the indirect impact due to the chain process.

- The change in primary good industries would impact domestic production and impacts trade.
- The limitation on imports could increase domestic production; however, due to the short-term adjustment period, purchasers of the import products would experience a shortage of input and a reduction in their output.
- Purchasers of import products can be final users such as consumers and investors or intermediate good users or primary products. In both cases, purchasers will experience a change in usage.

The net effects of these changes on the U.S. economy and its industrial sectors, due to the direct impact, are divided into two stages: indirect impact and expenditure-induced impact.

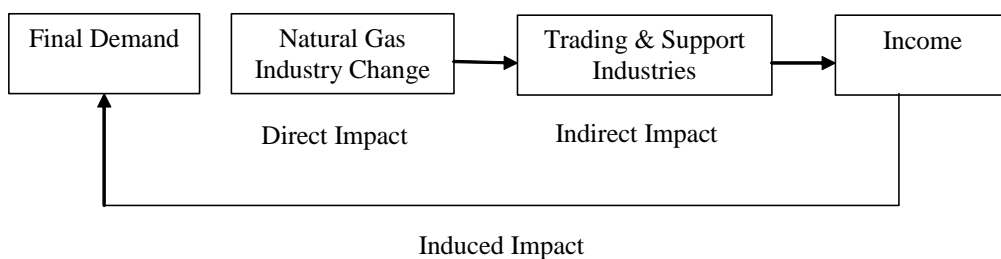
The direct impact, as explained in previous chapters, is the effect of an industrial sector on the core industry's output, employment, and income. A detailed industry model (IHS Global Insight utilized the IMPLAN model) can evaluate that change in the context of a linked comprehensive industrial structure of a given economy.

- For instance, the total number of direct natural gas jobs was calculated for 2006-08, as described in the previous chapter. The mechanism through which these direct jobs are analyzed in the context of input-output modeling is as an inputted "change."

The change in purchasing activities of an industry and immediate impact on the agriculture, mining, and manufacturing sectors leads to indirect impacts on output, employment, and income that are attributable to those sectors, their suppliers, and suppliers' inter-industry linkages. Supplier activities will include the majority of industries in the United States.

Finally, because workers and their families in both the direct and indirect industries spend their income on food, housing, autos, household appliances, furniture, clothing, and other consumer items, additional output, employment, and income effects are part of the expenditure-induced impact. The following chart depicts this flow.

The Flow of Natural Gas Change through the Economy



The direct and indirect impacts represent all of the production, marketing, and sales activities that are required to bring the primary products to the marketplace in a consumable form. The use of input/output analysis allows one to analyze and quantify indirect and induced impacts. The sum of all impacts

relative to the total size of the economy provides initial benchmark estimates to evaluate the importance of a given industry.

Methodology for this Study

IHS Global Insight used the IMPLAN model to quantify the contribution of the natural gas industry to the U.S. economy. The IMPLAN model closely follows the accounting conventions used in the Bureau of Economic Analysis's (BEA's) definitive 1980 study, *Input-Output Study of the U.S. Economy*, and is flexible enough to evaluate the change via the value of output or employment from the source industry. When possible, IHS Global Insight customized the IMPLAN model by creating a separate "natural gas industry" from the combined oil and natural gas industry. This customization was used for two sectors, (1) oil and natural gas extraction, and (2) pipeline transportation. This process allowed for the examination of impacts of selected large sectors of the natural gas industry and its interactions with other sectors. For other combined sectors, IHS Global Insight used the existing production function (from the aggregate category) for the analysis.

IHS Global Insight used its propriety regional model and database, Business Market Insight (BMI), and constructed a process model to allocate the national results by industry and state. BMI provided detailed numbers of establishments, employment, value added, and value of output by 6 digit NAICS categories and all counties in the US.

Results by Major Industry Grouping

The following table displays the U.S. indirect and induced employment totals that were estimated by the IMPLAN model as being linked to the direct natural gas jobs that were defined previously. They are presented for each of nine broad NAICS super sectors. (The FIRE sector refers to finance, insurance, and real estate.)

U.S. Total Employment Related to Natural Gas

<i>Industry Name</i>		<i>Direct</i>	<i>Indirect</i>	<i>Induced</i>	<i>Total</i>
	2006				
Natural Resources		242,951	50,387	32,309	325,647
Transportation & Utilities		142,855	57,446	52,907	253,208
Construction		82,787	12,558	8,214	103,559
Wholesale & Retail Trade		0	42,584	246,546	289,130
Manufacturing		42,533	68,225	72,710	183,468
FIRE & Leasing		0	63,129	141,477	204,607
Information & Professional Services		6,108	251,650	437,900	695,657
Leisure & Other Services		0	69,422	247,832	317,253
Miscellaneous		0	4,678	42,372	47,050
	Total Industry	517,233	620,078	1,282,267	2,419,579
	2007				
Natural Resources		289,860	52,237	35,579	377,675
Transportation & Utilities		142,372	63,361	58,261	263,994
Construction		99,466	13,162	9,046	121,674
Wholesale & Retail Trade		0	48,680	271,503	320,183
Manufacturing		47,957	78,067	80,068	206,092
FIRE & Leasing		0	70,929	155,799	226,727
Information & Professional Services		6,847	280,766	482,225	769,839
Leisure & Other Services		0	81,469	272,918	354,387
Miscellaneous		0	5,303	46,661	51,964
	Total Industry	586,502	693,975	1,412,060	2,692,537
	2008				
Natural Resources		310,203	53,569	37,336	401,109
Transportation & Utilities		142,931	65,768	61,181	269,880
Construction		110,907	13,381	9,499	133,788
Wholesale & Retail Trade		0	51,070	285,115	336,185
Manufacturing		51,006	82,148	84,078	217,232
FIRE & Leasing		0	74,084	163,609	237,693
Information & Professional Services		7,365	292,493	506,399	806,257
Leisure & Other Services		0	85,052	286,601	371,653
Miscellaneous		0	5,556	49,000	54,556
	Total Industry	622,412	723,121	1,482,818	2,828,352

Note: Numbers may not sum because of rounding.

4. State Results and Analysis

Results

The influence of the natural gas industry on the economy is spread throughout the continental United States. Although natural gas drilling and production workers are most heavily concentrated in the largest natural-gas producing states, workers in those activities are employed in a majority of the states. Employment in other parts of the natural gas industry, such as transportation and distribution, is more widespread. Moreover, indirect and induced jobs permeate the country. In 2008, 33 states had at least 2,000 workers *directly* involved in natural gas activities, with 22 of these states having at least 4,000. All continental states have natural gas related jobs. When indirect and induced jobs are included, 31 states had at least 10,000 jobs related to the natural gas industry.

The economic value of the natural gas industry, as measured by total direct, indirect, and induced value added, accounted for 1% or more of gross state product in 34 states in 2008 and 2% or more in 17 states.

State-by-state variations in indirect, induced, and total multipliers reflect both the size of the states' natural gas industry size and their relative dependence on other industrial sectors. (Multipliers refer to the size of indirect, induced, or total economic or labor results relative to their direct values.) States with high levels of industrial diversification exhibit larger indirect (and induced) impacts of the natural gas industry, hence exhibiting higher than average multipliers. Examples include California, Texas, New Jersey and Washington.

Indirect employment and economic impacts of the natural gas industry occur first in the intra-state industrial sectors, followed by the inter-state contributions. Expenditure-induced impacts depend on changes of income by industry and state. States such as Louisiana, Oklahoma, Texas and Wyoming, with high degrees of economic dependency on the energy sectors, typically show higher than average employment and value added impacts as percentages of state totals. States with minimum production of natural gas, such as the New England states and Delaware, exhibit low indirect and induced employment and economic impacts.

The state ranking of the natural gas share of state totals for employment and value added depends on a variety of factors such as state wage differentials, other income, and state tax structures.

State-by-state results tables are provided in Appendix 1.

Methodology for State Analysis

Direct Employment

BLS employment data had to be supplemented using IHS Global Insight's various quantification procedures in order to complete the state-level direct natural gas employment data set. Various state-level industry data and information was used to assist in supplementing unpublished data in the natural gas-only employment categories and separating natural gas components from mixed-industry categories. The estimation of direct employment is summarized in Chapter 2 and discussed in detail in Appendices 3 and 4.

Indirect and Induced Employment and Economic Impacts

IHS Global Insight used its proprietary regional model and database, the Business Market Insight (BMI) system, to arrive at the indirect and induced impacts of the natural gas industry by state and sector. The national industrial results from IMPLAN were linked with the BMI sectoral breakdown to construct a common industrial framework. Given that BMI provides number of establishment, employment, output, and value added by detailed industry grouping and county, the process of deriving the state-level indirect and induced impacts was as follows:

- National level indirect impact by industry was allocated by state using BMI employment distribution by industry and state.
- National level induced impact by industry was allocated similarly.
- Indirect and induced employment multipliers were calculated by state and cross examined versus state intensity of direct job activity. If necessary, the impacts were adjusted by industry and state.
- The new set of indirect and induced impacts were scaled to line up to national estimates from the IMPLAN model.
- The last two steps were repeated in an iterative fashion until convergence.

This process model produced estimates of indirect and induced employment impact by industry and state which are consistent with the IMPLAN national results.

Assuming minimum wage rate and value added per employee differentials by state, the U.S. direct value added and labor income impacts were allocated by industry and sector using the employment distribution. For indirect and induced impacts of value added and labor income, the same allocation process and adjustment were utilized. In this process, IHS Global Insight employed state and industrial value added in the initial estimation.

The findings on total employment and economic impacts by state exhibit variations in multipliers. For those state with high intensity of natural gas and natural gas related jobs, total multipliers are higher than the average and visa versa for other states with less natural gas job concentration. As the intensity of natural gas industry increases in a given region, more interaction with other industries will be required first from intra-state and second with inter-state. Higher than average indirect impacts will be followed by higher income effects, producing higher multipliers and economic impacts.

State Summary of Economic Contributions of Natural Gas Industry in 2008

	Natural Gas Employment (Annual average)				Natural Gas Value Added (\$ millions)			
	Direct	Indirect & Induced	Total	% of State Total	Direct	Indirect & Induced	Total	% of State Total
Alabama	6,583	14,724	21,307	1.1%	1,825	2,950	4,775	2.8%
Alaska	1,703	4,122	5,824	1.8%	611	268	878	1.8%
Arizona	3,337	9,538	12,875	0.5%	811	2,242	3,053	1.2%
Arkansas	9,138	20,668	29,806	2.5%	2,253	3,315	5,568	5.6%
California	43,493	211,720	255,214	1.7%	13,296	23,377	36,673	2.0%
Colorado	30,758	106,968	137,726	5.9%	8,519	9,791	18,309	7.3%
Connecticut	1,694	5,677	7,371	0.4%	507	1,251	1,758	0.8%
Delaware	100	349	449	0.1%	31	97	129	0.2%
Florida	3,448	12,006	15,454	0.2%	832	3,283	4,115	0.6%
Georgia	2,841	8,384	11,224	0.3%	710	2,054	2,764	0.7%
Hawaii	0	0	0	0.0%	0	0	0	0.0%
Idaho	964	2,307	3,272	0.5%	307	588	895	1.7%
Illinois	7,832	37,958	45,790	0.8%	2,129	4,283	6,412	1.0%
Indiana	4,477	12,671	17,148	0.6%	1,191	2,757	3,947	1.5%
Iowa	1,212	2,388	3,600	0.2%	334	724	1,057	0.8%
Kansas	6,134	14,625	20,759	1.5%	2,069	2,231	4,300	3.5%
Kentucky	4,397	9,992	14,389	0.8%	1,429	2,400	3,829	2.4%
Louisiana	62,581	204,010	266,591	13.7%	13,044	11,427	24,471	11.0%
Maine	200	370	571	0.1%	60	110	169	0.3%
Maryland	1,762	5,956	7,718	0.3%	351	1,236	1,587	0.6%
Massachusetts	3,295	11,637	14,932	0.5%	1,049	2,557	3,607	1.0%
Michigan	5,781	17,286	23,067	0.6%	1,844	3,917	5,762	1.5%
Minnesota	2,793	7,731	10,524	0.4%	716	2,032	2,748	1.0%
Mississippi	8,746	18,639	27,385	2.4%	1,495	1,634	3,129	3.4%
Missouri	3,679	9,225	12,904	0.5%	1,150	2,708	3,857	1.6%
Montana	1,620	4,815	6,435	1.4%	483	565	1,049	2.9%
Nebraska	2,286	7,282	9,567	1.0%	685	520	1,205	1.4%
Nevada	2,321	6,000	8,321	0.7%	691	1,476	2,168	1.6%
New Hampshire	252	621	873	0.1%	85	186	271	0.5%
New Jersey	4,880	20,951	25,831	0.6%	1,411	4,105	5,516	1.2%
New Mexico	14,534	31,527	46,062	5.4%	4,303	3,142	7,445	9.3%
New York	7,772	28,875	36,647	0.4%	1,957	6,394	8,352	0.7%
North Carolina	3,104	8,528	11,632	0.3%	803	2,071	2,874	0.7%
North Dakota	1,159	2,579	3,738	1.0%	254	207	461	1.5%
Ohio	9,994	30,380	40,374	0.8%	3,272	6,918	10,190	2.2%
Oklahoma	44,165	130,353	174,519	10.9%	14,789	9,550	24,339	16.6%
Oregon	1,799	5,116	6,915	0.4%	550	1,295	1,845	1.1%
Pennsylvania	12,245	41,308	53,554	0.9%	3,915	9,017	12,932	2.3%
Rhode Island	494	1,632	2,126	0.4%	152	278	431	0.9%
South Carolina	1,152	2,560	3,712	0.2%	364	875	1,239	0.8%
South Dakota	615	1,126	1,742	0.4%	173	273	446	1.2%
Tennessee	3,224	8,681	11,905	0.4%	913	2,658	3,571	1.4%
Texas	249,049	1,020,081	1,269,130	12.0%	69,379	63,229	132,608	10.8%
Utah	8,896	30,339	39,236	3.1%	2,219	3,155	5,374	4.9%
Vermont	96	171	267	0.1%	32	50	82	0.3%
Virginia	4,683	10,362	15,045	0.4%	1,142	2,798	3,939	1.0%
Washington	2,380	8,834	11,214	0.4%	590	1,750	2,340	0.7%
West Virginia	5,652	9,930	15,582	2.0%	1,668	1,317	2,985	4.8%
Wisconsin	1,622	4,101	5,723	0.2%	328	907	1,235	0.5%
Wyoming	21,470	40,836	62,306	20.9%	5,419	2,627	8,045	22.7%
U.S. Total	622,412	2,205,939	2,828,352	2.1%	172,139	212,595	384,735	2.7%

5. Conclusions

- Direct, indirect, and induced natural gas related employment exceeded 2.8 million in 2008, accounting for 2.1% of total U.S. employment in 2008.
- Value added from natural gas related activities contributed 2.7% of U.S. output in 2008.
- Texas has by far the most direct and indirect natural gas related jobs, but the influence of the natural gas industry on the economy is spread throughout the continental United States. In 2008, 31 states had at least 10,000 direct, indirect, and induced jobs related to natural gas.
- Measurement of direct employment related to natural gas requires extensive analysis to identify natural gas related components of key oil/natural gas combined industries (e.g., production, drilling services) or mixed-industry employment categories (e.g., offshore platform construction and repair).
- Identification of direct employment at the state level requires additional efforts to supplement data that have been collected but not published.
- Input-output modeling methods are required to fully quantify indirect employment, that is, jobs in industries that provide goods and services to the direct natural gas activities. These jobs are embedded within a large variety of industries.
- A full quantification of natural gas employment must also consider induced effects, that is, jobs induced when workers holding direct and indirect natural gas jobs spend their income, creating a demand for goods and services. These jobs are also best estimated through input-output modeling.
- Other economic impacts, such as labor income and value added, can also be calculated with input-output modeling.

Appendix 1: State Employment and Economic Tables

Alaska	Employment		Value Added		Labor Income	
	Direct	Total	Direct (Dollars)	Value Added Total (Dollars)	Direct (Dollars)	Total (Dollars)
2006						
Natural Resources	1,161	1,444	473,720,058	577,171,258	155,348,130	204,636,958
Transportation & Utilities	190	712	63,869,482	112,397,604	26,413,793	56,098,460
Construction	416	468	23,342,211	27,315,998	20,865,673	24,819,376
Wholesale & Retail Trade	-	612	-	20,082,509	-	10,559,554
Manufacturing	-	153	-	3,996,651	-	2,494,242
FIRE & Leasing	-	431	-	30,996,381	-	10,094,964
Information & Professional Services	2	1,325	168,276	46,245,027	167,423	34,169,645
Leisure & Other Services	-	924	-	18,051,675	-	11,982,228
Miscellaneous	-	170	-	32,589,665	-	2,426,963
Total Industry	1,770	6,238	561,100,026	868,846,768	202,795,019	357,282,390
2007						
Natural Resources	1,131	1,383	493,591,168	589,630,183	160,660,271	210,670,050
Transportation & Utilities	232	707	77,988,185	123,146,204	32,252,710	62,407,681
Construction	322	366	18,040,152	21,936,200	16,126,147	20,330,508
Wholesale & Retail Trade	-	567	-	19,831,087	-	11,339,143
Manufacturing	-	152	-	4,015,179	-	2,721,904
FIRE & Leasing	-	401	-	30,756,455	-	11,051,749
Information & Professional Services	3	1,223	231,877	46,190,765	230,702	37,477,126
Leisure & Other Services	-	882	-	18,186,207	-	13,210,204
Miscellaneous	-	158	-	31,896,634	-	2,597,539
Total Industry	1,688	5,839	589,851,381	885,588,914	209,269,831	371,805,905
2008						
Natural Resources	1,073	1,314	498,439,529	583,438,152	161,067,481	212,140,335
Transportation & Utilities	274	752	92,106,279	131,544,573	38,091,373	68,537,011
Construction	352	394	19,728,502	23,261,332	17,635,367	21,981,559
Wholesale & Retail Trade	-	563	-	18,454,549	-	11,989,659
Manufacturing	-	155	-	3,564,588	-	2,723,763
FIRE & Leasing	-	390	-	28,020,040	-	11,678,025
Information & Professional Services	4	1,221	266,733	42,566,283	265,382	39,713,228
Leisure & Other Services	-	878	-	17,147,674	-	14,235,487
Miscellaneous	-	156	-	30,367,632	-	2,791,801
Total Industry	1,703	5,824	610,541,044	878,364,825	217,059,604	385,790,868

Alabama

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	1,334	1,654	560,097,311	634,567,345	183,116,779	214,175,280
Transportation & Utilities	3,136	3,948	1,095,105,008	1,395,256,518	487,804,157	624,080,578
Construction	839	989	47,063,017	64,078,416	42,069,774	56,344,123
Wholesale & Retail Trade	-	2,180	-	373,703,601	-	199,219,059
Manufacturing	368	2,540	28,739,656	436,420,045	25,231,765	246,152,473
FIRE & Leasing	-	1,191	-	362,000,447	-	136,641,070
Information & Professional Services	168	4,614	11,515,930	724,318,276	11,457,580	522,899,629
Leisure & Other Services	-	1,993	-	139,854,271	-	91,099,428
Miscellaneous	-	375	-	294,891,824	-	27,265,640
Total Industry	5,846	19,485	1,742,520,921	4,425,090,743	749,680,054	2,117,877,280
2007						
Natural Resources	1,430	1,760	588,395,188	658,755,980	192,706,536	222,920,932
Transportation & Utilities	3,124	3,973	1,091,965,693	1,407,387,434	487,266,689	630,342,268
Construction	1,046	1,196	58,667,512	75,605,332	52,443,069	66,464,025
Wholesale & Retail Trade	-	2,275	-	398,244,206	-	212,523,448
Manufacturing	504	2,837	38,612,000	483,747,160	34,419,385	277,807,512
FIRE & Leasing	-	1,252	-	390,274,495	-	147,197,220
Information & Professional Services	177	4,782	12,119,179	744,194,674	12,057,773	544,218,360
Leisure & Other Services	-	2,084	-	148,524,248	-	97,042,366
Miscellaneous	-	393	-	315,535,198	-	29,190,157
Total Industry	6,282	20,552	1,789,759,572	4,622,268,726	778,893,453	2,227,706,286
2008						
Natural Resources	1,441	1,778	591,266,554	660,161,553	193,513,306	222,840,058
Transportation & Utilities	3,169	4,044	1,108,689,252	1,441,751,709	495,551,353	642,762,176
Construction	1,184	1,331	66,382,759	83,357,935	59,339,748	72,891,617
Wholesale & Retail Trade	-	2,324	-	414,865,811	-	218,687,852
Manufacturing	600	3,079	45,462,229	518,155,248	40,873,579	298,179,131
FIRE & Leasing	-	1,307	-	407,033,150	-	154,418,679
Information & Professional Services	190	4,886	12,991,273	763,485,926	12,925,448	555,263,892
Leisure & Other Services	-	2,150	-	155,076,391	-	100,051,467
Miscellaneous	-	408	-	330,722,350	-	29,966,993
Total Industry	6,583	21,307	1,824,792,067	4,774,610,073	802,203,433	2,295,061,866

Arkansas

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	2,902	3,422	846,429,998	959,485,022	289,474,026	339,817,230
Transportation & Utilities	1,784	3,086	665,299,143	1,075,626,004	331,124,054	538,392,425
Construction	544	658	30,509,156	40,224,118	27,272,228	36,133,183
Wholesale & Retail Trade	-	1,656	-	267,722,044	-	148,057,317
Manufacturing	29	2,085	3,684,618	277,676,934	2,224,898	163,501,779
FIRE & Leasing	-	924	-	237,065,585	-	92,141,869
Information & Professional Services	53	4,104	3,657,599	568,603,177	3,639,066	415,731,545
Leisure & Other Services	-	1,617	-	102,271,971	-	69,367,116
Miscellaneous	-	282	-	213,372,145	-	19,919,948
Total Industry	5,312	17,836	1,549,580,515	3,742,047,001	653,734,272	1,823,062,412
2007						
Natural Resources	4,471	5,210	1,224,951,920	1,384,283,733	422,775,176	491,593,758
Transportation & Utilities	1,651	3,297	618,077,799	1,072,567,854	309,541,738	532,634,653
Construction	1,183	1,328	66,341,475	78,039,010	59,302,849	69,573,622
Wholesale & Retail Trade	-	2,248	-	345,208,902	-	187,693,534
Manufacturing	30	2,785	3,766,568	354,999,285	2,279,927	205,745,170
FIRE & Leasing	-	1,273	-	311,814,150	-	119,726,125
Information & Professional Services	57	5,608	3,891,298	741,841,797	3,871,581	531,825,789
Leisure & Other Services	-	2,245	-	133,159,987	-	88,954,665
Miscellaneous	-	388	-	271,883,112	-	25,146,032
Total Industry	7,391	24,382	1,917,029,059	4,693,797,830	797,771,271	2,252,893,348
2008						
Natural Resources	5,592	6,511	1,547,517,198	1,743,592,053	533,076,727	613,654,786
Transportation & Utilities	1,586	3,451	592,346,699	1,108,722,063	295,476,561	536,033,332
Construction	1,870	2,044	104,891,311	118,766,122	93,762,657	105,341,916
Wholesale & Retail Trade	-	2,749	-	418,791,275	-	222,406,508
Manufacturing	30	3,408	3,788,997	424,888,831	2,282,370	240,255,350
FIRE & Leasing	-	1,542	-	376,865,138	-	141,478,628
Information & Professional Services	60	6,841	4,122,737	890,563,257	4,101,848	626,674,681
Leisure & Other Services	-	2,783	-	161,079,179	-	105,518,463
Miscellaneous	-	477	-	324,726,369	-	29,343,181
Total Industry	9,138	29,806	2,252,666,941	5,567,994,287	928,700,163	2,620,706,844

Arizona

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	114	192	26,043,529	44,291,854	9,257,092	21,173,867
Transportation & Utilities	2,053	2,412	706,325,978	822,120,399	305,951,186	365,022,480
Construction	592	732	33,181,196	51,707,522	29,660,772	46,063,877
Wholesale & Retail Trade	-	1,340	-	270,789,196	-	152,232,625
Manufacturing	1	358	151,846	98,852,350	102,069	58,743,115
FIRE & Leasing	-	1,058	-	529,765,491	-	201,923,772
Information & Professional Services	-	3,218	-	558,361,596	-	421,181,169
Leisure & Other Services	-	1,493	-	145,262,994	-	97,730,787
Miscellaneous	-	185	-	161,639,045	-	15,859,395
Total Industry	2,760	10,988	765,702,549	2,682,790,446	344,971,120	1,379,931,087
2007						
Natural Resources	149	233	34,147,388	54,476,290	12,130,275	24,986,317
Transportation & Utilities	2,084	2,461	717,793,390	841,992,949	311,682,559	373,144,188
Construction	707	835	39,663,768	56,979,784	35,455,564	50,019,175
Wholesale & Retail Trade	-	1,401	-	297,950,135	-	162,387,229
Manufacturing	2	375	162,692	106,186,046	109,359	60,663,638
FIRE & Leasing	-	1,100	-	560,107,232	-	210,172,190
Information & Professional Services	-	3,325	-	618,720,032	-	454,374,053
Leisure & Other Services	-	1,555	-	161,582,396	-	105,710,947
Miscellaneous	-	194	-	178,999,692	-	16,987,571
Total Industry	2,941	11,480	791,767,238	2,876,994,559	359,377,757	1,458,445,309
2008						
Natural Resources	266	366	60,649,482	83,339,376	21,578,518	35,328,766
Transportation & Utilities	1,999	2,440	690,495,575	823,839,635	301,381,854	365,370,661
Construction	1,070	1,191	60,036,928	76,182,156	53,667,190	66,501,654
Wholesale & Retail Trade	-	1,555	-	320,608,332	-	169,965,850
Manufacturing	2	425	162,675	112,653,609	109,348	62,230,381
FIRE & Leasing	-	1,218	-	596,033,032	-	219,010,053
Information & Professional Services	-	3,707	-	670,748,327	-	481,311,937
Leisure & Other Services	-	1,749	-	174,014,005	-	111,241,826
Miscellaneous	-	224	-	195,550,010	-	18,001,799
Total Industry	3,337	12,875	811,344,660	3,052,968,484	376,736,910	1,528,962,928

California

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	1,782	4,871	865,031,655	1,404,150,716	278,806,830	482,442,997
Transportation & Utilities	34,365	42,670	11,655,332,262	12,556,703,312	4,908,401,588	5,350,459,348
Construction	4,487	6,664	251,686,657	360,824,845	224,983,469	313,529,463
Wholesale & Retail Trade	-	30,142	-	2,487,032,482	-	1,299,111,165
Manufacturing	285	14,900	31,759,403	1,541,192,389	22,668,910	836,013,017
FIRE & Leasing	-	23,946	-	5,142,517,938	-	1,950,160,118
Information & Professional Services	29	80,395	1,968,003	7,405,039,347	1,958,031	4,984,426,246
Leisure & Other Services	-	40,696	-	1,810,613,138	-	1,191,069,648
Miscellaneous	-	4,573	-	1,324,441,937	-	118,827,256
Total Industry	40,949	248,856	12,805,777,979	34,032,516,103	5,436,818,828	16,526,039,258
2007						
Natural Resources	2,383	5,542	1,004,942,141	1,513,723,981	328,254,136	523,368,739
Transportation & Utilities	34,715	43,364	11,772,931,545	12,708,957,977	4,957,036,487	5,407,100,494
Construction	5,849	7,870	328,033,051	429,199,094	293,229,753	372,717,776
Wholesale & Retail Trade	-	31,131	-	2,677,237,746	-	1,377,550,651
Manufacturing	437	15,817	47,364,068	1,668,393,154	36,209,192	902,570,588
FIRE & Leasing	-	23,858	-	5,355,175,447	-	2,022,594,227
Information & Professional Services	56	82,558	3,837,945	7,878,658,305	3,818,499	5,253,575,539
Leisure & Other Services	-	43,371	-	1,997,395,792	-	1,308,093,471
Miscellaneous	-	4,765	-	1,446,002,179	-	127,628,165
Total Industry	43,439	258,276	13,157,108,750	35,674,743,674	5,618,548,067	17,295,199,649
2008						
Natural Resources	2,393	5,549	1,115,468,997	1,675,585,970	360,328,046	560,444,661
Transportation & Utilities	34,819	43,466	11,807,823,323	12,776,593,553	4,971,464,545	5,419,942,876
Construction	5,853	7,597	328,277,030	421,140,721	293,447,822	362,462,784
Wholesale & Retail Trade	-	30,425	-	2,778,475,927	-	1,384,044,531
Manufacturing	379	15,889	41,309,575	1,726,200,875	31,169,633	909,720,347
FIRE & Leasing	-	22,729	-	5,553,677,024	-	2,024,273,585
Information & Professional Services	50	81,599	3,439,490	8,138,404,438	3,422,062	5,303,220,839
Leisure & Other Services	-	43,235	-	2,073,841,485	-	1,329,016,851
Miscellaneous	-	4,725	-	1,529,572,387	-	130,014,774
Total Industry	43,493	255,214	13,296,318,414	36,673,492,379	5,659,832,108	17,423,141,246

Colorado

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	13,541	15,345	4,828,447,047	5,563,796,934	1,607,948,651	1,840,374,984
Transportation & Utilities	2,290	6,397	840,292,097	1,318,310,597	407,601,446	657,042,148
Construction	4,738	5,684	265,741,229	318,408,318	237,546,893	284,805,664
Wholesale & Retail Trade	-	11,083	-	692,262,122	-	383,068,701
Manufacturing	140	3,481	14,475,431	311,677,288	12,333,685	177,949,050
FIRE & Leasing	-	10,116	-	1,227,486,950	-	494,060,126
Information & Professional Services	427	28,845	29,224,538	2,442,312,616	29,076,459	1,698,133,662
Leisure & Other Services	-	15,170	-	488,763,474	-	328,459,878
Miscellaneous	-	1,715	-	466,771,211	-	42,357,868
Total Industry	21,137	97,837	5,978,180,341	12,829,789,510	2,294,507,134	5,906,252,082
2007						
Natural Resources	17,512	19,697	6,169,378,161	7,014,559,857	2,056,882,480	2,318,758,512
Transportation & Utilities	1,972	6,948	734,169,314	1,238,400,551	364,398,279	629,089,154
Construction	6,504	7,586	364,816,138	426,791,171	326,110,268	380,539,731
Wholesale & Retail Trade	-	13,556	-	888,921,709	-	490,983,297
Manufacturing	166	4,290	17,141,302	385,594,334	14,607,444	220,749,831
FIRE & Leasing	-	12,242	-	1,527,290,879	-	622,139,735
Information & Professional Services	472	35,523	32,252,831	3,067,656,097	32,089,409	2,138,917,563
Leisure & Other Services	-	18,715	-	629,222,990	-	423,576,331
Miscellaneous	-	2,107	-	587,900,462	-	53,433,845
Total Industry	26,626	120,664	7,317,757,745	15,766,338,050	2,794,087,881	7,278,187,999
2008						
Natural Resources	20,790	23,282	7,290,788,276	8,286,052,712	2,430,376,358	2,723,878,776
Transportation & Utilities	2,060	7,746	767,280,053	1,325,084,129	381,056,895	668,838,485
Construction	7,130	8,296	399,892,268	469,644,434	357,464,898	417,025,519
Wholesale & Retail Trade	-	15,406	-	1,045,825,155	-	575,101,563
Manufacturing	220	4,993	22,694,722	442,732,086	19,382,994	253,698,373
FIRE & Leasing	-	13,693	-	1,748,737,948	-	721,973,673
Information & Professional Services	557	40,582	38,120,958	3,562,709,691	37,927,802	2,486,796,585
Leisure & Other Services	-	21,309	-	734,817,998	-	493,610,875
Miscellaneous	-	2,419	-	693,886,184	-	62,362,282
Total Industry	30,758	137,726	8,518,776,275	18,309,490,336	3,226,208,947	8,403,286,131

Connecticut

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	-	18	-	1,666,371	-	901,202
Transportation & Utilities	1,367	1,703	467,335,778	522,669,040	199,958,487	231,347,989
Construction	169	205	9,483,387	12,852,008	8,477,228	11,549,085
Wholesale & Retail Trade	-	785	-	117,825,124	-	63,915,976
Manufacturing	24	463	3,097,527	97,524,302	1,875,596	57,711,555
FIRE & Leasing	-	782	-	312,803,154	-	154,453,050
Information & Professional Services	-	2,103	-	387,531,839	-	288,267,939
Leisure & Other Services	-	863	-	54,058,480	-	39,643,294
Miscellaneous	-	92	-	55,290,710	-	5,240,592
Total Industry	1,560	7,015	479,916,691	1,562,221,027	210,311,312	853,030,681
2007						
Natural Resources	-	19	-	1,482,147	-	803,421
Transportation & Utilities	1,390	1,731	475,068,552	534,086,720	203,156,485	235,904,284
Construction	200	234	11,204,144	14,347,615	10,015,418	12,740,325
Wholesale & Retail Trade	-	779	-	123,651,767	-	65,108,590
Manufacturing	25	475	3,157,759	104,856,337	1,913,519	60,570,868
FIRE & Leasing	-	789	-	334,957,805	-	162,928,750
Information & Professional Services	-	2,117	-	415,200,253	-	300,654,388
Leisure & Other Services	-	873	-	57,440,300	-	40,949,226
Miscellaneous	-	93	-	59,659,191	-	5,439,623
Total Industry	1,615	7,111	489,430,455	1,645,682,136	215,085,422	885,099,476
2008						
Natural Resources	-	19	-	1,563,447	-	800,944
Transportation & Utilities	1,437	1,797	490,864,949	556,652,940	209,689,099	244,138,807
Construction	230	263	12,885,168	16,063,671	11,518,090	14,068,479
Wholesale & Retail Trade	-	798	-	132,445,058	-	66,642,208
Manufacturing	27	499	3,451,442	114,047,564	2,093,262	63,230,277
FIRE & Leasing	-	812	-	360,978,719	-	170,565,050
Information & Professional Services	-	2,187	-	449,248,387	-	311,641,914
Leisure & Other Services	-	898	-	61,667,620	-	42,102,996
Miscellaneous	-	97	-	65,474,960	-	5,664,115
Total Industry	1,694	7,371	507,201,559	1,758,142,367	223,300,451	918,854,789

Delaware

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	-	3	-	531,950	-	324,952
Transportation & Utilities	79	100	30,270,316	33,505,253	15,572,559	17,440,068
Construction	60	66	3,365,290	3,705,658	3,008,243	3,362,496
Wholesale & Retail Trade	-	68	-	6,438,566	-	4,100,575
Manufacturing	-	33	-	6,559,114	-	3,779,053
FIRE & Leasing	-	76	-	40,123,898	-	18,326,350
Information & Professional Services	-	193	-	28,475,976	-	24,525,040
Leisure & Other Services	-	100	-	4,625,172	-	4,003,362
Miscellaneous	-	9	-	3,741,675	-	417,515
Total Industry	139	646	33,635,606	127,707,262	18,580,802	76,279,411
2007						
Natural Resources	-	2	-	529,896	-	326,241
Transportation & Utilities	77	95	29,198,502	32,313,527	14,923,178	16,635,176
Construction	52	57	2,905,921	3,197,447	2,597,611	2,880,770
Wholesale & Retail Trade	-	61	-	6,353,978	-	3,862,221
Manufacturing	-	30	-	7,050,834	-	3,867,858
FIRE & Leasing	-	71	-	40,291,566	-	17,568,618
Information & Professional Services	-	172	-	28,619,405	-	23,544,982
Leisure & Other Services	-	89	-	4,712,511	-	3,888,296
Miscellaneous	-	8	-	3,889,341	-	412,732
Total Industry	129	585	32,104,423	126,958,507	17,520,789	72,986,893
2008						
Natural Resources	-	2	-	548,665	-	311,973
Transportation & Utilities	80	93	30,129,609	33,271,601	15,362,960	16,911,247
Construction	20	24	1,147,006	1,425,943	1,025,312	1,263,489
Wholesale & Retail Trade	-	46	-	6,433,471	-	3,572,580
Manufacturing	-	23	-	7,541,994	-	3,720,588
FIRE & Leasing	-	55	-	41,436,612	-	16,539,450
Information & Professional Services	-	131	-	29,136,748	-	21,851,876
Leisure & Other Services	-	68	-	4,868,818	-	3,668,509
Miscellaneous	-	6	-	4,046,897	-	391,204
Total Industry	100	449	31,276,615	128,710,748	16,388,272	68,230,916

Florida

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	80	212	25,798,168	48,028,064	8,705,592	24,162,060
Transportation & Utilities	2,020	2,542	701,322,328	844,207,908	309,054,287	394,414,943
Construction	1,220	1,400	68,448,311	91,355,939	61,186,154	81,963,887
Wholesale & Retail Trade	-	1,948	-	392,292,579	-	232,435,685
Manufacturing	86	537	10,735,427	117,235,817	6,586,577	67,392,022
FIRE & Leasing	-	1,578	-	712,525,522	-	295,775,111
Information & Professional Services	-	4,809	-	953,882,610	-	726,006,569
Leisure & Other Services	-	2,526	-	282,773,640	-	199,835,961
Miscellaneous	-	230	-	186,638,082	-	19,586,513
Total Industry	3,407	15,781	806,304,235	3,628,940,162	385,532,609	2,041,572,751
2007						
Natural Resources	78	212	25,013,006	46,915,188	8,444,158	23,233,140
Transportation & Utilities	2,031	2,562	705,021,923	855,712,066	310,584,384	397,112,347
Construction	1,381	1,540	77,477,753	98,151,458	69,257,601	87,015,297
Wholesale & Retail Trade	-	1,991	-	423,869,606	-	242,177,733
Manufacturing	94	556	11,666,372	128,740,255	7,149,228	71,352,278
FIRE & Leasing	-	1,597	-	765,494,687	-	313,191,844
Information & Professional Services	-	4,901	-	1,022,258,806	-	753,246,842
Leisure & Other Services	-	2,659	-	318,608,170	-	218,155,423
Miscellaneous	-	240	-	207,395,501	-	20,985,374
Total Industry	3,584	16,259	819,179,053	3,867,145,737	395,435,371	2,126,470,278
2008						
Natural Resources	89	218	30,242,068	52,992,718	10,125,869	24,375,208
Transportation & Utilities	2,086	2,593	723,505,487	884,436,512	318,228,073	402,682,957
Construction	1,179	1,306	66,135,971	85,237,869	59,119,143	73,832,939
Wholesale & Retail Trade	-	1,892	-	454,920,395	-	240,539,376
Manufacturing	94	535	11,704,980	139,845,457	7,175,079	71,385,032
FIRE & Leasing	-	1,521	-	819,905,905	-	314,478,513
Information & Professional Services	-	4,610	-	1,104,445,130	-	754,294,501
Leisure & Other Services	-	2,547	-	344,912,852	-	220,164,955
Miscellaneous	-	232	-	227,980,135	-	21,326,446
Total Industry	3,448	15,454	831,588,506	4,114,676,972	394,648,164	2,123,079,927

Georgia

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	-	118	-	15,755,347	-	9,982,710
Transportation & Utilities	1,908	2,499	654,757,393	785,932,687	282,190,466	360,783,403
Construction	1,042	1,128	58,429,283	67,759,611	52,230,114	61,277,998
Wholesale & Retail Trade	-	1,462	-	258,049,125	-	156,694,357
Manufacturing	54	1,089	6,159,071	183,765,605	4,014,116	106,361,301
FIRE & Leasing	-	914	-	380,564,035	-	146,657,678
Information & Professional Services	-	3,429	-	660,321,273	-	476,894,076
Leisure & Other Services	-	1,406	-	101,417,554	-	76,227,191
Miscellaneous	-	208	-	146,361,263	-	15,377,156
Total Industry	3,004	12,253	719,345,747	2,599,926,501	338,434,696	1,410,255,869
2007						
Natural Resources	-	112	-	15,631,778	-	9,600,480
Transportation & Utilities	1,882	2,443	645,929,866	791,452,168	278,463,763	362,048,225
Construction	1,019	1,098	57,166,596	65,654,338	51,101,396	58,880,075
Wholesale & Retail Trade	-	1,394	-	266,327,136	-	155,673,112
Manufacturing	60	1,075	6,871,878	191,302,118	4,430,250	107,451,088
FIRE & Leasing	-	867	-	388,063,059	-	146,087,930
Information & Professional Services	-	3,283	-	687,250,674	-	479,877,500
Leisure & Other Services	-	1,363	-	105,941,629	-	77,087,951
Miscellaneous	-	201	-	152,969,412	-	15,422,074
Total Industry	2,961	11,837	709,968,341	2,664,592,312	333,995,409	1,412,128,434
2008						
Natural Resources	-	104	-	15,911,304	-	9,156,338
Transportation & Utilities	1,905	2,442	653,746,515	810,727,289	281,772,258	365,468,260
Construction	871	939	48,824,874	57,022,092	43,644,702	50,473,511
Wholesale & Retail Trade	-	1,305	-	280,346,879	-	153,266,393
Manufacturing	65	1,051	7,616,821	202,270,667	4,867,977	107,421,712
FIRE & Leasing	-	804	-	401,642,164	-	142,843,582
Information & Professional Services	-	3,099	-	723,535,292	-	476,772,433
Leisure & Other Services	-	1,288	-	111,609,710	-	76,316,756
Miscellaneous	-	193	-	161,346,608	-	15,133,550
Total Industry	2,841	11,224	710,188,210	2,764,412,003	330,284,937	1,396,852,534

Iowa

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	-	79	-	16,670,115	-	10,194,258
Transportation & Utilities	821	963	299,966,239	365,567,909	144,515,132	179,677,941
Construction	206	227	11,547,992	14,436,931	10,322,785	13,045,918
Wholesale & Retail Trade	-	350	-	80,388,356	-	46,792,072
Manufacturing	66	399	8,291,157	129,626,408	5,069,498	79,297,396
FIRE & Leasing	-	227	-	112,253,596	-	51,987,519
Information & Professional Services	-	686	-	137,302,462	-	109,991,975
Leisure & Other Services	-	359	-	39,770,820	-	29,408,653
Miscellaneous	-	51	-	64,612,062	-	6,567,697
Total Industry	1,093	3,340	319,805,388	960,628,659	159,907,415	526,963,427
2007						
Natural Resources	-	80	-	20,372,231	-	12,152,849
Transportation & Utilities	820	962	299,006,925	364,108,678	143,586,036	177,639,869
Construction	245	265	13,765,684	16,319,226	12,305,187	14,609,446
Wholesale & Retail Trade	-	348	-	83,840,702	-	47,507,274
Manufacturing	71	413	8,868,045	138,774,947	5,431,971	82,911,286
FIRE & Leasing	-	231	-	115,015,059	-	52,974,632
Information & Professional Services	-	698	-	144,747,147	-	113,561,755
Leisure & Other Services	-	365	-	42,494,492	-	30,684,254
Miscellaneous	-	51	-	67,850,413	-	6,700,096
Total Industry	1,137	3,412	321,640,654	993,522,896	161,323,194	538,741,462
2008						
Natural Resources	-	84	-	23,731,434	-	13,675,354
Transportation & Utilities	845	994	307,675,252	377,193,467	147,398,727	182,035,777
Construction	290	310	16,287,485	18,861,408	14,559,431	16,743,864
Wholesale & Retail Trade	-	365	-	90,262,409	-	49,348,914
Manufacturing	77	444	9,627,477	150,218,816	5,873,089	86,860,839
FIRE & Leasing	-	244	-	122,407,849	-	55,335,638
Information & Professional Services	-	728	-	154,308,717	-	117,372,429
Leisure & Other Services	-	378	-	46,264,529	-	32,304,340
Miscellaneous	-	54	-	74,025,045	-	7,014,843
Total Industry	1,212	3,600	333,590,213	1,057,273,675	167,831,247	560,691,999

Idaho

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	-	141	-	19,334,768	-	12,867,682
Transportation & Utilities	851	1,014	300,166,463	341,371,802	136,055,863	160,461,307
Construction	216	256	12,137,478	16,146,943	10,849,729	14,482,122
Wholesale & Retail Trade	-	442	-	79,227,789	-	46,646,572
Manufacturing	4	204	502,606	39,071,882	306,363	25,837,451
FIRE & Leasing	-	240	-	92,346,011	-	38,537,093
Information & Professional Services	-	965	-	186,291,997	-	138,109,750
Leisure & Other Services	-	414	-	34,495,082	-	24,752,263
Miscellaneous	-	70	-	64,096,221	-	6,472,286
Total Industry	1,072	3,748	312,806,547	872,382,496	147,211,955	468,166,525
2007						
Natural Resources	-	125	-	20,397,810	-	13,311,650
Transportation & Utilities	852	995	300,254,709	339,937,789	136,092,415	158,950,080
Construction	131	164	7,335,192	11,006,952	6,556,950	9,741,235
Wholesale & Retail Trade	-	399	-	81,399,177	-	46,221,945
Manufacturing	4	187	516,281	41,143,859	314,289	26,182,135
FIRE & Leasing	-	214	-	94,531,114	-	38,310,479
Information & Professional Services	-	856	-	187,996,567	-	135,861,470
Leisure & Other Services	-	382	-	36,721,425	-	25,507,327
Miscellaneous	-	62	-	66,213,226	-	6,448,257
Total Industry	987	3,384	308,106,182	879,347,918	142,963,655	460,534,578
2008						
Natural Resources	-	120	-	21,208,446	-	13,340,009
Transportation & Utilities	853	994	300,716,218	341,484,274	136,283,057	158,674,487
Construction	107	134	6,002,571	9,441,052	5,365,716	8,174,524
Wholesale & Retail Trade	-	382	-	83,957,461	-	45,882,916
Manufacturing	4	185	557,120	43,338,987	337,956	26,357,424
FIRE & Leasing	-	206	-	97,071,836	-	39,174,733
Information & Professional Services	-	819	-	190,563,172	-	133,989,387
Leisure & Other Services	-	372	-	37,839,934	-	25,404,930
Miscellaneous	-	60	-	69,914,528	-	6,530,111
Total Industry	964	3,272	307,275,909	894,819,689	141,986,729	457,528,520

Illinois

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	81	475	18,908,640	73,947,878	6,704,468	26,865,351
Transportation & Utilities	5,922	7,875	2,038,760,631	2,271,667,645	884,070,461	1,010,035,845
Construction	776	1,046	43,551,337	61,676,581	38,930,672	54,045,888
Wholesale & Retail Trade	-	5,155	-	490,589,427	-	257,161,629
Manufacturing	265	3,958	31,770,122	514,392,008	20,033,550	275,467,990
FIRE & Leasing	-	4,110	-	791,682,902	-	356,337,646
Information & Professional Services	48	13,647	3,293,002	1,439,346,795	3,276,317	1,001,216,124
Leisure & Other Services	-	6,005	-	241,754,769	-	170,322,669
Miscellaneous	-	683	-	250,301,586	-	22,587,652
Total Industry	7,093	42,954	2,136,283,732	6,135,359,591	953,015,468	3,174,040,794
2007						
Natural Resources	113	494	26,105,509	74,999,604	9,269,379	27,817,074
Transportation & Utilities	5,866	7,794	2,021,379,549	2,250,386,839	878,175,688	1,000,093,299
Construction	805	1,050	45,139,081	61,367,117	40,349,963	53,420,795
Wholesale & Retail Trade	-	5,048	-	510,621,500	-	262,539,898
Manufacturing	291	3,982	34,795,952	545,359,405	21,978,660	288,967,269
FIRE & Leasing	-	3,987	-	834,077,275	-	370,535,230
Information & Professional Services	68	13,370	4,626,602	1,488,478,021	4,603,159	1,020,283,263
Leisure & Other Services	-	5,911	-	252,676,491	-	175,454,725
Miscellaneous	-	668	-	261,480,549	-	23,078,297
Total Industry	7,142	42,304	2,132,046,692	6,279,446,801	954,376,849	3,222,189,850
2008						
Natural Resources	82	494	19,329,906	68,030,481	6,835,253	25,049,575
Transportation & Utilities	5,733	7,856	1,976,526,741	2,212,849,536	859,625,618	982,597,617
Construction	1,660	1,910	93,081,356	108,787,489	83,205,703	95,294,864
Wholesale & Retail Trade	-	5,417	-	528,913,625	-	268,401,581
Manufacturing	296	4,368	35,495,461	573,092,689	22,380,772	298,732,129
FIRE & Leasing	-	4,244	-	846,113,013	-	380,216,740
Information & Professional Services	62	14,395	4,230,798	1,541,289,163	4,209,361	1,041,978,377
Leisure & Other Services	-	6,387	-	261,524,784	-	179,693,360
Miscellaneous	-	721	-	271,283,240	-	23,511,228
Total Industry	7,832	45,790	2,128,664,262	6,411,884,020	976,256,709	3,295,475,472

Indiana

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	83	264	28,380,034	56,940,357	9,505,077	21,520,034
Transportation & Utilities	3,444	4,398	1,189,627,262	1,436,682,843	519,330,796	637,976,970
Construction	711	831	39,890,462	52,806,873	35,658,206	45,812,714
Wholesale & Retail Trade	-	1,909	-	328,532,605	-	159,589,216
Manufacturing	191	2,761	23,610,046	714,728,562	14,907,340	371,553,115
FIRE & Leasing	-	1,045	-	401,530,338	-	140,665,589
Information & Professional Services	55	4,156	3,789,620	632,085,109	3,770,418	432,445,896
Leisure & Other Services	-	2,103	-	175,015,322	-	109,553,792
Miscellaneous	-	259	-	219,601,518	-	18,631,144
Total Industry	4,485	17,725	1,285,297,424	4,017,923,525	583,171,838	1,937,748,471
2007						
Natural Resources	63	233	27,101,447	56,482,355	8,835,600	21,274,314
Transportation & Utilities	3,245	4,133	1,118,986,845	1,351,413,679	486,801,288	595,284,421
Construction	788	894	44,210,263	55,949,079	39,519,690	48,316,853
Wholesale & Retail Trade	-	1,767	-	324,511,707	-	153,098,996
Manufacturing	198	2,649	24,614,052	716,816,857	15,478,125	365,248,767
FIRE & Leasing	-	967	-	390,855,884	-	135,268,333
Information & Professional Services	22	3,874	1,481,552	625,031,332	1,474,045	415,879,390
Leisure & Other Services	-	1,964	-	174,808,419	-	106,420,659
Miscellaneous	-	244	-	222,502,461	-	18,276,198
Total Industry	4,316	16,725	1,216,394,158	3,918,371,772	552,108,749	1,859,067,930
2008						
Natural Resources	61	236	27,261,497	57,103,681	8,849,126	21,218,616
Transportation & Utilities	3,119	4,029	1,077,362,775	1,311,398,019	470,199,907	575,474,706
Construction	1,082	1,183	60,712,231	72,046,226	54,270,845	62,315,544
Wholesale & Retail Trade	-	1,785	-	328,574,256	-	151,319,215
Manufacturing	192	2,721	23,844,519	738,748,640	15,014,325	367,621,692
FIRE & Leasing	-	973	-	393,206,985	-	132,937,473
Information & Professional Services	22	3,938	1,495,758	635,471,447	1,488,179	414,010,960
Leisure & Other Services	-	2,030	-	180,817,703	-	107,780,562
Miscellaneous	-	252	-	230,011,452	-	18,309,226
Total Industry	4,477	17,148	1,190,676,780	3,947,378,409	549,822,382	1,850,987,994

Kansas

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	2,571	3,151	1,078,212,711	1,247,464,447	352,546,225	409,358,257
Transportation & Utilities	2,209	3,237	784,648,190	1,061,304,096	360,400,817	487,144,284
Construction	1,059	1,194	59,388,390	69,106,279	53,087,463	61,538,000
Wholesale & Retail Trade	-	2,272	-	250,715,188	-	130,463,366
Manufacturing	67	1,515	7,493,464	206,508,606	5,405,591	114,788,972
FIRE & Leasing	-	1,408	-	257,978,845	-	103,461,354
Information & Professional Services	67	5,343	4,557,121	616,957,960	4,534,030	399,603,342
Leisure & Other Services	-	2,299	-	105,650,833	-	69,703,831
Miscellaneous	-	406	-	219,389,683	-	18,801,439
Total Industry	5,973	20,826	1,934,299,876	4,035,075,937	775,974,126	1,794,862,843
2007						
Natural Resources	2,768	3,352	1,152,884,872	1,312,715,723	377,076,453	431,087,668
Transportation & Utilities	2,166	3,197	765,113,819	1,028,136,773	347,986,663	468,566,810
Construction	1,154	1,285	64,720,532	74,544,846	57,853,882	66,271,185
Wholesale & Retail Trade	-	2,309	-	266,231,811	-	138,730,432
Manufacturing	71	1,595	8,098,467	219,892,373	5,700,607	123,232,073
FIRE & Leasing	-	1,459	-	269,716,836	-	110,448,032
Information & Professional Services	117	5,554	7,979,588	662,390,585	7,939,157	431,358,776
Leisure & Other Services	-	2,311	-	109,901,641	-	73,017,005
Miscellaneous	-	415	-	230,648,788	-	19,918,722
Total Industry	6,275	21,477	1,998,797,278	4,174,179,378	796,556,762	1,862,630,704
2008						
Natural Resources	2,579	3,143	1,186,917,653	1,351,965,236	383,889,325	438,090,167
Transportation & Utilities	2,292	3,248	804,877,733	1,063,329,515	362,224,955	478,171,304
Construction	1,052	1,175	59,011,073	69,120,579	52,750,175	61,197,963
Wholesale & Retail Trade	-	2,219	-	275,450,873	-	142,803,505
Manufacturing	76	1,583	8,709,763	228,554,954	6,079,989	127,888,193
FIRE & Leasing	-	1,382	-	273,997,783	-	112,534,447
Information & Professional Services	135	5,380	9,245,382	684,275,647	9,198,537	447,743,835
Leisure & Other Services	-	2,233	-	112,890,276	-	74,761,069
Miscellaneous	-	396	-	240,052,154	-	20,469,218
Total Industry	6,134	20,759	2,068,761,603	4,299,637,018	814,142,980	1,903,659,702

Kentucky

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	1,275	1,581	590,864,147	690,856,120	191,270,898	230,576,254
Transportation & Utilities	1,726	2,509	663,564,270	873,922,495	345,543,471	463,794,247
Construction	544	621	30,500,743	42,078,666	27,264,707	37,637,685
Wholesale & Retail Trade	-	1,253	-	260,888,113	-	143,744,614
Manufacturing	101	1,377	13,003,274	420,440,981	7,815,066	229,021,392
FIRE & Leasing	-	678	-	244,164,313	-	102,539,798
Information & Professional Services	52	2,886	3,543,363	524,674,139	3,525,409	392,792,799
Leisure & Other Services	-	1,355	-	118,612,820	-	83,086,358
Miscellaneous	-	200	-	197,939,588	-	19,793,048
Total Industry	3,698	12,460	1,301,475,797	3,373,577,234	575,419,551	1,702,986,195
2007						
Natural Resources	2,014	2,388	753,462,834	856,288,333	249,400,765	288,982,644
Transportation & Utilities	1,727	2,712	663,902,786	899,505,580	345,683,780	475,722,174
Construction	874	966	48,995,132	62,799,389	43,796,899	55,608,353
Wholesale & Retail Trade	-	1,566	-	309,982,441	-	166,683,714
Manufacturing	97	1,735	12,420,544	500,919,245	7,482,356	268,826,734
FIRE & Leasing	-	871	-	295,270,044	-	123,884,768
Information & Professional Services	57	3,580	3,890,614	614,529,884	3,870,900	450,495,790
Leisure & Other Services	-	1,709	-	139,761,088	-	95,981,035
Miscellaneous	-	252	-	235,460,221	-	23,056,702
Total Industry	4,768	15,779	1,482,671,909	3,914,516,225	650,234,700	1,949,241,914
2008						
Natural Resources	1,641	1,985	701,847,372	803,885,813	228,691,166	265,734,617
Transportation & Utilities	1,721	2,604	661,698,911	889,047,802	344,618,924	466,320,001
Construction	884	965	49,585,993	63,208,747	44,325,068	55,404,240
Wholesale & Retail Trade	-	1,407	-	304,306,815	-	160,440,539
Manufacturing	96	1,612	12,255,789	500,299,538	7,382,821	264,716,340
FIRE & Leasing	-	815	-	292,951,768	-	123,493,004
Information & Professional Services	56	3,229	3,811,549	601,475,701	3,792,236	433,367,422
Leisure & Other Services	-	1,546	-	136,628,255	-	92,283,087
Miscellaneous	-	225	-	236,982,957	-	22,644,748
Total Industry	4,397	14,389	1,429,199,613	3,828,787,397	628,810,215	1,884,403,999

Louisiana

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	32,338	42,438	9,124,474,706	11,434,182,125	3,135,713,745	4,156,334,650
Transportation & Utilities	3,367	15,999	1,288,124,150	2,416,485,747	666,056,751	1,377,357,196
Construction	13,758	16,607	771,664,310	868,546,837	689,793,076	801,672,035
Wholesale & Retail Trade	-	29,642	-	969,515,101	-	626,092,453
Manufacturing	6,937	19,758	653,289,949	2,885,887,142	575,703,726	1,855,111,727
FIRE & Leasing	-	16,843	-	834,568,155	-	385,691,467
Information & Professional Services	267	70,612	18,266,106	1,807,795,537	18,173,552	1,634,275,574
Leisure & Other Services	-	32,181	-	599,815,715	-	443,333,003
Miscellaneous	-	5,174	-	882,017,405	-	84,734,446
Total Industry	56,667	249,252	11,855,819,221	22,698,813,764	5,085,440,851	11,364,602,550
2007						
Natural Resources	33,624	43,228	9,475,969,692	11,705,408,835	3,256,522,362	4,243,661,207
Transportation & Utilities	3,362	15,948	1,291,262,356	2,399,980,144	671,462,686	1,385,038,104
Construction	15,314	18,064	858,910,122	962,322,160	767,782,400	888,958,536
Wholesale & Retail Trade	-	30,301	-	999,765,308	-	673,323,884
Manufacturing	7,247	20,889	680,648,600	3,025,857,548	600,121,422	1,992,160,312
FIRE & Leasing	-	17,186	-	905,452,905	-	434,524,090
Information & Professional Services	259	73,181	17,708,858	1,897,679,359	17,619,129	1,796,940,338
Leisure & Other Services	-	33,870	-	639,842,774	-	493,836,515
Miscellaneous	-	5,257	-	910,492,073	-	92,264,657
Total Industry	59,805	257,925	12,324,499,627	23,446,801,105	5,313,507,999	12,000,707,642
2008						
Natural Resources	35,091	44,748	10,093,892,081	12,351,447,277	3,456,898,528	4,445,772,276
Transportation & Utilities	3,456	16,224	1,324,381,446	2,439,472,766	686,373,894	1,412,358,357
Construction	16,526	19,358	926,922,153	1,036,276,094	828,578,494	958,359,633
Wholesale & Retail Trade	-	31,125	-	1,018,567,363	-	711,167,182
Manufacturing	7,228	21,186	680,196,992	3,186,621,972	599,344,907	2,109,962,841
FIRE & Leasing	-	17,557	-	929,382,216	-	468,132,060
Information & Professional Services	279	76,133	19,071,422	1,914,361,179	18,974,789	1,889,246,299
Leisure & Other Services	-	34,828	-	655,779,497	-	524,983,243
Miscellaneous	-	5,431	-	939,207,195	-	98,444,989
Total Industry	62,581	266,591	13,044,464,093	24,471,115,558	5,590,170,612	12,618,426,880

Massachusetts

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	-	43	-	5,573,527	-	3,379,631
Transportation & Utilities	2,934	3,415	996,086,372	1,080,000,789	420,307,515	462,239,535
Construction	236	319	13,230,637	22,192,650	11,826,906	19,013,232
Wholesale & Retail Trade	-	1,682	-	243,218,467	-	123,094,627
Manufacturing	111	874	14,390,978	164,844,735	8,591,714	92,938,752
FIRE & Leasing	-	1,531	-	512,307,192	-	253,308,393
Information & Professional Services	-	5,383	-	1,009,799,735	-	705,251,114
Leisure & Other Services	-	1,914	-	137,570,066	-	90,218,541
Miscellaneous	-	208	-	131,922,165	-	11,388,930
Total Industry	3,281	15,370	1,023,707,987	3,307,429,326	440,726,135	1,760,832,755
2007						
Natural Resources	-	41	-	5,033,331	-	3,051,053
Transportation & Utilities	2,944	3,404	1,000,431,119	1,086,957,474	422,941,100	464,484,471
Construction	195	268	10,936,043	19,134,612	9,775,762	16,036,204
Wholesale & Retail Trade	-	1,595	-	251,406,326	-	122,804,110
Manufacturing	109	855	14,066,347	177,280,048	8,428,680	97,186,625
FIRE & Leasing	-	1,468	-	540,907,857	-	262,921,834
Information & Professional Services	-	5,196	-	1,051,632,926	-	715,987,707
Leisure & Other Services	-	1,867	-	147,676,992	-	93,633,100
Miscellaneous	-	200	-	139,731,402	-	11,596,375
Total Industry	3,248	14,895	1,025,433,509	3,419,760,969	441,145,542	1,787,701,478
2008						
Natural Resources	-	40	-	4,987,448	-	2,934,900
Transportation & Utilities	3,019	3,477	1,026,974,304	1,119,091,514	435,059,047	476,626,319
Construction	182	252	10,208,633	18,278,447	9,125,528	14,812,857
Wholesale & Retail Trade	-	1,591	-	267,856,919	-	124,599,816
Manufacturing	94	852	12,002,056	190,276,545	7,256,356	99,587,292
FIRE & Leasing	-	1,425	-	563,337,692	-	265,909,430
Information & Professional Services	-	5,216	-	1,131,337,626	-	736,557,345
Leisure & Other Services	-	1,880	-	160,298,816	-	97,137,991
Miscellaneous	-	200	-	151,070,261	-	11,877,521
Total Industry	3,295	14,932	1,049,184,994	3,606,535,268	451,440,931	1,830,043,470

Maryland

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	117	142	27,153,738	30,101,901	9,630,211	11,344,903
Transportation & Utilities	811	1,123	283,927,425	351,163,974	127,137,989	168,834,063
Construction	552	617	30,951,131	37,036,445	27,667,310	33,407,554
Wholesale & Retail Trade	-	802	-	118,651,633	-	71,307,019
Manufacturing	30	243	3,803,925	48,575,144	2,305,095	29,378,084
FIRE & Leasing	-	619	-	268,087,029	-	111,749,641
Information & Professional Services	-	2,219	-	417,545,552	-	322,418,662
Leisure & Other Services	-	933	-	68,817,322	-	53,546,969
Miscellaneous	-	136	-	92,490,709	-	9,381,165
Total Industry	1,510	6,833	345,836,219	1,432,469,708	166,740,605	811,368,060
2007						
Natural Resources	108	132	25,142,947	28,220,223	8,911,775	10,653,226
Transportation & Utilities	806	1,110	282,247,428	353,661,764	126,443,259	168,766,766
Construction	566	626	31,739,652	37,510,215	28,372,172	33,525,332
Wholesale & Retail Trade	-	777	-	124,406,380	-	72,018,372
Manufacturing	32	245	4,076,521	52,359,335	2,463,082	30,764,428
FIRE & Leasing	-	599	-	283,746,883	-	115,522,224
Information & Professional Services	-	2,159	-	433,235,817	-	325,104,600
Leisure & Other Services	-	917	-	73,127,889	-	54,749,353
Miscellaneous	-	134	-	99,648,492	-	9,702,379
Total Industry	1,512	6,699	343,206,547	1,485,916,998	166,190,289	820,806,680
2008						
Natural Resources	92	120	21,575,033	24,877,952	7,636,789	9,479,915
Transportation & Utilities	793	1,140	277,875,293	357,055,774	124,634,944	170,157,917
Construction	844	909	47,333,486	53,205,984	42,311,545	47,323,412
Wholesale & Retail Trade	-	879	-	134,341,416	-	76,700,801
Manufacturing	34	284	4,280,865	57,000,695	2,581,504	33,063,560
FIRE & Leasing	-	679	-	305,181,530	-	124,322,522
Information & Professional Services	-	2,494	-	465,777,778	-	345,559,339
Leisure & Other Services	-	1,057	-	79,296,445	-	58,508,113
Miscellaneous	-	156	-	110,198,326	-	10,528,341
Total Industry	1,762	7,718	351,064,678	1,586,935,900	177,164,782	875,643,921

Maine

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	-	5	-	1,316,867	-	990,403
Transportation & Utilities	147	166	57,103,613	64,020,599	30,100,990	35,055,122
Construction	9	12	496,941	1,079,985	444,217	1,081,762
Wholesale & Retail Trade	-	56	-	15,363,379	-	10,122,509
Manufacturing	2	26	216,923	9,258,685	145,812	6,457,987
FIRE & Leasing	-	28	-	18,056,555	-	9,461,217
Information & Professional Services	-	114	-	31,205,051	-	29,958,929
Leisure & Other Services	-	51	-	7,647,074	-	6,900,902
Miscellaneous	-	7	-	9,665,975	-	1,285,354
Total Industry	158	463	57,817,477	157,614,170	30,691,019	101,314,185
2007						
Natural Resources	-	5	-	1,256,519	-	960,643
Transportation & Utilities	144	165	56,095,352	63,152,251	29,684,043	34,729,115
Construction	40	43	2,217,720	2,728,915	1,982,427	2,535,402
Wholesale & Retail Trade	-	63	-	16,052,363	-	10,640,518
Manufacturing	2	31	216,922	9,808,831	145,812	6,861,931
FIRE & Leasing	-	31	-	18,802,569	-	9,950,436
Information & Professional Services	-	131	-	33,079,354	-	32,051,532
Leisure & Other Services	-	59	-	8,038,180	-	7,305,924
Miscellaneous	-	8	-	10,159,840	-	1,347,901
Total Industry	186	535	58,529,995	163,078,822	31,812,282	106,383,403
2008						
Natural Resources	-	6	-	1,256,752	-	948,390
Transportation & Utilities	145	166	56,430,740	63,788,056	29,822,627	34,893,515
Construction	53	56	2,982,215	3,465,495	2,665,811	3,163,719
Wholesale & Retail Trade	-	66	-	16,863,752	-	10,948,248
Manufacturing	2	33	216,900	10,371,696	145,797	7,109,470
FIRE & Leasing	-	32	-	19,678,336	-	10,203,116
Information & Professional Services	-	140	-	34,609,045	-	32,936,920
Leisure & Other Services	-	62	-	8,503,577	-	7,594,904
Miscellaneous	-	8	-	10,670,968	-	1,374,747
Total Industry	200	571	59,629,855	169,207,677	32,634,236	109,173,030

Michigan

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	1,396	1,633	483,634,724	535,655,400	161,626,685	181,060,154
Transportation & Utilities	4,108	5,093	1,468,654,501	1,772,079,845	682,222,879	818,778,342
Construction	1,020	1,165	57,193,661	73,852,947	51,125,587	63,981,813
Wholesale & Retail Trade	-	3,171	-	492,947,932	-	243,050,598
Manufacturing	130	3,021	16,613,319	553,936,944	10,033,911	306,713,394
FIRE & Leasing	-	1,806	-	687,823,767	-	243,289,624
Information & Professional Services	186	8,175	12,719,853	1,346,008,736	12,655,402	921,197,008
Leisure & Other Services	-	3,652	-	240,961,000	-	151,767,915
Miscellaneous	-	468	-	345,358,444	-	28,496,384
Total Industry	6,840	28,182	2,038,816,058	6,048,625,014	917,664,465	2,958,335,231
2007						
Natural Resources	1,507	1,742	504,032,011	551,396,617	169,153,859	187,680,419
Transportation & Utilities	4,046	5,100	1,443,894,258	1,787,098,397	668,636,545	823,716,036
Construction	1,055	1,183	59,182,961	73,948,700	52,903,831	63,848,436
Wholesale & Retail Trade	-	3,068	-	511,992,813	-	245,007,297
Manufacturing	131	3,017	16,664,844	591,782,359	10,068,293	321,248,915
FIRE & Leasing	-	1,728	-	695,190,068	-	231,414,418
Information & Professional Services	158	7,942	10,831,884	1,373,238,513	10,777,000	918,809,434
Leisure & Other Services	-	3,612	-	254,029,414	-	156,009,720
Miscellaneous	-	454	-	362,850,652	-	28,987,251
Total Industry	6,898	27,845	2,034,605,958	6,201,527,534	911,539,528	2,976,721,925
2008						
Natural Resources	1,119	1,318	417,330,624	460,789,114	138,073,087	154,697,611
Transportation & Utilities	3,833	4,700	1,369,338,891	1,696,163,522	635,292,093	774,943,739
Construction	555	653	31,113,308	43,750,777	27,812,279	36,557,472
Wholesale & Retail Trade	-	2,524	-	482,138,058	-	220,863,948
Manufacturing	132	2,550	16,900,233	572,516,784	10,201,160	298,480,518
FIRE & Leasing	-	1,428	-	647,160,308	-	208,531,246
Information & Professional Services	142	6,527	9,704,984	1,273,927,436	9,655,810	820,394,899
Leisure & Other Services	-	2,994	-	239,979,294	-	141,749,882
Miscellaneous	-	373	-	345,132,560	-	26,203,039
Total Industry	5,781	23,067	1,844,388,040	5,761,557,853	821,034,428	2,682,422,353

Minnesota

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	-	165	-	25,580,446	-	14,451,241
Transportation & Utilities	1,905	2,269	658,385,017	761,952,306	287,646,070	337,700,979
Construction	710	775	39,806,891	48,403,815	35,583,501	43,002,332
Wholesale & Retail Trade	-	1,154	-	226,895,270	-	119,445,563
Manufacturing	139	928	16,501,393	187,272,879	10,422,082	111,936,128
FIRE & Leasing	-	914	-	417,406,637	-	161,124,620
Information & Professional Services	-	2,987	-	640,922,658	-	466,370,658
Leisure & Other Services	-	1,353	-	104,508,814	-	73,921,716
Miscellaneous	-	156	-	135,840,134	-	12,650,492
Total Industry	2,753	10,701	714,693,301	2,548,782,959	333,651,654	1,340,603,729
2007						
Natural Resources	-	167	-	29,048,059	-	16,106,960
Transportation & Utilities	1,845	2,191	638,306,552	740,808,931	279,418,588	327,048,883
Construction	794	851	44,547,913	51,929,419	39,821,516	45,863,180
Wholesale & Retail Trade	-	1,119	-	229,154,872	-	117,115,167
Manufacturing	144	938	17,022,920	195,581,560	10,792,649	113,731,920
FIRE & Leasing	-	889	-	428,045,062	-	163,451,620
Information & Professional Services	-	2,967	-	672,522,566	-	476,115,805
Leisure & Other Services	-	1,335	-	106,645,857	-	73,408,138
Miscellaneous	-	152	-	138,087,500	-	12,439,471
Total Industry	2,783	10,609	699,877,385	2,591,823,825	330,032,753	1,345,281,145
2008						
Natural Resources	-	171	-	33,054,660	-	17,431,685
Transportation & Utilities	1,903	2,240	657,531,728	764,939,123	287,140,852	333,291,387
Construction	755	806	42,363,501	49,489,351	37,868,861	43,188,529
Wholesale & Retail Trade	-	1,095	-	245,008,144	-	118,126,087
Manufacturing	135	941	15,889,546	209,621,558	10,107,559	115,260,749
FIRE & Leasing	-	864	-	452,222,752	-	163,791,184
Information & Professional Services	-	2,949	-	730,444,482	-	488,251,218
Leisure & Other Services	-	1,307	-	113,267,061	-	73,696,456
Miscellaneous	-	151	-	149,564,531	-	12,669,085
Total Industry	2,793	10,524	715,784,775	2,747,611,661	335,117,272	1,365,706,380

Missouri

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	-	209	-	22,697,794	-	10,602,528
Transportation & Utilities	3,318	3,815	1,127,933,779	1,291,761,208	477,192,192	557,311,140
Construction	324	414	18,163,591	30,756,132	16,236,489	26,569,753
Wholesale & Retail Trade	-	1,448	-	321,113,713	-	165,448,944
Manufacturing	97	1,062	12,243,061	288,699,929	7,423,692	154,766,488
FIRE & Leasing	-	980	-	372,341,763	-	142,066,101
Information & Professional Services	-	3,670	-	936,786,512	-	642,876,494
Leisure & Other Services	-	1,712	-	176,669,987	-	114,999,754
Miscellaneous	-	208	-	220,574,809	-	19,698,167
Total Industry	3,738	13,518	1,158,340,431	3,661,401,847	500,852,372	1,834,339,370
2007						
Natural Resources	-	202	-	22,657,003	-	10,513,467
Transportation & Utilities	3,305	3,776	1,123,209,929	1,287,683,294	474,934,415	552,689,265
Construction	276	357	15,486,464	26,672,396	13,843,398	22,603,564
Wholesale & Retail Trade	-	1,380	-	336,258,807	-	167,896,338
Manufacturing	95	1,032	11,995,028	299,839,029	7,271,902	156,451,206
FIRE & Leasing	-	940	-	394,013,381	-	147,671,867
Information & Professional Services	-	3,504	-	964,227,275	-	645,165,829
Leisure & Other Services	-	1,645	-	187,079,031	-	118,563,973
Miscellaneous	-	200	-	232,884,737	-	20,109,286
Total Industry	3,676	13,037	1,150,691,422	3,751,314,953	496,049,715	1,841,664,795
2008						
Natural Resources	-	200	-	22,668,663	-	10,197,970
Transportation & Utilities	3,293	3,748	1,121,309,344	1,292,249,330	475,973,737	552,527,268
Construction	293	369	16,440,606	27,342,240	14,696,307	22,686,665
Wholesale & Retail Trade	-	1,348	-	353,128,393	-	169,536,741
Manufacturing	93	1,033	11,770,467	315,557,470	7,132,178	158,533,477
FIRE & Leasing	-	935	-	413,640,661	-	152,530,712
Information & Professional Services	-	3,460	-	990,399,543	-	641,303,823
Leisure & Other Services	-	1,615	-	196,966,597	-	120,694,340
Miscellaneous	-	197	-	245,488,740	-	20,324,599
Total Industry	3,679	12,904	1,149,520,417	3,857,441,636	497,802,221	1,848,335,596

Mississippi

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	1,781	2,239	524,321,851	604,639,362	179,075,469	216,359,214
Transportation & Utilities	1,382	2,840	531,271,815	762,538,003	276,611,679	425,790,307
Construction	823	982	46,140,927	55,742,436	41,245,515	51,967,280
Wholesale & Retail Trade	-	2,010	-	175,105,608	-	121,101,114
Manufacturing	2,108	4,113	156,610,446	321,655,560	143,701,376	260,309,899
FIRE & Leasing	-	1,002	-	158,671,534	-	75,796,700
Information & Professional Services	46	4,121	3,126,095	301,160,539	3,110,255	278,534,539
Leisure & Other Services	-	2,074	-	99,362,898	-	79,345,533
Miscellaneous	-	402	-	166,803,002	-	21,020,749
Total Industry	6,139	19,782	1,261,471,133	2,645,678,940	643,744,294	1,530,225,335
2007						
Natural Resources	2,911	3,464	781,666,560	869,058,255	270,607,990	310,502,548
Transportation & Utilities	1,291	3,073	494,519,104	756,539,895	256,101,653	421,494,820
Construction	1,293	1,481	72,524,619	84,095,129	64,829,980	77,143,690
Wholesale & Retail Trade	-	2,443	-	212,282,953	-	142,962,359
Manufacturing	2,174	4,613	161,561,672	362,913,991	148,286,387	287,589,606
FIRE & Leasing	-	1,243	-	199,002,814	-	92,609,813
Information & Professional Services	45	4,960	3,084,173	360,481,768	3,068,546	326,397,472
Leisure & Other Services	-	2,647	-	130,147,364	-	101,051,044
Miscellaneous	-	498	-	205,638,504	-	25,625,388
Total Industry	7,714	24,422	1,513,356,128	3,180,160,673	742,894,556	1,785,376,741
2008						
Natural Resources	2,172	2,785	627,161,773	705,636,549	214,662,733	253,387,498
Transportation & Utilities	1,392	3,345	534,204,004	782,354,668	277,386,919	445,591,536
Construction	2,802	3,013	157,144,864	168,545,789	140,472,265	153,307,351
Wholesale & Retail Trade	-	2,707	-	207,562,563	-	152,724,136
Manufacturing	2,338	5,035	173,755,949	375,074,787	159,463,218	310,069,597
FIRE & Leasing	-	1,398	-	195,880,611	-	99,806,753
Information & Professional Services	42	5,592	2,867,040	359,346,473	2,852,513	354,579,336
Leisure & Other Services	-	2,947	-	131,270,501	-	111,810,213
Miscellaneous	-	562	-	203,016,633	-	27,591,152
Total Industry	8,746	27,385	1,495,133,629	3,128,688,574	794,837,647	1,908,867,571

Montana

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	1,226	1,643	355,474,488	462,157,869	121,670,739	157,395,788
Transportation & Utilities	598	1,202	219,528,021	324,534,634	106,457,110	159,983,137
Construction	423	531	23,698,931	30,142,916	21,184,547	26,854,414
Wholesale & Retail Trade	-	1,048	-	73,330,385	-	39,353,133
Manufacturing	2	277	216,923	29,600,952	145,812	13,528,229
FIRE & Leasing	-	628	-	101,772,899	-	36,425,669
Information & Professional Services	10	2,266	697,728	153,737,364	694,193	114,293,315
Leisure & Other Services	-	1,477	-	50,848,003	-	34,037,425
Miscellaneous	-	181	-	70,032,535	-	6,723,284
Total Industry	2,259	9,254	599,616,091	1,296,157,557	250,152,401	588,594,395
2007						
Natural Resources	788	1,103	262,349,413	348,229,338	88,086,689	117,449,357
Transportation & Utilities	625	1,096	230,189,727	320,534,076	112,387,726	159,506,016
Construction	402	487	22,532,242	28,876,228	20,141,640	25,765,553
Wholesale & Retail Trade	-	839	-	66,421,399	-	36,820,472
Manufacturing	3	229	271,153	26,666,064	182,265	12,670,240
FIRE & Leasing	-	483	-	87,515,184	-	32,137,762
Information & Professional Services	14	1,797	943,241	136,398,437	938,462	104,944,625
Leisure & Other Services	-	1,185	-	46,714,553	-	32,439,365
Miscellaneous	-	139	-	59,590,597	-	5,967,958
Total Industry	1,830	7,359	516,285,776	1,120,945,878	221,736,782	527,701,349
2008						
Natural Resources	629	897	230,501,197	311,792,887	76,423,179	103,363,425
Transportation & Utilities	626	1,035	231,917,849	315,742,573	114,243,048	157,978,389
Construction	349	416	19,588,282	25,727,204	17,510,024	22,848,986
Wholesale & Retail Trade	-	733	-	62,783,598	-	35,217,550
Manufacturing	3	207	325,349	25,469,742	218,695	12,169,535
FIRE & Leasing	-	420	-	80,207,499	-	30,001,673
Information & Professional Services	13	1,566	902,105	127,658,193	897,534	99,701,670
Leisure & Other Services	-	1,042	-	43,974,590	-	31,018,746
Miscellaneous	-	120	-	55,374,530	-	5,601,322
Total Industry	1,620	6,435	483,234,782	1,048,730,816	209,292,480	497,901,295

North Carolina

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	-	103	-	16,977,047	-	10,137,934
Transportation & Utilities	2,245	2,721	761,800,795	859,445,351	321,134,685	377,835,285
Construction	766	869	42,980,920	53,007,687	38,420,775	47,215,247
Wholesale & Retail Trade	-	1,338	-	215,644,162	-	125,048,602
Manufacturing	144	1,474	19,156,024	437,529,683	11,239,380	202,468,221
FIRE & Leasing	-	809	-	411,772,515	-	176,478,960
Information & Professional Services	-	3,259	-	526,942,450	-	398,550,241
Leisure & Other Services	-	1,414	-	95,898,585	-	69,158,180
Miscellaneous	-	206	-	142,020,174	-	15,092,515
Total Industry	3,155	12,193	823,937,739	2,759,237,655	370,794,840	1,421,985,183
2007						
Natural Resources	-	98	-	17,031,350	-	9,900,321
Transportation & Utilities	2,196	2,631	745,331,034	840,556,216	314,323,513	368,081,288
Construction	787	882	44,127,253	53,337,573	39,445,487	47,173,810
Wholesale & Retail Trade	-	1,295	-	225,023,790	-	126,911,103
Manufacturing	160	1,463	21,455,794	460,980,131	12,565,729	208,043,267
FIRE & Leasing	-	796	-	419,004,397	-	176,481,225
Information & Professional Services	-	3,170	-	543,646,110	-	402,022,137
Leisure & Other Services	-	1,383	-	101,540,141	-	71,237,341
Miscellaneous	-	198	-	148,646,521	-	15,298,539
Total Industry	3,143	11,915	810,914,081	2,809,766,228	366,334,729	1,425,149,031
2008						
Natural Resources	-	95	-	17,056,719	-	9,488,196
Transportation & Utilities	2,178	2,586	739,276,110	836,479,179	311,819,325	363,310,440
Construction	772	856	43,319,246	51,939,206	38,723,204	45,422,666
Wholesale & Retail Trade	-	1,248	-	233,242,543	-	125,421,680
Manufacturing	154	1,442	20,615,981	480,120,607	12,058,897	207,744,395
FIRE & Leasing	-	772	-	432,013,215	-	175,170,952
Information & Professional Services	-	3,082	-	561,830,580	-	398,343,024
Leisure & Other Services	-	1,354	-	106,103,695	-	71,129,256
Miscellaneous	-	196	-	154,977,231	-	15,111,431
Total Industry	3,104	11,632	803,211,337	2,873,762,975	362,601,426	1,411,142,039

North Dakota

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	308	453	96,344,035	128,213,837	32,624,811	47,119,237
Transportation & Utilities	352	482	132,680,664	171,111,657	67,117,698	88,296,404
Construction	151	170	8,443,512	9,374,678	7,547,681	8,585,743
Wholesale & Retail Trade	-	324	-	25,588,125	-	16,399,565
Manufacturing	-	135	-	14,313,350	-	9,577,201
FIRE & Leasing	-	162	-	20,185,255	-	9,791,786
Information & Professional Services	-	576	-	38,007,641	-	34,224,366
Leisure & Other Services	-	333	-	9,940,537	-	8,544,067
Miscellaneous	-	56	-	25,927,400	-	2,666,671
Total Industry	810	2,690	237,468,212	442,662,480	107,290,190	225,205,040
2007						
Natural Resources	233	368	77,191,822	104,702,968	25,939,621	39,360,539
Transportation & Utilities	347	466	130,500,767	162,628,902	65,835,911	84,507,263
Construction	204	222	11,469,440	12,346,008	10,252,568	11,276,288
Wholesale & Retail Trade	-	302	-	23,652,574	-	16,038,235
Manufacturing	-	130	-	13,783,156	-	9,837,974
FIRE & Leasing	-	155	-	18,687,522	-	9,736,003
Information & Professional Services	-	549	-	36,464,370	-	34,591,118
Leisure & Other Services	-	314	-	9,187,957	-	8,383,379
Miscellaneous	-	52	-	23,143,133	-	2,532,125
Total Industry	785	2,557	219,162,029	404,596,590	102,028,100	216,262,923
2008						
Natural Resources	178	383	66,824,801	100,552,026	22,094,771	40,903,328
Transportation & Utilities	404	579	154,736,485	187,362,462	80,118,159	101,982,045
Construction	577	603	32,365,760	33,353,402	28,931,850	30,251,657
Wholesale & Retail Trade	-	436	-	26,708,918	-	20,804,988
Manufacturing	-	191	-	15,234,283	-	12,771,710
FIRE & Leasing	-	227	-	20,965,848	-	12,633,233
Information & Professional Services	-	786	-	40,371,707	-	44,434,301
Leisure & Other Services	-	460	-	10,541,469	-	11,069,896
Miscellaneous	-	73	-	25,768,530	-	3,197,728
Total Industry	1,159	3,738	253,927,045	460,858,647	131,144,780	278,048,884

Nebraska

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	50	277	17,921,835	35,591,877	5,957,571	14,931,915
Transportation & Utilities	1,639	2,122	564,331,653	636,954,021	244,794,096	284,859,702
Construction	95	142	5,327,815	7,133,934	4,762,550	6,318,458
Wholesale & Retail Trade	-	989	-	62,293,845	-	31,846,954
Manufacturing	15	483	1,626,921	38,077,144	1,093,593	22,358,657
FIRE & Leasing	-	668	-	75,778,870	-	32,970,558
Information & Professional Services	5	2,035	316,714	135,216,327	315,109	95,665,027
Leisure & Other Services	-	935	-	26,809,097	-	18,587,037
Miscellaneous	-	151	-	54,845,199	-	4,593,461
Total Industry	1,803	7,802	589,524,938	1,072,700,314	256,922,919	512,131,768
2007						
Natural Resources	96	396	31,021,969	51,256,834	10,463,935	21,753,980
Transportation & Utilities	1,693	2,363	582,307,232	656,774,818	252,075,989	298,061,828
Construction	654	715	36,667,546	38,553,105	32,777,232	34,555,392
Wholesale & Retail Trade	-	1,294	-	67,055,901	-	37,108,897
Manufacturing	16	651	1,762,492	41,547,625	1,184,722	26,552,056
FIRE & Leasing	-	900	-	81,523,842	-	39,203,774
Information & Professional Services	12	2,703	842,693	146,619,522	838,423	114,068,110
Leisure & Other Services	-	1,242	-	28,578,963	-	21,327,434
Miscellaneous	-	199	-	60,885,381	-	5,412,918
Total Industry	2,472	10,464	652,601,931	1,172,795,991	297,340,301	598,044,390
2008						
Natural Resources	101	373	34,127,719	56,479,943	11,433,117	23,804,900
Transportation & Utilities	1,843	2,456	631,032,789	703,942,083	270,781,456	317,293,533
Construction	307	362	17,242,108	19,070,569	15,412,772	17,168,390
Wholesale & Retail Trade	-	1,177	-	67,737,517	-	37,347,434
Manufacturing	18	612	1,897,871	41,350,701	1,275,723	26,851,880
FIRE & Leasing	-	819	-	80,870,295	-	39,624,750
Information & Professional Services	17	2,462	1,133,274	144,769,467	1,127,532	115,079,249
Leisure & Other Services	-	1,128	-	28,728,341	-	21,386,086
Miscellaneous	-	179	-	62,514,356	-	5,396,157
Total Industry	2,286	9,567	685,433,761	1,205,463,271	300,030,599	603,952,377

New Hampshire

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	-	4	-	703,717	-	382,181
Transportation & Utilities	237	265	83,213,572	96,545,541	37,512,592	44,344,240
Construction	8	13	458,801	1,325,352	410,124	1,162,535
Wholesale & Retail Trade	-	120	-	24,833,330	-	13,575,309
Manufacturing	-	66	-	14,260,384	-	8,685,566
FIRE & Leasing	-	70	-	34,326,535	-	18,385,887
Information & Professional Services	-	217	-	56,668,550	-	43,314,711
Leisure & Other Services	-	107	-	12,583,408	-	9,087,318
Miscellaneous	-	12	-	11,315,122	-	1,141,053
Total Industry	245	875	83,672,373	252,561,940	37,922,716	140,078,799
2007						
Natural Resources	-	4	-	689,337	-	359,174
Transportation & Utilities	240	267	84,222,272	98,225,682	37,929,764	44,935,474
Construction	9	13	496,940	1,235,052	444,216	1,055,995
Wholesale & Retail Trade	-	117	-	26,311,092	-	13,963,798
Manufacturing	-	67	-	15,423,840	-	9,178,352
FIRE & Leasing	-	67	-	33,886,353	-	17,722,345
Information & Professional Services	-	218	-	61,581,426	-	45,934,092
Leisure & Other Services	-	106	-	13,434,196	-	9,439,621
Miscellaneous	-	12	-	12,217,539	-	1,188,237
Total Industry	249	872	84,719,212	263,004,518	38,373,980	143,777,088
2008						
Natural Resources	-	4	-	673,826	-	336,089
Transportation & Utilities	241	268	84,557,776	99,082,144	38,068,458	45,185,590
Construction	11	15	611,923	1,302,932	547,000	1,080,961
Wholesale & Retail Trade	-	116	-	27,638,040	-	14,091,145
Manufacturing	-	69	-	16,468,320	-	9,414,960
FIRE & Leasing	-	66	-	34,240,445	-	17,216,365
Information & Professional Services	-	219	-	65,083,588	-	46,784,126
Leisure & Other Services	-	103	-	13,829,549	-	9,358,075
Miscellaneous	-	12	-	12,929,336	-	1,199,522
Total Industry	252	873	85,169,699	271,248,180	38,615,458	144,666,833

New Jersey

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	10	68	5,682,619	10,198,243	1,806,954	4,033,118
Transportation & Utilities	3,929	5,198	1,336,801,653	1,490,642,510	566,537,887	647,274,720
Construction	790	950	44,319,184	58,844,288	39,617,053	51,023,509
Wholesale & Retail Trade	-	3,365	-	485,041,621	-	239,936,771
Manufacturing	121	1,530	15,335,787	335,282,063	9,275,913	157,580,271
FIRE & Leasing	-	2,760	-	844,509,997	-	383,711,859
Information & Professional Services	-	8,888	-	1,421,562,846	-	904,635,515
Leisure & Other Services	-	3,357	-	223,122,896	-	140,423,123
Miscellaneous	-	449	-	216,189,130	-	19,086,135
Total Industry	4,850	26,564	1,402,139,243	5,085,393,594	617,237,807	2,547,705,021
2007						
Natural Resources	10	66	5,685,928	9,966,290	1,806,939	3,864,010
Transportation & Utilities	3,884	5,126	1,321,677,969	1,476,337,420	560,283,444	640,160,567
Construction	828	971	46,421,814	59,386,866	41,496,602	51,181,833
Wholesale & Retail Trade	-	3,235	-	499,623,792	-	239,055,085
Manufacturing	108	1,472	13,672,194	349,565,926	8,274,576	160,338,312
FIRE & Leasing	-	2,650	-	898,473,607	-	394,986,953
Information & Professional Services	-	8,607	-	1,477,977,873	-	911,059,319
Leisure & Other Services	-	3,328	-	233,149,434	-	143,194,800
Miscellaneous	-	434	-	225,654,705	-	19,118,237
Total Industry	4,829	25,890	1,387,457,905	5,230,135,912	611,861,560	2,562,959,117
2008						
Natural Resources	10	66	5,693,851	10,208,814	1,806,962	3,838,902
Transportation & Utilities	3,960	5,192	1,347,218,124	1,510,399,839	570,845,538	650,082,036
Construction	816	951	45,766,379	58,684,991	40,910,703	49,751,294
Wholesale & Retail Trade	-	3,190	-	534,562,240	-	242,575,978
Manufacturing	94	1,456	11,856,048	368,407,114	7,222,457	161,195,546
FIRE & Leasing	-	2,605	-	957,470,627	-	401,710,940
Information & Professional Services	-	8,541	-	1,581,386,726	-	923,607,496
Leisure & Other Services	-	3,398	-	252,020,195	-	147,824,382
Miscellaneous	-	432	-	242,429,388	-	19,403,394
Total Industry	4,880	25,831	1,410,534,402	5,515,569,933	620,785,660	2,599,989,968

New Mexico

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	8,071	9,260	2,821,322,685	3,435,191,548	941,824,502	1,182,791,589
Transportation & Utilities	1,544	3,680	594,793,047	905,395,562	310,634,732	498,909,667
Construction	2,182	2,576	122,378,763	151,518,253	109,394,748	140,200,968
Wholesale & Retail Trade	-	3,816	-	256,470,056	-	156,241,672
Manufacturing	136	1,048	14,204,266	154,805,882	11,879,038	98,606,574
FIRE & Leasing	-	2,077	-	295,459,771	-	133,233,342
Information & Professional Services	35	11,039	2,403,741	670,318,496	2,391,561	573,435,415
Leisure & Other Services	-	4,615	-	154,114,325	-	116,576,658
Miscellaneous	-	922	-	356,023,187	-	33,778,155
Total Industry	11,968	39,032	3,555,102,502	6,379,297,080	1,376,124,582	2,933,774,039
2007						
Natural Resources	9,999	11,270	3,447,456,040	4,091,681,312	1,152,471,742	1,404,873,603
Transportation & Utilities	1,622	4,119	625,320,533	975,886,589	326,855,527	543,993,793
Construction	2,456	2,880	137,752,186	172,488,956	123,137,103	159,781,776
Wholesale & Retail Trade	-	4,410	-	300,121,926	-	186,922,219
Manufacturing	122	1,177	12,777,152	183,565,220	10,623,805	117,522,002
FIRE & Leasing	-	2,375	-	350,144,936	-	162,012,681
Information & Professional Services	36	13,045	2,487,722	824,645,847	2,475,117	725,669,426
Leisure & Other Services	-	5,312	-	181,060,529	-	140,291,324
Miscellaneous	-	1,035	-	400,364,271	-	39,018,323
Total Industry	14,236	45,623	4,225,793,633	7,479,959,585	1,615,563,294	3,480,085,148
2008						
Natural Resources	10,135	11,394	3,533,939,463	4,160,064,244	1,178,871,964	1,430,191,178
Transportation & Utilities	1,582	4,119	605,048,157	937,062,738	312,682,013	529,506,415
Construction	2,673	3,080	149,920,128	184,174,973	134,014,053	171,432,409
Wholesale & Retail Trade	-	4,472	-	292,835,771	-	190,768,001
Manufacturing	112	1,164	11,817,100	176,467,793	9,736,088	118,748,368
FIRE & Leasing	-	2,379	-	338,147,695	-	164,766,283
Information & Professional Services	33	13,080	2,244,662	789,108,963	2,233,289	739,032,573
Leisure & Other Services	-	5,331	-	175,797,822	-	142,915,781
Miscellaneous	-	1,044	-	391,513,655	-	39,638,419
Total Industry	14,535	46,062	4,302,969,510	7,445,173,654	1,637,537,407	3,526,999,426

Nevada

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	32	73	14,907,423	28,719,204	4,824,827	10,206,303
Transportation & Utilities	1,975	2,439	665,524,850	731,948,648	276,755,024	313,861,478
Construction	532	669	29,843,951	45,216,636	26,677,598	39,683,685
Wholesale & Retail Trade	-	941	-	153,913,366	-	83,548,866
Manufacturing	1	212	108,461	42,226,677	72,906	24,094,962
FIRE & Leasing	-	680	-	329,682,897	-	115,333,139
Information & Professional Services	44	2,015	2,985,865	330,938,324	2,970,736	238,649,163
Leisure & Other Services	-	2,407	-	389,000,884	-	222,943,509
Miscellaneous	-	113	-	70,969,604	-	6,944,671
Total Industry	2,583	9,548	713,370,550	2,122,616,240	311,301,091	1,055,265,777
2007						
Natural Resources	61	103	20,768,002	33,992,404	6,958,175	12,010,043
Transportation & Utilities	1,974	2,455	665,474,574	729,105,214	276,962,451	312,657,253
Construction	523	641	29,339,645	43,077,385	26,226,799	37,408,424
Wholesale & Retail Trade	-	926	-	158,257,682	-	84,344,402
Manufacturing	1	215	81,346	45,346,606	54,679	25,357,044
FIRE & Leasing	-	665	-	347,921,850	-	117,673,799
Information & Professional Services	68	2,011	4,660,802	353,776,095	4,637,186	251,270,837
Leisure & Other Services	-	2,391	-	413,225,848	-	233,511,533
Miscellaneous	-	115	-	77,613,471	-	7,384,319
Total Industry	2,627	9,523	720,324,369	2,202,316,554	314,839,291	1,081,617,654
2008						
Natural Resources	69	106	23,610,047	36,447,212	7,901,247	12,398,030
Transportation & Utilities	1,922	2,354	648,298,776	710,077,730	269,935,270	302,536,260
Construction	256	347	14,368,703	26,735,813	12,844,227	22,052,357
Wholesale & Retail Trade	-	815	-	156,666,684	-	78,828,086
Manufacturing	1	193	54,225	46,157,825	36,449	24,333,206
FIRE & Leasing	-	565	-	345,587,667	-	110,206,700
Information & Professional Services	73	1,762	4,993,382	356,720,234	4,968,081	239,548,357
Leisure & Other Services	-	2,075	-	409,439,256	-	219,174,231
Miscellaneous	-	104	-	79,965,095	-	7,124,982
Total Industry	2,321	8,321	691,325,134	2,167,797,516	295,685,274	1,016,202,209

New York

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	596	722	211,703,579	225,167,194	70,536,349	77,046,027
Transportation & Utilities	4,195	5,240	1,432,875,341	1,621,783,329	611,974,874	706,284,121
Construction	1,257	1,404	70,478,142	84,600,978	63,000,626	75,158,760
Wholesale & Retail Trade	-	3,165	-	447,780,764	-	248,243,241
Manufacturing	283	1,491	38,203,997	263,954,699	22,217,241	153,851,672
FIRE & Leasing	-	4,255	-	1,562,345,109	-	819,317,437
Information & Professional Services	247	10,729	16,891,855	2,093,489,326	16,806,265	1,418,496,150
Leisure & Other Services	-	4,525	-	355,035,813	-	265,490,819
Miscellaneous	-	543	-	301,242,669	-	28,795,661
Total Industry	6,577	32,074	1,770,152,914	6,955,399,879	784,535,356	3,792,683,888
2007						
Natural Resources	763	897	257,975,056	271,718,134	86,453,457	93,205,198
Transportation & Utilities	4,468	5,576	1,525,098,540	1,734,671,531	650,342,914	750,664,219
Construction	1,454	1,607	81,525,625	96,086,409	72,876,007	84,670,688
Wholesale & Retail Trade	-	3,363	-	507,481,144	-	269,412,900
Manufacturing	300	1,597	40,688,304	291,770,402	23,631,960	164,502,316
FIRE & Leasing	-	4,533	-	1,851,967,814	-	945,775,270
Information & Professional Services	243	11,376	16,634,972	2,367,465,584	16,550,685	1,536,376,290
Leisure & Other Services	-	4,978	-	411,892,028	-	296,265,926
Miscellaneous	-	580	-	340,597,419	-	30,971,995
Total Industry	7,228	34,506	1,921,922,497	7,873,650,467	849,855,022	4,171,844,802
2008						
Natural Resources	706	847	263,829,531	278,064,306	87,275,398	94,092,752
Transportation & Utilities	4,449	5,616	1,518,302,419	1,739,454,329	647,379,815	748,496,584
Construction	2,046	2,208	114,742,662	129,832,150	102,568,809	113,987,245
Wholesale & Retail Trade	-	3,555	-	544,742,740	-	278,453,717
Manufacturing	318	1,699	43,060,738	310,121,103	25,006,947	169,693,343
FIRE & Leasing	-	4,720	-	2,022,696,240	-	993,501,312
Information & Professional Services	253	12,038	17,312,351	2,518,294,221	17,224,631	1,578,623,119
Leisure & Other Services	-	5,355	-	444,750,499	-	309,468,965
Miscellaneous	-	609	-	363,594,971	-	31,672,788
Total Industry	7,772	36,647	1,957,247,701	8,351,550,560	879,455,601	4,317,989,826

Ohio

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	3,778	4,106	1,630,986,412	1,728,863,290	531,690,042	563,222,227
Transportation & Utilities	4,189	6,230	1,441,296,185	1,947,197,485	624,204,837	872,835,450
Construction	1,183	1,405	66,366,880	91,121,260	59,325,556	78,667,836
Wholesale & Retail Trade	-	4,680	-	776,444,519	-	372,082,828
Manufacturing	516	5,163	61,522,123	1,154,284,828	41,732,327	598,819,107
FIRE & Leasing	-	2,807	-	1,028,915,323	-	383,110,562
Information & Professional Services	331	11,602	22,657,687	1,961,296,776	22,542,882	1,315,892,642
Leisure & Other Services	-	5,077	-	337,397,024	-	215,146,801
Miscellaneous	-	625	-	507,770,177	-	41,987,149
Total Industry	9,999	41,696	3,222,829,286	9,533,290,681	1,279,495,644	4,441,764,602
2007						
Natural Resources	4,368	4,700	1,795,286,008	1,886,952,724	588,025,292	617,691,805
Transportation & Utilities	4,122	6,252	1,418,706,884	1,939,809,366	614,862,984	864,089,587
Construction	1,316	1,526	73,815,205	97,561,658	65,983,638	83,579,048
Wholesale & Retail Trade	-	4,709	-	841,232,384	-	389,933,980
Manufacturing	466	5,238	55,041,251	1,273,001,386	37,749,901	632,607,488
FIRE & Leasing	-	2,811	-	1,107,043,669	-	402,093,906
Information & Professional Services	176	11,704	12,032,995	2,121,694,607	11,972,025	1,376,357,990
Leisure & Other Services	-	5,146	-	371,320,700	-	229,007,740
Miscellaneous	-	633	-	554,001,423	-	44,033,391
Total Industry	10,449	42,718	3,354,882,343	10,192,617,916	1,318,593,840	4,639,394,936
2008						
Natural Resources	3,560	3,873	1,629,520,891	1,719,082,127	527,327,440	555,303,450
Transportation & Utilities	4,346	6,374	1,494,468,951	2,022,093,760	646,574,853	889,245,567
Construction	1,447	1,629	81,163,712	103,533,037	72,552,485	88,173,187
Wholesale & Retail Trade	-	4,404	-	853,949,478	-	383,851,895
Manufacturing	467	5,030	55,128,654	1,292,506,783	37,884,742	624,864,040
FIRE & Leasing	-	2,595	-	1,111,652,242	-	394,249,632
Information & Professional Services	173	11,080	11,842,953	2,147,248,994	11,782,946	1,356,320,096
Leisure & Other Services	-	4,798	-	377,403,013	-	226,737,648
Miscellaneous	-	591	-	562,675,693	-	43,147,084
Total Industry	9,994	40,374	3,272,125,160	10,190,145,127	1,296,122,466	4,561,892,600

Oklahoma

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	25,695	35,114	10,329,698,621	13,029,048,391	3,392,818,124	4,424,808,338
Transportation & Utilities	3,770	9,849	1,327,663,296	2,075,809,326	600,562,828	980,847,327
Construction	3,257	4,162	182,703,264	232,720,474	163,319,004	210,696,953
Wholesale & Retail Trade	-	17,641	-	905,553,646	-	492,879,049
Manufacturing	4,515	13,882	464,325,124	983,844,070	397,533,091	713,925,293
FIRE & Leasing	-	10,618	-	856,489,312	-	330,309,256
Information & Professional Services	214	40,142	14,649,550	1,627,058,910	14,575,321	1,187,815,626
Leisure & Other Services	-	17,632	-	393,945,117	-	252,789,579
Miscellaneous	-	3,738	-	1,115,512,771	-	85,485,675
Total Industry	37,452	152,778	12,319,039,854	21,219,982,016	4,568,808,368	8,679,557,097
2007						
Natural Resources	28,462	38,255	11,511,600,477	14,270,057,974	3,777,056,942	4,898,471,190
Transportation & Utilities	4,068	10,643	1,428,108,971	2,221,821,638	642,331,477	1,065,758,745
Construction	3,524	4,462	197,638,491	253,816,440	176,669,655	232,138,832
Wholesale & Retail Trade	-	18,872	-	969,302,853	-	552,254,164
Manufacturing	5,092	15,508	523,275,534	1,093,828,054	448,528,674	818,996,388
FIRE & Leasing	-	11,282	-	938,532,589	-	382,324,642
Information & Professional Services	303	43,384	20,710,951	1,761,030,420	20,606,011	1,356,835,069
Leisure & Other Services	-	19,238	-	451,373,517	-	302,840,144
Miscellaneous	-	4,025	-	1,187,557,836	-	95,224,988
Total Industry	41,448	165,671	13,681,334,424	23,147,321,320	5,065,192,759	9,704,844,161
2008						
Natural Resources	30,003	39,992	12,412,209,428	15,078,315,960	4,058,852,406	5,224,044,242
Transportation & Utilities	4,504	11,313	1,574,661,282	2,378,898,166	702,938,537	1,158,610,508
Construction	3,906	4,927	219,082,063	280,325,157	195,838,114	259,727,620
Wholesale & Retail Trade	-	19,847	-	998,367,200	-	599,747,786
Manufacturing	5,504	16,709	565,948,780	1,150,575,100	484,911,087	895,204,480
FIRE & Leasing	-	11,835	-	958,970,453	-	419,142,121
Information & Professional Services	248	45,407	16,982,012	1,788,891,646	16,895,966	1,469,257,111
Leisure & Other Services	-	20,327	-	479,555,556	-	339,305,582
Miscellaneous	-	4,162	-	1,224,749,171	-	102,898,826
Total Industry	44,165	174,519	14,788,883,564	24,338,648,410	5,459,436,110	10,467,938,275

Oregon

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	45	211	13,497,265	37,550,366	4,597,658	19,682,025
Transportation & Utilities	1,432	1,707	500,971,994	559,343,663	223,821,358	258,048,858
Construction	216	269	12,090,364	17,521,623	10,807,614	15,550,720
Wholesale & Retail Trade	-	809	-	147,236,383	-	80,675,569
Manufacturing	35	478	4,346,232	151,170,402	2,669,626	91,916,126
FIRE & Leasing	-	654	-	258,258,114	-	87,207,462
Information & Professional Services	-	1,769	-	336,446,559	-	254,174,785
Leisure & Other Services	-	840	-	70,993,294	-	50,360,587
Miscellaneous	-	118	-	99,813,937	-	9,725,229
Total Industry	1,728	6,854	530,905,855	1,678,334,342	241,896,255	867,341,362
2007						
Natural Resources	60	226	18,230,946	42,149,069	6,197,485	20,811,620
Transportation & Utilities	1,440	1,708	503,575,217	562,460,198	224,898,026	258,405,108
Construction	246	298	13,824,576	19,011,082	12,357,831	16,688,662
Wholesale & Retail Trade	-	811	-	158,416,620	-	84,193,691
Manufacturing	38	496	4,617,987	165,137,183	2,852,239	97,725,853
FIRE & Leasing	-	650	-	268,527,749	-	88,214,462
Information & Professional Services	-	1,771	-	360,800,526	-	265,978,486
Leisure & Other Services	-	857	-	77,474,216	-	53,396,130
Miscellaneous	-	118	-	107,310,317	-	10,085,820
Total Industry	1,784	6,937	540,248,725	1,761,286,960	246,305,581	895,499,832
2008						
Natural Resources	59	223	16,288,142	41,242,068	5,612,948	20,079,788
Transportation & Utilities	1,478	1,747	516,257,934	578,348,884	230,142,769	263,442,212
Construction	221	267	12,368,594	17,417,050	11,056,324	14,951,615
Wholesale & Retail Trade	-	795	-	169,188,006	-	85,578,848
Manufacturing	42	510	5,153,433	175,881,752	3,180,629	98,775,872
FIRE & Leasing	-	620	-	276,046,383	-	88,254,332
Information & Professional Services	-	1,774	-	387,030,504	-	272,857,564
Leisure & Other Services	-	860	-	83,659,125	-	54,812,460
Miscellaneous	-	120	-	116,109,300	-	10,292,172
Total Industry	1,799	6,915	550,068,103	1,844,923,071	249,992,670	909,044,862

Pennsylvania

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	3,962	4,385	1,514,484,807	1,692,583,272	500,234,557	555,799,604
Transportation & Utilities	5,489	8,046	1,953,671,628	2,456,838,825	900,681,252	1,154,358,156
Construction	1,662	1,981	93,194,409	128,244,069	83,306,766	111,327,619
Wholesale & Retail Trade	-	5,834	-	884,443,755	-	428,659,222
Manufacturing	420	4,697	47,092,307	1,077,360,280	35,177,542	537,035,435
FIRE & Leasing	-	3,931	-	1,305,853,091	-	523,500,829
Information & Professional Services	211	16,853	14,414,921	2,827,657,728	14,341,882	1,905,823,815
Leisure & Other Services	-	6,662	-	442,268,229	-	285,294,100
Miscellaneous	-	680	-	473,398,931	-	39,932,001
Total Industry	11,742	53,068	3,622,858,073	11,288,648,180	1,533,741,998	5,541,730,781
2007						
Natural Resources	5,226	5,672	1,900,359,982	2,065,626,555	631,154,813	681,120,867
Transportation & Utilities	5,335	8,133	1,906,562,230	2,473,623,336	885,154,560	1,158,764,746
Construction	1,901	2,226	106,638,477	142,327,499	95,324,463	121,997,194
Wholesale & Retail Trade	-	6,265	-	1,025,404,950	-	474,096,930
Manufacturing	433	5,136	48,496,715	1,227,708,010	36,279,618	587,672,897
FIRE & Leasing	-	4,198	-	1,475,685,569	-	570,205,295
Information & Professional Services	178	18,240	12,145,855	3,289,577,234	12,084,314	2,124,689,778
Leisure & Other Services	-	7,261	-	517,235,482	-	319,569,356
Miscellaneous	-	729	-	541,597,151	-	43,484,156
Total Industry	13,072	57,859	3,974,203,259	12,758,785,786	1,659,997,767	6,081,601,219
2008						
Natural Resources	4,392	4,801	1,819,016,447	1,981,152,314	594,748,196	640,324,864
Transportation & Utilities	5,376	7,937	1,926,786,863	2,510,694,892	898,841,321	1,165,786,374
Construction	1,820	2,107	102,080,165	136,771,523	91,249,765	115,372,214
Wholesale & Retail Trade	-	5,744	-	1,059,573,583	-	469,552,429
Manufacturing	503	4,937	56,194,911	1,263,097,819	42,240,608	583,794,575
FIRE & Leasing	-	3,858	-	1,503,576,442	-	561,466,225
Information & Professional Services	155	16,800	10,598,198	3,381,389,263	10,544,498	2,101,759,759
Leisure & Other Services	-	6,701	-	534,376,309	-	317,908,727
Miscellaneous	-	668	-	561,509,149	-	43,008,147
Total Industry	12,245	53,554	3,914,676,584	12,932,141,293	1,637,624,389	5,998,973,314

Rhode Island

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	-	7	-	787,025	-	505,362
Transportation & Utilities	445	507	149,932,077	161,254,960	62,157,875	68,366,846
Construction	59	73	3,326,589	4,634,680	2,973,648	4,122,209
Wholesale & Retail Trade	-	224	-	30,096,042	-	16,154,687
Manufacturing	-	144	-	19,375,415	-	11,461,704
FIRE & Leasing	-	199	-	69,801,155	-	30,670,022
Information & Professional Services	-	714	-	93,071,813	-	69,212,560
Leisure & Other Services	-	348	-	19,610,447	-	13,818,937
Miscellaneous	-	30	-	17,691,363	-	1,629,964
Total Industry	505	2,245	153,258,665	416,322,900	65,131,523	215,942,292
2007						
Natural Resources	-	7	-	710,805	-	455,112
Transportation & Utilities	444	501	149,508,879	160,498,057	61,982,862	67,875,307
Construction	43	54	2,408,981	3,578,018	2,153,395	3,139,799
Wholesale & Retail Trade	-	208	-	32,002,481	-	16,761,862
Manufacturing	-	136	-	20,338,171	-	11,773,016
FIRE & Leasing	-	186	-	71,787,606	-	31,462,656
Information & Professional Services	-	666	-	93,269,035	-	68,052,831
Leisure & Other Services	-	336	-	20,894,026	-	14,337,859
Miscellaneous	-	28	-	18,421,996	-	1,642,472
Total Industry	487	2,122	151,917,859	421,500,195	64,136,258	215,500,915
2008						
Natural Resources	-	7	-	622,323	-	407,827
Transportation & Utilities	445	502	149,723,266	160,936,689	62,071,520	67,860,625
Construction	49	60	2,752,814	3,872,238	2,460,749	3,356,979
Wholesale & Retail Trade	-	204	-	33,716,636	-	17,157,278
Manufacturing	-	138	-	21,072,580	-	11,898,862
FIRE & Leasing	-	186	-	74,747,648	-	32,278,512
Information & Professional Services	-	667	-	95,017,830	-	67,758,111
Leisure & Other Services	-	335	-	21,709,913	-	14,507,652
Miscellaneous	-	27	-	19,132,458	-	1,642,282
Total Industry	494	2,126	152,476,081	430,828,315	64,532,268	216,868,129

South Carolina

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	-	39	-	8,628,735	-	4,617,100
Transportation & Utilities	1,044	1,192	363,028,620	437,437,051	160,470,921	196,890,403
Construction	136	169	7,609,481	13,290,867	6,802,138	11,718,075
Wholesale & Retail Trade	-	419	-	119,741,749	-	66,894,939
Manufacturing	1	426	135,577	119,861,704	91,133	69,893,724
FIRE & Leasing	-	268	-	128,071,859	-	53,208,161
Information & Professional Services	-	871	-	213,866,431	-	158,329,009
Leisure & Other Services	-	466	-	60,466,592	-	40,303,368
Miscellaneous	-	67	-	86,933,675	-	8,548,990
Total Industry	1,181	3,917	370,773,678	1,188,298,664	167,364,192	610,403,769
2007						
Natural Resources	-	37	-	7,945,834	-	4,220,766
Transportation & Utilities	1,038	1,175	361,012,662	432,280,980	159,637,256	193,589,064
Construction	125	156	7,035,682	12,127,510	6,289,218	10,523,981
Wholesale & Retail Trade	-	399	-	125,829,498	-	68,538,855
Manufacturing	1	420	135,576	127,298,407	91,132	72,278,352
FIRE & Leasing	-	261	-	136,939,220	-	54,785,424
Information & Professional Services	-	835	-	220,520,429	-	159,849,447
Leisure & Other Services	-	447	-	63,946,582	-	41,413,885
Miscellaneous	-	64	-	91,608,127	-	8,775,697
Total Industry	1,165	3,794	368,183,920	1,218,496,588	166,017,606	613,975,471
2008						
Natural Resources	-	36	-	7,962,285	-	4,084,801
Transportation & Utilities	1,024	1,155	356,303,936	429,114,415	157,689,728	190,046,516
Construction	127	153	7,111,437	11,777,633	6,356,935	9,973,233
Wholesale & Retail Trade	-	382	-	128,498,768	-	67,260,695
Manufacturing	1	424	135,562	134,868,665	91,123	73,552,659
FIRE & Leasing	-	260	-	141,498,463	-	55,323,640
Information & Professional Services	-	810	-	223,148,046	-	157,094,194
Leisure & Other Services	-	429	-	65,975,045	-	40,953,966
Miscellaneous	-	63	-	95,959,011	-	8,759,061
Total Industry	1,152	3,712	363,550,935	1,238,802,329	164,137,786	607,048,765

South Dakota

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	44	85	19,001,753	26,118,775	6,187,114	10,137,232
Transportation & Utilities	371	417	137,390,510	159,049,316	67,683,400	79,023,359
Construction	36	46	2,036,000	3,225,622	1,819,987	2,966,944
Wholesale & Retail Trade	-	142	-	31,821,084	-	18,910,194
Manufacturing	-	77	-	18,800,456	-	12,182,750
FIRE & Leasing	-	99	-	58,538,834	-	28,251,728
Information & Professional Services	-	257	-	56,522,907	-	43,994,490
Leisure & Other Services	-	164	-	17,187,203	-	12,612,367
Miscellaneous	-	23	-	26,214,224	-	2,800,979
Total Industry	451	1,311	158,428,263	397,478,421	75,690,500	210,880,043
2007						
Natural Resources	62	103	23,590,026	31,203,188	7,786,423	12,016,510
Transportation & Utilities	363	409	134,701,708	155,824,100	66,571,470	77,437,330
Construction	51	61	2,876,194	3,972,221	2,571,039	3,594,277
Wholesale & Retail Trade	-	145	-	33,215,465	-	19,398,024
Manufacturing	-	81	-	20,329,219	-	12,967,529
FIRE & Leasing	-	104	-	60,297,531	-	29,113,283
Information & Professional Services	-	267	-	60,632,372	-	46,528,917
Leisure & Other Services	-	167	-	18,075,290	-	13,083,621
Miscellaneous	-	23	-	27,255,277	-	2,839,783
Total Industry	476	1,360	161,167,928	410,804,663	76,928,932	216,979,273
2008						
Natural Resources	77	130	26,755,024	34,916,144	8,922,485	13,629,661
Transportation & Utilities	363	422	134,700,223	156,704,571	66,570,658	78,240,540
Construction	31	42	1,715,741	2,847,403	1,533,706	2,597,766
Wholesale & Retail Trade	-	185	-	36,295,434	-	21,820,813
Manufacturing	-	106	-	23,952,914	-	15,737,131
FIRE & Leasing	-	134	-	66,392,363	-	33,184,584
Information & Professional Services	145	483	9,945,044	75,581,204	9,894,653	61,938,796
Leisure & Other Services	-	211	-	19,892,642	-	14,875,080
Miscellaneous	-	29	-	29,899,946	-	3,174,113
Total Industry	615	1,742	173,116,032	446,482,620	86,921,502	245,198,484

Tennessee

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	181	340	55,345,125	69,508,511	18,806,627	25,069,840
Transportation & Utilities	2,363	3,342	830,349,414	1,011,129,841	374,067,709	490,450,989
Construction	470	543	26,335,075	38,118,580	23,541,004	33,259,355
Wholesale & Retail Trade	-	1,407	-	366,266,117	-	193,221,841
Manufacturing	90	1,335	11,797,146	380,201,088	6,987,954	205,677,518
FIRE & Leasing	-	761	-	365,312,409	-	138,720,434
Information & Professional Services	187	3,142	12,765,000	781,467,716	12,700,321	549,155,420
Leisure & Other Services	-	1,481	-	190,823,410	-	126,483,067
Miscellaneous	-	184	-	197,026,294	-	18,691,397
Total Industry	3,290	12,535	936,591,760	3,399,853,966	436,103,615	1,780,729,861
2007						
Natural Resources	248	405	70,709,413	83,375,803	24,254,708	29,806,256
Transportation & Utilities	2,258	3,221	791,523,271	971,171,336	354,914,350	467,142,106
Construction	547	619	30,657,153	41,390,513	27,404,523	35,801,635
Wholesale & Retail Trade	-	1,384	-	381,982,531	-	195,174,465
Manufacturing	82	1,314	10,711,444	391,395,534	6,358,713	205,024,608
FIRE & Leasing	-	755	-	378,520,815	-	139,802,936
Information & Professional Services	215	3,132	14,690,349	807,897,376	14,615,915	550,986,554
Leisure & Other Services	-	1,499	-	199,889,297	-	128,567,968
Miscellaneous	-	183	-	207,263,596	-	18,937,178
Total Industry	3,349	12,512	918,291,630	3,462,886,800	427,548,210	1,771,243,707
2008						
Natural Resources	291	441	83,054,470	95,682,698	28,477,359	33,677,618
Transportation & Utilities	2,223	3,135	782,102,993	972,482,571	353,302,194	465,292,413
Construction	441	508	24,737,189	35,390,042	22,112,647	29,759,883
Wholesale & Retail Trade	-	1,298	-	400,024,257	-	193,532,852
Manufacturing	75	1,259	9,774,084	411,671,578	5,815,431	203,692,205
FIRE & Leasing	-	719	-	391,685,492	-	137,769,220
Information & Professional Services	194	2,952	13,273,737	838,627,443	13,206,480	542,628,536
Leisure & Other Services	-	1,418	-	207,987,405	-	127,452,656
Miscellaneous	-	174	-	217,805,639	-	18,755,983
Total Industry	3,224	11,905	912,942,472	3,571,357,125	422,914,112	1,752,561,365

Texas

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	118,477	162,439	43,842,303,131	57,399,388,136	14,535,699,071	19,458,572,245
Transportation & Utilities	17,086	62,127	6,629,430,886	11,645,714,083	3,497,445,795	6,195,519,450
Construction	25,459	34,169	1,427,950,782	1,784,416,479	1,276,449,552	1,618,708,034
Wholesale & Retail Trade	-	126,711	-	5,462,353,524	-	3,025,633,850
Manufacturing	24,593	78,650	2,490,670,212	6,927,424,623	2,163,433,596	4,602,304,281
FIRE & Leasing	-	92,727	-	5,961,680,246	-	2,503,348,353
Information & Professional Services	3,011	292,183	205,973,377	10,758,050,951	204,929,722	8,087,770,012
Leisure & Other Services	-	125,481	-	2,470,882,717	-	1,612,736,597
Miscellaneous	-	20,135	-	3,766,164,968	-	307,048,264
Total Industry	188,626	994,622	54,596,328,388	106,176,075,727	21,677,957,736	47,411,641,086
2007						
Natural Resources	146,655	194,864	51,929,334,347	66,186,436,095	17,302,470,719	22,415,588,178
Transportation & Utilities	16,890	69,197	6,554,393,919	12,274,532,853	3,458,523,627	6,556,742,955
Construction	31,350	41,558	1,758,353,376	2,186,566,020	1,571,797,492	1,982,460,002
Wholesale & Retail Trade	-	149,074	-	6,420,550,177	-	3,635,401,979
Manufacturing	28,651	93,182	2,900,033,059	8,292,515,154	2,520,350,562	5,537,243,755
FIRE & Leasing	-	109,767	-	7,093,155,800	-	3,065,114,504
Information & Professional Services	3,586	342,853	245,309,066	12,955,099,859	244,066,114	9,994,696,982
Leisure & Other Services	-	148,229	-	2,870,899,189	-	1,921,785,759
Miscellaneous	-	23,482	-	4,306,121,724	-	362,407,665
Total Industry	227,133	1,172,207	63,387,423,767	122,585,876,869	25,097,208,513	55,471,441,780
2008						
Natural Resources	160,788	211,157	57,540,826,401	72,287,941,284	19,133,045,642	24,333,259,837
Transportation & Utilities	16,493	72,618	6,367,327,065	12,515,166,148	3,335,682,795	6,677,958,228
Construction	36,895	47,985	2,069,352,423	2,538,742,183	1,849,800,340	2,300,785,293
Wholesale & Retail Trade	-	161,893	-	6,907,387,456	-	3,992,023,849
Manufacturing	30,939	100,895	3,132,174,427	8,919,748,762	2,723,608,577	6,023,632,741
FIRE & Leasing	-	119,371	-	7,757,669,337	-	3,419,002,991
Information & Professional Services	3,934	369,436	269,057,169	14,004,054,195	267,693,881	11,099,475,705
Leisure & Other Services	-	160,466	-	3,072,343,114	-	2,104,473,787
Miscellaneous	-	25,308	-	4,604,907,673	-	393,998,437
Total Industry	249,049	1,269,130	69,378,737,484	132,607,960,154	27,309,831,234	60,344,610,868

Utah

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	3,669	4,042	1,109,098,881	1,234,765,588	377,381,672	415,208,455
Transportation & Utilities	1,097	2,619	389,223,739	588,093,705	178,303,626	276,310,689
Construction	1,225	1,551	68,718,095	86,789,392	61,427,315	76,428,096
Wholesale & Retail Trade	-	3,535	-	268,780,358	-	133,090,314
Manufacturing	179	1,938	18,197,086	201,111,511	15,844,544	111,726,919
FIRE & Leasing	-	2,362	-	429,459,523	-	168,743,692
Information & Professional Services	57	8,436	3,873,758	613,822,532	3,854,130	422,998,517
Leisure & Other Services	-	3,360	-	158,677,415	-	94,626,403
Miscellaneous	-	530	-	194,084,505	-	16,984,654
Total Industry	6,226	28,373	1,589,111,560	3,775,584,528	636,811,286	1,716,117,740
2007						
Natural Resources	4,171	4,595	1,290,184,307	1,417,338,491	437,496,819	475,464,616
Transportation & Utilities	1,138	2,905	403,579,319	622,362,599	184,849,106	293,931,177
Construction	1,978	2,361	110,918,554	131,842,884	99,150,437	116,252,559
Wholesale & Retail Trade	-	4,190	-	329,542,391	-	164,117,861
Manufacturing	213	2,360	21,669,668	244,624,996	18,877,735	137,220,487
FIRE & Leasing	-	2,858	-	518,439,855	-	208,033,251
Information & Professional Services	60	9,890	4,071,875	724,156,882	4,051,243	501,964,710
Leisure & Other Services	-	3,977	-	189,942,234	-	113,946,959
Miscellaneous	-	612	-	222,146,888	-	19,565,974
Total Industry	7,558	33,749	1,830,423,722	4,400,397,220	744,425,339	2,030,497,594
2008						
Natural Resources	5,902	6,401	1,691,030,210	1,866,524,406	579,465,868	627,199,773
Transportation & Utilities	1,163	3,205	412,737,139	667,900,770	189,250,669	310,108,711
Construction	1,519	1,901	85,199,827	110,007,706	76,160,381	95,051,893
Wholesale & Retail Trade	-	4,906	-	411,187,506	-	195,126,584
Manufacturing	255	2,804	26,018,825	303,343,449	22,675,221	163,570,611
FIRE & Leasing	-	3,269	-	634,867,258	-	246,059,741
Information & Professional Services	57	11,439	3,929,185	876,137,044	3,909,276	584,201,696
Leisure & Other Services	-	4,599	-	232,540,665	-	133,270,527
Miscellaneous	-	712	-	271,494,872	-	22,593,770
Total Industry	8,896	39,236	2,218,915,185	5,374,003,678	871,461,415	2,377,183,305

Virginia

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	902	1,008	303,611,577	316,346,079	101,827,395	107,993,220
Transportation & Utilities	2,074	2,598	726,734,891	856,436,868	325,649,060	399,591,027
Construction	1,245	1,361	69,829,763	82,141,281	62,421,038	73,064,872
Wholesale & Retail Trade	-	1,478	-	240,449,562	-	136,740,070
Manufacturing	54	773	6,666,005	241,735,399	4,095,463	103,894,488
FIRE & Leasing	-	971	-	512,745,730	-	192,127,940
Information & Professional Services	218	4,557	14,897,859	1,042,421,638	14,822,372	764,582,343
Leisure & Other Services	-	1,858	-	137,786,052	-	105,710,549
Miscellaneous	-	262	-	206,206,611	-	20,007,772
Total Industry	4,492	14,866	1,121,740,095	3,636,269,218	508,815,327	1,903,712,281
2007						
Natural Resources	1,075	1,182	350,430,726	363,044,073	117,988,634	124,006,245
Transportation & Utilities	2,044	2,558	716,672,388	850,834,022	321,487,745	394,440,672
Construction	1,223	1,330	68,599,018	80,151,571	61,320,874	70,776,060
Wholesale & Retail Trade	-	1,490	-	262,267,722	-	143,678,732
Manufacturing	51	787	6,302,490	267,533,886	3,883,776	110,517,384
FIRE & Leasing	-	971	-	548,273,009	-	198,971,421
Information & Professional Services	279	4,692	19,101,490	1,135,956,145	19,004,705	810,456,685
Leisure & Other Services	-	1,901	-	151,925,856	-	112,694,582
Miscellaneous	-	266	-	228,665,101	-	21,339,268
Total Industry	4,672	15,177	1,161,106,112	3,888,651,384	523,685,732	1,986,881,048
2008						
Natural Resources	1,304	1,411	404,422,181	417,044,700	137,016,600	142,708,304
Transportation & Utilities	1,826	2,324	643,203,787	778,148,771	291,103,686	359,873,663
Construction	1,231	1,328	69,045,271	79,746,701	61,719,775	69,813,743
Wholesale & Retail Trade	-	1,453	-	270,188,466	-	141,094,068
Manufacturing	52	788	6,466,365	278,607,315	3,968,685	109,491,516
FIRE & Leasing	-	941	-	560,497,401	-	194,480,189
Information & Professional Services	270	4,644	18,433,314	1,159,847,884	18,339,914	792,663,071
Leisure & Other Services	-	1,892	-	156,725,723	-	111,348,880
Miscellaneous	-	264	-	238,508,886	-	21,148,008
Total Industry	4,683	15,045	1,141,570,918	3,939,315,847	512,148,660	1,942,621,442

Vermont

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	-	3	-	427,337	-	244,262
Transportation & Utilities	96	107	32,102,818	36,038,908	13,276,406	15,221,423
Construction	-	2	-	326,048	-	272,770
Wholesale & Retail Trade	-	31	-	6,776,700	-	3,472,292
Manufacturing	-	18	-	4,142,037	-	2,448,105
FIRE & Leasing	-	14	-	8,275,440	-	3,174,507
Information & Professional Services	-	62	-	14,678,621	-	10,593,448
Leisure & Other Services	-	32	-	4,553,175	-	3,061,220
Miscellaneous	-	4	-	4,581,903	-	463,284
Total Industry	96	273	32,102,818	79,800,170	13,276,406	38,951,311
2007						
Natural Resources	-	3	-	470,274	-	270,273
Transportation & Utilities	96	107	32,297,865	36,451,566	13,357,071	15,381,074
Construction	-	2	-	284,065	-	233,740
Wholesale & Retail Trade	-	30	-	6,919,744	-	3,525,650
Manufacturing	-	18	-	4,308,615	-	2,576,169
FIRE & Leasing	-	13	-	8,847,137	-	3,391,699
Information & Professional Services	-	61	-	14,748,541	-	10,682,388
Leisure & Other Services	-	31	-	4,683,225	-	3,139,616
Miscellaneous	-	4	-	4,793,979	-	480,738
Total Industry	96	270	32,297,865	81,507,146	13,357,071	39,681,347
2008						
Natural Resources	-	3	-	516,191	-	288,331
Transportation & Utilities	96	107	32,284,259	36,529,936	13,351,443	15,377,621
Construction	-	2	-	266,577	-	211,276
Wholesale & Retail Trade	-	29	-	7,037,416	-	3,533,207
Manufacturing	-	18	-	4,428,405	-	2,621,121
FIRE & Leasing	-	13	-	9,102,669	-	3,415,319
Information & Professional Services	-	61	-	14,743,454	-	10,587,376
Leisure & Other Services	-	30	-	4,798,093	-	3,162,366
Miscellaneous	-	4	-	4,941,205	-	483,615
Total Industry	96	267	32,284,259	82,363,946	13,351,443	39,680,232

Washington

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	-	261	-	24,974,638	-	16,195,636
Transportation & Utilities	1,503	2,057	527,287,840	601,389,170	236,977,326	282,188,167
Construction	1,090	1,231	61,144,511	70,146,512	54,657,264	62,402,314
Wholesale & Retail Trade	-	1,551	-	212,849,017	-	117,359,052
Manufacturing	11	653	1,209,344	94,593,509	812,904	55,074,660
FIRE & Leasing	-	1,115	-	361,017,568	-	132,757,026
Information & Professional Services	-	3,791	-	570,407,932	-	401,549,811
Leisure & Other Services	-	1,764	-	108,502,965	-	75,207,333
Miscellaneous	-	261	-	121,205,467	-	12,446,376
Total Industry	2,604	12,684	589,641,694	2,165,086,780	292,447,494	1,155,180,375
2007						
Natural Resources	-	225	-	23,844,662	-	14,904,204
Transportation & Utilities	1,511	1,995	529,978,550	602,884,874	238,090,185	279,862,850
Construction	805	926	45,159,833	53,832,237	40,368,514	47,232,751
Wholesale & Retail Trade	-	1,343	-	218,758,497	-	113,593,316
Manufacturing	12	582	1,274,417	97,499,725	856,645	53,151,572
FIRE & Leasing	-	956	-	365,048,506	-	127,088,581
Information & Professional Services	-	3,308	-	605,941,441	-	399,989,894
Leisure & Other Services	-	1,548	-	109,943,967	-	71,856,623
Miscellaneous	-	224	-	123,399,917	-	11,845,047
Total Industry	2,328	11,107	576,412,801	2,201,153,827	279,315,345	1,119,524,837
2008						
Natural Resources	-	223	-	24,524,008	-	14,605,291
Transportation & Utilities	1,550	2,045	543,084,520	621,692,393	243,509,927	285,548,898
Construction	818	933	45,880,799	55,039,667	41,012,984	47,638,024
Wholesale & Retail Trade	-	1,343	-	235,262,582	-	115,594,203
Manufacturing	12	593	1,328,510	104,322,664	893,006	53,603,077
FIRE & Leasing	-	946	-	389,317,661	-	128,747,194
Information & Professional Services	-	3,330	-	659,459,021	-	412,636,400
Leisure & Other Services	-	1,576	-	117,500,789	-	73,020,636
Miscellaneous	-	226	-	133,211,379	-	12,053,721
Total Industry	2,380	11,214	590,293,829	2,340,330,164	285,415,916	1,143,447,444

Wisconsin

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	-	58	-	7,288,858	-	4,145,528
Transportation & Utilities	921	1,132	316,018,109	370,149,449	136,168,767	166,678,072
Construction	299	325	16,787,187	20,784,507	15,006,118	18,563,568
Wholesale & Retail Trade	-	520	-	111,021,934	-	59,491,124
Manufacturing	84	660	9,121,601	174,236,491	6,131,413	102,101,538
FIRE & Leasing	-	303	-	152,652,928	-	65,017,411
Information & Professional Services	-	1,086	-	241,084,922	-	185,259,025
Leisure & Other Services	-	592	-	49,440,136	-	36,604,886
Miscellaneous	-	67	-	73,428,961	-	7,101,121
Total Industry	1,304	4,745	341,926,898	1,200,088,187	157,306,297	644,962,274
2007						
Natural Resources	-	82	-	8,697,518	-	5,246,624
Transportation & Utilities	847	1,143	287,844,586	343,810,703	121,702,977	154,968,779
Construction	980	1,014	54,948,876	58,743,136	49,118,969	52,625,588
Wholesale & Retail Trade	-	736	-	119,433,986	-	67,424,711
Manufacturing	83	915	9,002,265	189,824,392	6,051,197	116,957,097
FIRE & Leasing	-	433	-	164,303,371	-	75,187,173
Information & Professional Services	-	1,548	-	261,464,456	-	212,652,389
Leisure & Other Services	-	848	-	54,455,847	-	42,622,737
Miscellaneous	-	94	-	79,734,382	-	8,085,890
Total Industry	1,910	6,814	351,795,728	1,280,467,791	176,873,144	735,770,986
2008						
Natural Resources	-	69	-	8,887,533	-	4,971,725
Transportation & Utilities	817	1,061	278,204,084	332,375,786	118,096,328	147,651,077
Construction	723	749	40,528,292	43,978,277	36,228,361	39,095,117
Wholesale & Retail Trade	-	611	-	116,743,512	-	60,905,049
Manufacturing	83	795	8,952,530	187,174,043	6,017,766	107,088,756
FIRE & Leasing	-	367	-	158,903,702	-	68,721,074
Information & Professional Services	-	1,290	-	254,876,758	-	192,527,875
Leisure & Other Services	-	703	-	53,228,508	-	38,744,587
Miscellaneous	-	79	-	78,842,707	-	7,358,635
Total Industry	1,622	5,723	327,684,906	1,235,010,825	160,342,456	667,063,895

West Virginia

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	3,279	3,809	1,048,511,692	1,242,007,459	354,040,296	431,380,671
Transportation & Utilities	1,398	2,300	511,741,711	848,406,588	247,366,766	427,745,711
Construction	669	779	37,534,759	44,371,221	33,552,436	40,463,293
Wholesale & Retail Trade	-	1,364	-	129,043,711	-	73,832,696
Manufacturing	1	849	108,461	110,538,652	72,906	65,468,589
FIRE & Leasing	-	641	-	120,531,688	-	46,106,635
Information & Professional Services	94	3,201	6,415,676	252,914,293	6,383,168	202,863,824
Leisure & Other Services	-	2,216	-	79,911,403	-	58,021,461
Miscellaneous	-	247	-	127,662,247	-	11,810,024
Total Industry	5,441	15,406	1,604,312,300	2,955,387,261	641,415,573	1,357,692,904
2007						
Natural Resources	4,281	4,887	1,291,829,044	1,492,438,203	439,568,260	519,727,796
Transportation & Utilities	1,387	2,445	508,045,605	870,239,119	245,838,371	443,037,773
Construction	802	925	45,006,713	52,499,082	40,231,639	47,855,208
Wholesale & Retail Trade	-	1,630	-	148,885,641	-	88,411,181
Manufacturing	1	1,039	108,461	134,969,104	72,906	82,722,821
FIRE & Leasing	-	763	-	145,801,077	-	57,477,460
Information & Professional Services	141	3,834	9,619,145	300,876,623	9,570,406	250,680,574
Leisure & Other Services	-	2,603	-	90,720,226	-	68,362,979
Miscellaneous	-	295	-	144,432,335	-	14,161,262
Total Industry	6,611	18,421	1,854,608,968	3,380,861,409	735,281,582	1,572,437,053
2008						
Natural Resources	3,124	3,640	1,092,348,375	1,260,569,577	364,269,699	432,271,531
Transportation & Utilities	1,393	2,304	510,057,323	815,385,193	246,669,681	420,266,100
Construction	967	1,068	54,240,201	60,576,522	48,485,478	55,143,487
Wholesale & Retail Trade	-	1,355	-	129,865,826	-	81,949,184
Manufacturing	1	890	108,450	120,381,711	72,898	78,087,132
FIRE & Leasing	-	644	-	128,847,067	-	54,050,664
Information & Professional Services	167	3,272	11,390,190	267,624,720	11,332,477	237,584,789
Leisure & Other Services	-	2,163	-	77,261,541	-	61,835,987
Miscellaneous	-	247	-	124,514,121	-	13,042,466
Total Industry	5,652	15,582	1,668,144,539	2,985,026,278	670,830,234	1,434,231,339

Wyoming

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	12,070	17,292	3,903,989,531	4,962,943,003	1,316,228,150	1,804,110,509
Transportation & Utilities	726	4,846	293,267,639	786,765,400	163,347,260	474,423,139
Construction	4,527	5,112	253,908,309	275,358,296	226,969,410	250,639,733
Wholesale & Retail Trade	-	5,057	-	193,430,871	-	115,208,823
Manufacturing	96	1,129	9,812,297	62,290,391	8,550,016	39,975,555
FIRE & Leasing	-	2,582	-	171,742,797	-	71,291,182
Information & Professional Services	44	7,968	3,018,699	230,182,715	3,003,404	197,564,647
Leisure & Other Services	-	6,917	-	141,272,345	-	102,531,916
Miscellaneous	-	1,180	-	251,364,822	-	22,112,886
Total Industry	17,463	52,084	4,463,996,475	7,075,350,640	1,718,098,240	3,077,858,390
2007						
Natural Resources	13,041	18,307	4,180,341,765	5,208,986,582	1,410,710,500	1,920,117,066
Transportation & Utilities	766	5,357	301,459,718	799,742,187	162,108,311	507,711,325
Construction	5,467	6,129	306,620,887	330,347,756	274,089,354	302,942,904
Wholesale & Retail Trade	-	5,534	-	199,795,009	-	134,010,736
Manufacturing	143	1,304	14,624,506	72,683,241	12,745,825	51,244,268
FIRE & Leasing	-	2,832	-	178,896,020	-	83,305,027
Information & Professional Services	46	8,712	3,152,573	234,984,463	3,136,600	227,004,695
Leisure & Other Services	-	7,630	-	138,686,969	-	114,428,760
Miscellaneous	-	1,277	-	247,702,973	-	24,794,301
Total Industry	19,463	57,081	4,806,199,449	7,411,825,201	1,862,790,590	3,365,559,083
2008						
Natural Resources	14,395	19,943	4,735,368,116	5,759,341,705	1,591,555,765	2,136,488,164
Transportation & Utilities	819	5,836	324,699,715	831,100,973	176,421,756	567,176,259
Construction	6,062	6,811	340,019,679	365,072,200	303,944,611	337,753,649
Wholesale & Retail Trade	-	6,025	-	204,530,202	-	155,240,955
Manufacturing	159	1,418	16,231,803	76,473,287	14,147,242	58,637,351
FIRE & Leasing	-	3,111	-	180,909,107	-	96,550,919
Information & Professional Services	34	9,414	2,323,998	237,809,406	2,312,223	260,963,031
Leisure & Other Services	-	8,357	-	140,063,080	-	131,539,337
Miscellaneous	-	1,391	-	250,119,642	-	28,444,519
Total Industry	21,470	62,306	5,418,643,311	8,045,419,603	2,088,381,597	3,772,794,224

U.S. Total

	Employment Direct	Employment Total	Value Added Direct (Dollars)	Value Added Total (Dollars)	Labor Income Direct (Dollars)	Labor Income Total (Dollars)
2006						
Natural Resources	242,951	325,647	86,795,403,776	110,138,555,966	28,897,486,336	37,789,633,150
Transportation & Utilities	142,855	253,208	50,489,790,464	65,696,664,472	22,986,368,512	31,177,386,942
Construction	82,787	103,559	4,643,379,712	5,766,471,584	4,150,731,264	5,192,162,951
Wholesale & Retail Trade	-	289,130	-	20,570,554,555	-	11,201,955,970
Manufacturing	42,533	183,468	4,270,999,536	22,610,821,651	3,625,958,832	13,648,333,523
FIRE & Leasing	-	204,607	-	29,610,247,903	-	12,159,444,702
Information & Professional Services	6,108	695,657	417,791,936	50,850,808,286	415,675,008	36,646,122,262
Leisure & Other Services	-	317,253	-	11,299,415,963	-	7,580,438,097
Miscellaneous	-	47,050	-	14,403,976,733	-	1,274,385,171
Total Industry	517,233	2,419,579	146,617,365,424	330,947,517,111	60,076,219,952	156,669,862,768
2007						
Natural Resources	289,860	377,675	100,751,130,112	124,851,869,748	33,646,522,368	42,846,712,663
Transportation & Utilities	142,372	263,994	50,304,849,920	66,628,456,319	22,890,562,048	31,702,348,881
Construction	99,466	121,674	5,578,862,592	6,783,668,882	4,986,962,432	6,100,355,516
Wholesale & Retail Trade	-	320,183	-	22,852,992,681	-	12,436,942,512
Manufacturing	47,957	206,092	4,810,310,640	25,364,858,134	4,096,299,200	15,339,545,189
FIRE & Leasing	-	226,727	-	32,718,078,550	-	13,474,447,695
Information & Professional Services	6,847	769,839	468,340,128	56,657,087,595	465,967,104	40,805,068,646
Leisure & Other Services	-	354,387	-	12,647,975,558	-	8,489,437,091
Miscellaneous	-	51,964	-	15,880,505,640	-	1,411,390,373
Total Industry	586,502	2,692,537	161,913,493,392	364,385,493,106	66,086,313,152	172,606,248,567
2008						
Natural Resources	310,203	401,109	109,839,054,337	134,589,494,755	36,570,703,360	45,976,652,435
Transportation & Utilities	142,931	269,880	50,460,882,944	67,450,218,365	22,928,201,216	32,053,206,385
Construction	110,907	133,788	6,220,594,688	7,470,107,110	5,560,608,256	6,707,775,053
Wholesale & Retail Trade	-	336,185	-	24,116,833,278	-	13,056,558,423
Manufacturing	51,006	217,232	5,114,938,224	26,791,100,362	4,362,318,144	16,163,984,144
FIRE & Leasing	-	237,693	-	34,543,446,290	-	14,131,706,854
Information & Professional Services	7,365	806,257	503,729,696	59,679,141,982	501,177,344	42,760,241,502
Leisure & Other Services	-	371,653	-	13,330,568,939	-	8,901,625,968
Miscellaneous	-	54,556	-	16,763,740,062	-	1,481,635,571
Total Industry	622,412	2,828,352	172,139,199,887	384,734,651,144	69,923,008,320	181,233,386,335

Appendix 2: Direct Employment Tables by Industry by State

This appendix provides state-level tables for each of the direct natural gas related employment industrial categories. As discussed, the two upstream support service industries—213111 and 213112—were combined for the analysis.

Where employment has been estimated by IHS Global Insight for an entire category—in order to identify natural gas related component of a larger category-- this is noted at the bottom of the table. Where just some state figures are estimated—for the natural gas-only categories—those figures are italicized in the tables, as noted at the bottom of each affected table. In some cases, state figures are italicized even where the largest component—private-sector employment—has been published; in these instances, the data indicated that small government components existed, but those components were not published. Tables for entirely estimated categories are not italicized.

Employment: Natural Gas Distribution (221210) (Annual average number of employees)

	2006	2007	2008		2006	2007	2008
Alabama	2,677	2,655	2,682	Montana	392	399	385
Alaska	190	232	274	Nebraska	1,489	1,545	1,714
Arizona	1,871	1,889	1,791	Nevada	1,955	1,951	1,898
Arkansas	1,048	942	922	New Hampshire	196	199	200
California	33,205	33,555	33,659	New Jersey	3,749	3,704	3,780
Colorado	1,500	1,173	1,222	New Mexico	694	725	761
Connecticut	1,279	1,302	1,349	New York	3,940	4,210	4,193
Delaware	39	39	41	North Carolina	2,165	2,116	2,098
Florida	1,770	1,781	1,836	North Dakota	191	191	192
Georgia	1,758	1,733	1,755	Ohio	3,819	3,752	3,971
Hawaii	0	0	0	Oklahoma	3,093	3,388	3,824
Idaho	695	695	696	Oregon	1,214	1,221	1,259
Illinois	5,384	5,311	5,178	Pennsylvania	4,270	4,064	4,035
Indiana	3,084	2,929	2,795	Rhode Island	443	442	443
Iowa	552	558	580	South Carolina	908	902	888
Kansas	1,737	1,751	1,906	South Dakota	228	220	220
Kentucky	791	792	788	Tennessee	1,960	1,896	1,830
Louisiana	1,614	1,555	1,633	Texas	7,150	7,058	7,258
Maine	62	59	60	Utah	870	902	919
Maryland	683	678	665	Vermont	96	96	96
Massachusetts	2,824	2,823	2,883	Virginia	1,744	1,714	1,496
Michigan	3,124	3,106	2,926	Washington	1,254	1,262	1,301
Minnesota	1,703	1,642	1,703	West Virginia	928	917	923
Mississippi	634	613	650	Wisconsin	849	812	777
Missouri	3,177	3,168	3,132	Wyoming	173	274	265
				U.S.	115,170	114,941	115,853

Note: Italics indicate estimates by IHS Global Insight; otherwise, data source is Bureau of Labor Statistics.

Employment: Natural Gas Extraction (Part of 21111)
(Annual average number of employees)

	2006	2007	2008		2006	2007	2008
Alabama	750	769	759	Montana	192	218	229
Alaska	622	698	748	Nebraska	20	27	33
Arizona	2	3	4	Nevada	22	21	23
Arkansas	525	573	828	New Hampshire	0	0	0
California	1,336	1,354	1,658	New Jersey	0	0	0
Colorado	5,194	6,474	7,541	New Mexico	2,800	3,378	3,543
Connecticut	0	0	0	New York	228	254	307
Delaware	0	0	0	North Carolina	0	0	0
Florida	23	22	30	North Dakota	80	73	78
Georgia	0	0	0	Ohio	2,232	2,304	2,362
Hawaii	0	0	0	Oklahoma	12,899	14,555	16,150
Idaho	0	0	0	Oregon	10	14	9
Illinois	2	2	3	Pennsylvania	1,754	2,039	2,314
Indiana	28	38	39	Rhode Island	0	0	0
Iowa	0	0	0	South Carolina	0	0	0
Kansas	1,451	1,539	1,761	South Dakota	27	29	28
Kentucky	798	789	850	Tennessee	43	45	52
Louisiana	5,422	5,593	6,323	Texas	46,869	51,895	58,636
Maine	0	0	0	Utah	828	1,030	1,074
Maryland	3	3	3	Vermont	0	0	0
Massachusetts	0	0	0	Virginia	292	312	315
Michigan	472	459	457	Washington	0	0	0
Minnesota	0	0	0	West Virginia	911	965	1,131
Mississippi	349	366	390	Wisconsin	0	0	0
Missouri	0	0	0	Wyoming	3,499	3,666	4,385
				U.S.	89,683	99,504	112,064

Source: Estimates by IHS Global Insight

Employment: Pipeline Transportation of Natural Gas (486210)
(Average annual number of employees)

	2006	2007	2008		2006	2007	2008
Alabama	459	469	487	Montana	206	226	241
Alaska	0	0	0	Nebraska	150	148	129
Arizona	182	195	208	Nevada	20	23	24
Arkansas	736	709	664	New Hampshire	41	41	41
California	<i>1,160</i>	<i>1,160</i>	<i>1,160</i>	New Jersey	180	180	180
Colorado	790	799	838	New Mexico	850	897	821
Connecticut	88	88	88	New York	255	258	256
Delaware	40	37	38	North Carolina	80	80	80
Florida	250	250	250	North Dakota	161	156	212
Georgia	150	149	150	Ohio	370	370	375
Hawaii	0	0	0	Oklahoma	677	680	680
Idaho	157	157	157	Oregon	219	219	219
Illinois	538	555	555	Pennsylvania	1,219	1,271	1,341
Indiana	360	316	324	Rhode Island	2	2	2
Iowa	269	262	265	South Carolina	136	136	136
Kansas	472	415	386	South Dakota	143	143	143
Kentucky	935	935	933	Tennessee	403	362	393
Louisiana	1,753	1,807	1,823	Texas	9,936	9,832	9,235
Maine	85	85	85	Utah	228	236	244
Maryland	128	128	128	Vermont	0	0	0
Massachusetts	110	121	136	Virginia	330	330	330
Michigan	984	940	907	Washington	249	249	249
Minnesota	202	203	200	West Virginia	470	470	470
Mississippi	748	678	742	Wisconsin	72	35	40
Missouri	141	137	161	Wyoming	553	492	554
				U.S. total	27,685	27,431	27,078

Note: Italics indicate estimates by IHS Global Insight; otherwise, data source is Bureau of Labor Statistics.

**Employment: Drilling and Support Services for Natural Gas Operations
(Parts of 213111 and 213112)
(Annual average number of employees)**

	2006	2007	2008		2006	2007	2008
	574	651	662	Montana	989	537	369
Alaska	540	433	325	Nebraska	30	69	68
Arizona	112	146	263	Nevada	10	41	46
Arkansas	2,326	3,815	4,728	New Hampshire	0	0	0
California	429	1,013	713	New Jersey	0	0	0
Colorado	8,309	10,970	13,137	New Mexico	5,116	6,481	6,462
Connecticut	0	0	0	New York	368	509	400
Delaware	0	0	0	North Carolina	0	0	0
Florida	57	56	60	North Dakota	228	160	100
Georgia	0	0	0	Ohio	1,496	1,993	1,148
Hawaii	0	0	0	Oklahoma	12,382	13,528	13,495
Idaho	0	0	0	Oregon	35	46	50
Illinois	79	111	79	Pennsylvania	2,136	3,102	1,969
Indiana	55	25	22	Rhode Island	0	0	0
Iowa	0	0	0	South Carolina	0	0	0
Kansas	1,110	1,219	813	South Dakota	17	33	49
Kentucky	388	1,134	671	Tennessee	138	203	239
Louisiana	26,818	27,923	28,565	Texas	68,071	91,098	98,262
Maine	0	0	0	Utah	2,828	3,131	4,823
Maryland	114	105	89	Vermont	0	0	0
Massachusetts	0	0	0	Virginia	605	755	977
Michigan	897	1,023	634	Washington	0	0	0
Minnesota	0	0	0	West Virginia	2,362	3,307	1,984
Mississippi	1,414	2,529	1,761	Wisconsin	0	0	0
Missouri	0	0	0	Wyoming	8,566	9,367	10,000
				U.S.	148,598	185,514	192,961

Source: Estimates by IHS Global Insight

**Employment: Site Preparation at Natural Gas Operations (Part of 238912)
(Annual average number of employees)**

	2006	2007	2008		2006	2007	2008
Alabama	118	259	190	Montana	160	87	65
Alaska	88	71	58	Nebraska	5	67	54
Arizona	60	62	51	Nevada	26	59	37
Arkansas	270	764	818	New Hampshire	0	0	0
California	69	165	126	New Jersey	0	0	0
Colorado	2,701	4,582	4,640	New Mexico	826	1,045	1,120
Connecticut	0	0	0	New York	303	417	282
Delaware	0	0	0	North Carolina	0	0	0
Florida	728	675	565	North Dakota	37	26	17
Georgia	0	0	0	Ohio	270	366	226
Hawaii	0	0	0	Oklahoma	2,001	2,182	2,341
Idaho	0	0	0	Oregon	16	17	15
Illinois	13	18	14	Pennsylvania	346	508	350
Indiana	9	4	4	Rhode Island	0	0	0
Iowa	0	0	0	South Carolina	0	0	0
Kansas	180	197	143	South Dakota	6	14	10
Kentucky	62	182	116	Tennessee	29	72	46
Louisiana	4,052	4,111	4,663	Texas	10,184	13,217	15,657
Maine	0	0	0	Utah	953	1,267	837
Maryland	26	25	24	Vermont	0	0	0
Massachusetts	0	0	0	Virginia	53	121	78
Michigan	145	165	110	Washington	0	0	0
Minnesota	0	0	0	West Virginia	106	145	97
Mississippi	229	411	311	Wisconsin	0	0	0
Missouri	0	0	0	Wyoming	1,920	2,027	2,283
				U.S.	25,993	33,329	35,349

Source: Estimates by IHS Global Insight

Employment: Manufacture of Natural Field Machinery and Equipment (Part of 333132)
(Annual average number of employees)

	2006	2007	2008		2006	2007	2008
Alabama	0	0	0	Montana	0	0	0
Alaska	0	0	0	Nebraska	0	0	0
Arizona	0	0	0	Nevada	0	0	0
Arkansas	0	0	0	New Hampshire	0	0	0
California	98	250	201	New Jersey	0	0	0
Colorado	131	156	208	New Mexico	121	106	95
Connecticut	0	0	0	New York	0	0	0
Delaware	0	0	0	North Carolina	0	0	0
Florida	0	0	0	North Dakota	0	0	0
Georgia	0	0	0	Ohio	167	161	165
Hawaii	0	0	0	Oklahoma	4,253	4,813	5,201
Idaho	0	0	0	Oregon	0	0	0
Illinois	3	5	5	Pennsylvania	244	254	302
Indiana	20	20	22	Rhode Island	0	0	0
Iowa	0	0	0	South Carolina	0	0	0
Kansas	27	25	25	South Dakota	0	0	0
Kentucky	0	0	0	Tennessee	0	0	0
Louisiana	5,000	5,161	5,181	Texas	23,417	27,294	29,588
Maine	0	0	0	Utah	177	212	255
Maryland	0	0	0	Vermont	0	0	0
Massachusetts	0	0	0	Virginia	0	0	0
Michigan	0	0	0	Washington	0	0	0
Minnesota	0	0	0	West Virginia	0	0	0
Mississippi	40	43	47	Wisconsin	0	0	0
Missouri	0	0	0	Wyoming	96	143	159
				U.S.	33,794	38,642	41,452

Source: Estimates by IHS Global Insight

Employment: Geophysical Surveying and Mapping Services for Natural Gas Operations
(Part of 541360)
(Annual average number of employees)

	2006	2007	2008		2006	2007	2008
Alabama	168	177	190	Montana	10	14	13
Alaska	2	3	4	Nebraska	5	12	17
Arizona	0	0	0	Nevada	44	68	73
Arkansas	53	57	60	New Hampshire	0	0	0
California	29	56	50	New Jersey	0	0	0
Colorado	427	472	557	New Mexico	35	36	33
Connecticut	0	0	0	New York	247	243	253
Delaware	0	0	0	North Carolina	0	0	0
Florida	0	0	0	North Dakota	0	0	0
Georgia	0	0	0	Ohio	331	176	173
Hawaii	0	0	0	Oklahoma	214	303	248
Idaho	0	0	0	Oregon	0	0	0
Illinois	48	68	62	Pennsylvania	211	178	155
Indiana	55	22	22	Rhode Island	0	0	0
Iowa	0	0	0	South Carolina	0	0	0
Kansas	67	117	135	South Dakota	0	0	145
Kentucky	52	57	56	Tennessee	187	215	194
Louisiana	267	259	279	Texas	3,011	3,586	3,934
Maine	0	0	0	Utah	57	60	57
Maryland	0	0	0	Vermont	0	0	0
Massachusetts	0	0	0	Virginia	218	279	270
Michigan	186	158	142	Washington	0	0	0
Minnesota	0	0	0	West Virginia	94	141	167
Mississippi	46	45	42	Wisconsin	0	0	0
Missouri	0	0	0	Wyoming	44	46	34
				U.S.	6,108	6,847	7,365

Source: Estimates by IHS Global Insight

**Employment: Pump & Pumping Equipment Manufacturing
Attributable to Natural Gas (Part of 333911)
(Annual average number of employees)**

	2006	2007	2008		2006	2007	2008
Alabama	9	9	9	Montana	2	3	3
Alaska	0	0	0	Nebraska	15	16	18
Arizona	1	2	2	Nevada	1	1	1
Arkansas	9	10	9	New Hampshire	0	0	0
California	134	132	124	New Jersey	39	35	35
Colorado	3	4	4	New Mexico	5	6	6
Connecticut	8	8	9	New York	8	5	5
Delaware	0	0	0	North Carolina	14	13	11
Florida	36	39	39	North Dakota	0	0	0
Georgia	44	45	45	Ohio	109	106	102
Hawaii	0	0	0	Oklahoma	173	186	194
Idaho	2	2	2	Oregon	15	18	19
Illinois	152	166	166	Pennsylvania	61	61	68
Indiana	63	60	55	Rhode Island	0	0	0
Iowa	26	29	29	South Carolina	1	1	1
Kansas	25	26	29	South Dakota	0	0	0
Kentucky	28	28	28	Tennessee	15	15	15
Louisiana	12	13	16	Texas	104	102	113
Maine	2	2	2	Utah	1	1	1
Maryland	10	10	10	Vermont	0	0	0
Massachusetts	25	28	30	Virginia	23	23	22
Michigan	40	41	40	Washington	11	12	12
Minnesota	85	92	89	West Virginia	1	1	1
Mississippi	4	4	4	Wisconsin	84	83	83
Missouri	33	32	31	Wyoming	0	0	0
				U.S.	1,431	1,465	1,480

Source: Estimates by IHS Global Insight

**Employment: Building/Repairing Offshore Platforms Used in Natural Gas
Operations (Part of 336611)
(Annual average number of employees)**

	2006	2007	2008		2006	2007	2008
Alabama	335	472	570	Montana	0	0	0
Alaska	0	0	0	Nebraska	0	0	0
Arizona	0	0	0	Nevada	0	0	0
Arkansas	0	0	0	New Hampshire	0	0	0
California	0	0	0	New Jersey	0	0	0
Colorado	0	0	0	New Mexico	0	0	0
Connecticut	0	0	0	New York	0	0	0
Delaware	0	0	0	North Carolina	0	0	0
Florida	0	0	0	North Dakota	0	0	0
Georgia	0	0	0	Ohio	0	0	0
Hawaii	0	0	0	Oklahoma	0	0	0
Idaho	0	0	0	Oregon	0	0	0
Illinois	0	0	0	Pennsylvania	0	0	0
Indiana	0	0	0	Rhode Island	0	0	0
Iowa	0	0	0	South Carolina	0	0	0
Kansas	0	0	0	South Dakota	0	0	0
Kentucky	0	0	0	Tennessee	0	0	0
Louisiana	1,895	2,044	1,998	Texas	839	1,003	1,014
Maine	0	0	0	Utah	0	0	0
Maryland	0	0	0	Vermont	0	0	0
Massachusetts	0	0	0	Virginia	0	0	0
Michigan	0	0	0	Washington	0	0	0
Minnesota	0	0	0	West Virginia	0	0	0
Mississippi	2,042	2,106	2,263	Wisconsin	0	0	0
Missouri	0	0	0	Wyoming	0	0	0
				U.S.	5,111	5,624	5,845

Source: Estimates by IHS Global Insight

Employment: Natural Gas Pipeline Construction (Part of 237120)
(Annual average number of employees)

	2006	2007	2008		2006	2007	2008
Alabama	721	787	993	Montana	263	315	284
Alaska	328	251	294	Nebraska	90	586	254
Arizona	531	646	1,020	Nevada	506	465	219
Arkansas	274	419	1,052	New Hampshire	8	9	11
California	4,418	5,684	5,727	New Jersey	790	828	816
Colorado	2,037	1,922	2,490	New Mexico	1,356	1,411	1,553
Connecticut	169	200	230	New York	953	1,036	1,764
Delaware	60	52	20	North Carolina	766	787	772
Florida	492	706	614	North Dakota	114	179	560
Georgia	1,042	1,019	871	Ohio	914	950	1,221
Hawaii	0	0	0	Oklahoma	1,256	1,342	1,565
Idaho	216	131	107	Oregon	199	229	206
Illinois	764	787	1,646	Pennsylvania	1,315	1,393	1,470
Indiana	702	784	1,078	Rhode Island	59	43	49
Iowa	206	245	290	South Carolina	136	125	127
Kansas	879	957	909	South Dakota	30	37	20
Kentucky	481	691	768	Tennessee	440	475	395
Louisiana	9,706	11,203	11,863	Texas	15,275	18,132	21,237
Maine	9	40	53	Utah	272	710	682
Maryland	526	541	820	Vermont	0	0	0
Massachusetts	236	195	182	Virginia	1,192	1,102	1,153
Michigan	875	890	444	Washington	1,090	805	818
Minnesota	710	794	755	West Virginia	563	658	870
Mississippi	594	882	2,491	Wisconsin	299	980	723
Missouri	324	276	293	Wyoming	2,607	3,440	3,779
				U.S.	56,794	66,137	75,558

Source: Estimates by IHS Global Insight

Employment: Natural Gas Liquids Extraction (211112)
(Annual average number of employees)

	2006	2007	2008		2006	2007	2008
Alabama	<i>10</i>	<i>10</i>	<i>20</i>	Montana	45	33	31
Alaska	0	0	0	Nebraska	0	0	0
Arizona	0	0	0	Nevada	0	0	0
Arkansas	<i>50</i>	<i>83</i>	<i>36</i>	New Hampshire	0	0	0
California	<i>18</i>	<i>16</i>	<i>21</i>	New Jersey	<i>10</i>	<i>10</i>	<i>10</i>
Colorado	<i>38</i>	<i>69</i>	<i>112</i>	New Mexico	<i>155</i>	<i>140</i>	<i>130</i>
Connecticut	0	0	0	New York	0	0	0
Delaware	0	0	0	North Carolina	0	0	0
Florida	0	0	0	North Dakota	0	0	0
Georgia	0	0	0	Ohio	50	71	50
Hawaii	0	0	0	Oklahoma	414	378	357
Idaho	0	0	0	Oregon	0	0	0
Illinois	0	0	0	Pennsylvania	72	85	109
Indiana	0	0	0	Rhode Island	0	0	0
Iowa	0	0	0	South Carolina	0	0	0
Kansas	10	10	5	South Dakota	0	0	0
Kentucky	89	91	119	Tennessee	0	0	0
Louisiana	98	108	204	Texas	3,537	3,662	3,890
Maine	0	0	0	Utah	13	10	5
Maryland	0	0	0	Vermont	0	0	0
Massachusetts	0	0	0	Virginia	5	8	12
Michigan	26	26	27	Washington	0	0	0
Minnesota	0	0	0	West Virginia	6	8	10
Mississippi	<i>18</i>	<i>16</i>	<i>21</i>	Wisconsin	0	0	0
Missouri	0	0	0	Wyoming	6	8	10
				U.S.	4,670	4,842	5,179

Note: Italics indicate estimates by IHS Global Insight; otherwise, data source is Bureau of Labor Statistics.

**Employment: Air & Gas Compressor Manufacturing
 Attributable to Natural Gas (Part of 333912)
 (Annual average number of employees)**

	2006	2007	2008		2006	2007	2008
Alabama	24	24	21	Montana	0	0	0
Alaska	0	0	0	Nebraska	0	0	0
Arizona	0	0	0	Nevada	0	0	0
Arkansas	20	20	21	New Hampshire	0	0	0
California	54	56	55	New Jersey	82	73	59
Colorado	6	7	8	New Mexico	10	10	11
Connecticut	16	17	18	New York	275	295	313
Delaware	0	0	0	North Carolina	130	147	143
Florida	50	55	55	North Dakota	0	0	0
Georgia	10	15	20	Ohio	240	200	200
Hawaii	0	0	0	Oklahoma	90	93	109
Idaho	3	3	3	Oregon	20	20	23
Illinois	110	120	125	Pennsylvania	115	118	133
Indiana	109	118	115	Rhode Island	0	0	0
Iowa	40	42	48	South Carolina	0	0	0
Kansas	15	20	23	South Dakota	0	0	0
Kentucky	74	69	68	Tennessee	75	67	60
Louisiana	30	30	33	Texas	234	251	225
Maine	0	0	0	Utah	0	0	0
Maryland	20	22	24	Vermont	0	0	0
Massachusetts	86	82	64	Virginia	31	28	30
Michigan	90	90	92	Washington	0	0	0
Minnesota	53	52	46	West Virginia	0	0	0
Mississippi	23	22	24	Wisconsin	0	0	0
Missouri	64	63	62	Wyoming	0	0	0
				U.S.	2,196	2,226	2,229

Source: Estimates by IHS Global Insight.

Appendix 3: Direct Employment System for Upstream Jobs

This appendix explains the general approach used to separately identify employment attributable to natural gas for the principal upstream blended oil/gas industries (those related to exploration, development, and production). Appendix 4 explains more specifically the method used for each industry in the study, including these upstream jobs as well as the midstream, downstream, and indirect jobs. Where relevant, the method described in this appendix is incorporated by reference in Appendix 4's individual discussions.

Summary

- To determine employment in the principal upstream natural gas industries, IHS Global Insight developed a system for translating expenditures on natural gas drilling and production into jobs by identifying the most important well activity categories. A total of 34 drilling categories were chosen in consultation with industry experts.
- Natural gas employment levels were calculated from this well expenditure data placed into the 34 categories based on estimates of the labor versus materials shares of expenditures in each category, and labor costs for each type of job.
- The necessary information was collected from a variety of public and private sources. Results have been obtained for each of 28 natural gas-producing states included in API's Joint Association Survey (JAS) data as well as the four natural gas-producing states not reported in the JAS data.
- Rigs, pipe, stimulation, and drilling fluids are the well categories with the largest expenditures.

Categorization of Bureau of Labor Statistics Employment

The principal upstream blended oil/gas activities are included in three primary categories of BLS employment.

- Crude oil and natural gas extraction (211111), which covers all extraction plus drilling by own company.
- Drilling oil and gas wells by contract or fee (213111).
- Support activities for oil and gas operations by contract or fee (213112).

A fourth upstream category, nonresidential site preparation (238912), is also included in our methodology because the activities occur at the wellhead and are captured by our analysis of drilling expenditures.

Upstream Natural Gas Employment Methodology

The natural gas employment shares for the principal upstream oil and gas industries at the 6 digit NAICS industry level by state were calculated by solving a large linear equation system with many known values and many constraints. A variety of public data sources, such as the Joint Association Survey on Drilling Costs published by the American Petroleum Institute, as well as the extensive industry knowledge and source information of the ANGA working group and other natural gas related trade associations, provided the input values for the linear system. The calculated output values of the system were checked against the state employment totals in each of the BLS industries for consistency.

The Joint Association Survey contains drilling activity data for 28 of the 32 natural-gas producing states. Natural gas employment in the other four states for which there is no reported drilling expenditures (AZ, FL, MD, OR) was estimated using natural gas production shares.

Linear System Calculations

IHS Global Insight developed the linear system in a detailed Excel workbook that combines:

- Joint Association Survey expenditures on drilling by state,
- Bureau of Labor Statistics data on employment by industry by state, and
- expenditure shares by 34 well-completion categories

to calculate natural gas employment by industry by state for 2006, 2007, and 2008. The data requirements and the mapping of the 34 categories of drilling activity to the BLS industry definitions are shown in the next two tables. The methodology that was followed to incorporate these data is described in a sequence of eight steps.

Information Used to Calculate Expenditure by Category

Known	Calculated
<p>Joint Association Survey of Drilling Costs</p> <p>Expenditure on natural gas wells, oil wells, and dry holes for 11 depth categories for 20 states and two multi-state regions</p> <p>Number of wells, average depth, average cost, total cost</p> <p>Gas share of combined oil and gas wells</p>	<p>Expenditure by category for an imputed number of gas-related dry holes for 11 depth categories for 20 states and two multi-state regions</p>
<p>Expenditure by Category for Individual Gas Wells</p> <p>Questor well database and proprietary information for the 34 categories identified by ANGA Committee</p>	<p>State expenditure pattern for gas wells and gas-related dry holes.</p>
<p>Drilling Activity and Cost Indices</p> <p>Number of rigs by state</p> <p>National share of gas directed rigs</p> <p>National share of rigs – horizontal, directional and vertical</p> <p>Wage Rates by Occupation</p> <p>Cost Indices for Materials and Equipment used in Drilling</p>	<p>Adjusted drilling expenditure based on relative changes in costs</p>
<p>Bureau of Labor Statistics:</p> <p>Employment by NAICS industry classifications by state; employment and wage rates by occupation by national NAICS industry classifications. Employees in federal offshore areas are measured in the states where their payroll offices are located.</p>	<p>Natural Gas employment by NAICS classifications by state</p>

Categorization of Bureau of Labor Statistics Employment

Bureau of Labor Statistics Categories	Own Company	Contract or Fee Service
213111 – Drilling oil and gas wells Drilling (213111) refers to drilling <u>for others on a contract or fee basis</u> .		Drilling Activity under Contract or for Fee Rigs Contract Labor Legal, Project Management Some of the support activities detailed below under 213112
211112 - Gas liquid extraction		
211111- Crude petroleum and natural gas extraction Industry 2111 (oil and gas extraction) includes exploration and development performed within a producing company.	Drilling Activity by Producing Company Rigs Contract Labor Legal, Project Management Some of the support activities detailed under 213112	MRO
213112 - Support activities for oil and gas operations Support Activities (213112) refers to support activities <u>for others on a contract or fee basis</u> .		Bits , Cementing Chemicals, Communication Inspection & Testing Services Directional Services Drilling and Completion Fluids Energy and Fuel Instrumentation & Electrical Logistics Measurement Equipment Miscellaneous Production Equipment Rentals Secondary Well Services Secondary Well Services - Rentals Software Stimulation Sub-Surface Equip Transportation Vehicles Water Hauling and Disposal Services Wellhead Equipment Wireline Services
486210 - Gas pipeline transportation		
237120 - Oil and gas pipeline construction		
221210 - Gas distribution		
333132 - Oil & gas field machinery & equipment manufacturing		Bits, Rigs, Production Equipment, Wellhead Equipment, Measurement Equipment, Sub Surface Equipment
331210 - Iron, steel pipe, tube from purchased steel		Pipe
541360 - Geophysical surveying and mapping services		Formation Evaluation
333911 - Pump & pumping equipment manufacturing		
333912 - Air and gas compressor manufacturing		
336611 - Ship building and repairing		Platform
Site Preparation	Construction Services	Construction Services

Steps:

1. Use the share of natural gas in total oil and gas production by state to allocate employees to natural gas in the oil and gas extraction industry (NAICS 211111). Production shares are shown in the following table.

Natural Gas Share of Oil and Gas Production			
(Percentage)			
State	2006	2007	2008
Alabama	100.0%	100.0%	100.0%
Alaska	21.5%	21.5%	21.2%
Arizona	64.9%	71.7%	70.8%
Arkansas	84.1%	88.2%	89.5%
California	16.6%	16.7%	19.0%
Colorado	89.6%	89.9%	90.9%
Florida	15.2%	12.5%	14.9%
Illinois	0.3%	0.3%	0.3%
Indiana	22.0%	25.8%	27.2%
Kansas	63.4%	62.6%	64.0%
Kentucky	87.2%	85.6%	87.4%
Louisiana	73.6%	72.8%	74.0%
Maryland	100.0%	100.0%	100.0%
Michigan	92.3%	89.5%	89.1%
Mississippi	36.8%	37.5%	39.0%
Montana	34.2%	35.9%	41.6%
Nebraska	8.0%	10.0%	11.1%
Nevada	0.2%	0.2%	0.2%
New Mexico	81.8%	81.4%	80.5%
New York	96.7%	96.0%	96.5%
North Dakota	18.8%	16.8%	14.4%
Ohio	72.6%	72.9%	74.8%
Oklahoma	81.8%	82.7%	83.0%
Oregon	100.0%	100.0%	100.0%
Pennsylvania	87.9%	89.3%	90.7%
South Dakota	10.3%	9.1%	10.1%
Tennessee	60.9%	69.8%	68.8%
Texas	69.8%	71.9%	74.5%
Utah	76.4%	76.3%	76.7%
Virginia	100.0%	99.9%	100.0%
West Virginia	95.6%	96.1%	96.5%
Wyoming	85.1%	85.6%	87.7%
U.S. Total	60.6%	63.1%	66.2%

2. Identify 34 categories of well activities and develop percentage shares of total expenditures in each category from various industry sources including Questor as well as proprietary information. Percentage shares for completed wells by state were developed where data was available for specific wells in particular states, including Texas, Louisiana, Colorado, and Wyoming. A common set of percentage shares was developed for the other states by interpolating the data for these four states. The percentage shares to be applied in each category to dry holes were adjusted to reflect non-completion.

The following tables show, for illustrative purposes, the percentage shares that resulted for natural gas wells and for natural gas dry holes in Texas for 2007.

Expenditure Shares for Drilling Natural Gas Wells in Texas - 2007

Category	Percent	Category	Percent
Bits	5.23%	MRO	0.47%
Cementing	3.80%	N/A	0.00%
Chemicals	0.00%	Pipe	12.13%
Communication	0.00%	Platform	0.00%
Compression	0.00%	Production Equipment	2.42%
Computer	0.00%	Rentals	3.46%
Construction Services	3.45%	Rigs	19.24%
Contract Labor	1.18%	Secondary Well Services	2.09%
Directional Services	2.09%	Secondary Well Services - Rentals	0.00%
Drilling and Completion Fluids	11.31%	Software	0.00%
Energy	0.00%	Stimulation	10.48%
Formation Evaluation	1.45%	Sub-Surface Equip	0.67%
Fuel	3.73%	Transportation	2.37%
Inspection & Testing Services	0.44%	Vehicles	0.00%
Instrumentation & Electrical	0.00%	Water Hauling and Disposal Services	0.22%
Logistics	0.26%	Wellhead Equipment	5.10%
Measurement Equipment	0.00%	Wireline Services	0.81%
Misc	2.74%	Legal	0.67%
		Project Management	4.19%

Source: IHS Global Insight and industry estimates.

Expenditure Shares for Drilling Natural Gas Dry Holes in Texas - 2007

Category	Percent	Category	Percent
Bits	7.44%	MRO	0.67%
Cementing	5.40%	N/A	0.00%
Chemicals	0.00%	Pipe	8.63%
Communication	0.00%	Platform	0.00%
Compression	0.00%	Production Equipment	0.00%
Computer	0.00%	Rentals	4.92%
Construction Services	4.90%	Rigs	27.37%
Contract Labor	1.68%	Secondary Well Services	2.98%
Directional Services	2.98%	Secondary Well Services - Rentals	0.00%
Drilling and Completion Fluids	8.05%	Software	0.00%
Energy	0.00%	Stimulation	0.00%
Formation Evaluation	2.06%	Sub-Surface Equip	0.96%
Fuel	5.31%	Transportation	3.38%
Inspection & Testing Services	0.63%	Vehicles	0.00%
Instrumentation & Electrical	0.00%	Water Hauling and Disposal Services	0.32%
Logistics	0.37%	Wellhead Equipment	0.00%
Measurement Equipment	0.00%	Wireline Services	1.16%
Misc	3.91%	Legal	0.95%
		Project Management	5.96%

Source: IHS Global Insight and industry estimates.

The following table shows, also for illustrative purposes, representative per-well expenditures data for several well types used to develop the shares.

**Expenditures for Selected Well Types
(Thousands of dollars per well)**

Category	Barnett - 2008	Marcellus - 2008	Fayetteville - 2008	Oklahoma - 2008
Bits	349	321	120	35
Cementing	188	175	120	44
Chemicals				
Communication				
Compression				
Computer				
Construction Services			170	99
Contract Labor			119	32
Directional Services				
Drilling and Completion Fluids	1071	558	162	119
Energy				
Formation Evaluation				
Fuel			70.4	41
Inspection & Testing Services		67		
Instrumentation & Electrical				
Logistics	17	18		6
Measurement Equipment				
Misc	213	153		67
MRO	44	30		
N/A				
Pipe	661	609	176	238
Platform				
Production Equipment				36
Rentals			430	71
Rigs	471	345	875	386
Secondary Well Services				
Secondary Well Services - Rentals				
Software				
Stimulation	1287	503	250	150
Sub-Surface Equip				106
Transportation	171	121	27	11
Vehicles				
Water Hauling and Disposal Services				31
Wellhead Equipment	168	163	80	66
Wireline Services			78.8	40.5
Legal			13	5
Project Management	32	32	20	27

Source: IHS Global Insight and industry estimates.

3. Create expenditure on natural gas drilling by 11 depth classes (0-1249, 1250- 2499, 2500 - 3749, 3750-4999, 5000-7499, ... every 2500 feet,... 20000+) by state using 2006 and 2007 JAS data for gas wells and the number of dry holes. Attribute a number of dry holes to natural gas based on the share of gas wells to combined oil and gas wells. Aggregate the 11 depth classes into a total for each state. (Since actual JAS data for 2008 will not be available until the end of 2009; 2008 was estimated by extrapolation.) Calculate total expenditures on gas wells plus gas-related dry holes by category using the percentage shares, as shown in the following table.

Total Costs of Drilling & Equipping Gas Wells & Gas Dry Holes by State/Region - 2007
(Thousands of dollars)

Depth	Total Offshore		Texas (Onshore)		Texas (Offshore)		Louisiana (Onshore)	Louisiana (Offshore)	Northern Gulf of Mexico
	Federal	Texas	(Onshore)	(Offshore)	Federal	Louisiana	(Onshore)	Federal	
0 - 1,249	\$0	\$44,716	\$44,716	\$0	\$0	\$6,390	\$6,390	\$0	\$0
1,250 - 2,499	\$0	\$53,996	\$53,996	\$0	\$0	\$9,553	\$9,553	\$0	\$0
2,500 - 3,749	\$151,232	\$275,928	\$235,206	\$15,956	\$111,214	\$44,965	\$66,250	\$76,483	\$76,483
3,750 - 4,999	\$181,199	\$553,904	\$472,626	\$81,278	\$129,624	\$56,655	\$55,646	\$48,496	\$48,496
5,000 - 7,499	\$837,658	\$2,674,137	\$2,257,766	\$379,702	\$628,103	\$156,943	\$422,110	\$0	\$0
7,500 - 9,999	\$2,101,473	\$14,290,486	\$13,510,039	\$397,558	\$2,536,726	\$1,047,765	\$1,377,769	\$267,402	\$267,402
10,000 - 12,499	\$2,674,865	\$16,772,994	\$16,212,925	\$560,069	\$5,022,257	\$2,519,364	\$1,771,543	\$285,581	\$285,581
12,500 - 14,999	\$1,104,058	\$6,630,661	\$6,559,718	\$70,943	\$1,767,607	\$898,994	\$868,613	\$133,048	\$133,048
15,000 - 17,499	\$1,601,921	\$3,294,340	\$3,294,340	\$0	\$1,565,874	\$487,800	\$1,078,074	\$328,219	\$328,219
17,500 - 19,999	\$541,043	\$1,253,023	\$1,253,023	\$0	\$486,321	\$186,813	\$299,508	\$264,997	\$264,997
20,000+	\$571,028	\$113,913	\$113,913	\$0	\$633,941	\$107,317	\$285,197	\$0	\$0
Total	\$9,764,477	\$45,958,098	\$44,008,268	\$1,505,505	\$12,897,610	\$5,522,559	\$6,224,708	\$1,404,225	

Depth	Oklahoma	Wyoming	Colorado	New Mexico	Kansas	Alabama	Alaska	Arkansas
0 - 1,249	\$24,942	\$264,531	\$30,810	\$23,669	\$143,888	\$5,707	\$0	\$2,556
1,250 - 2,499	\$76,343	\$1,056,032	\$374,653	\$284,889	\$118,525	\$209,537	\$0	\$18,459
2,500 - 3,749	\$82,855	\$56,679	\$712,887	\$188,194	\$57,016	\$138,279	\$41,979	\$32,309
3,750 - 4,999	\$183,893	\$41,949	\$90,406	\$73,537	\$66,263	\$75,689	\$0	\$119,699
5,000 - 7,499	\$771,506	\$193,430	\$3,643,500	\$837,044	\$190,411	\$54,800	\$9,884	\$1,261,089
7,500 - 9,999	\$1,050,366	\$1,114,193	\$6,333,656	\$1,103,169	\$11,747	\$36,748	\$104,390	\$834,815
10,000 - 12,499	\$1,458,799	\$4,022,716	\$815,010	\$353,415	\$0	\$0	\$42,532	\$68,325
12,500 - 14,999	\$1,641,785	\$1,930,056	\$164,076	\$343,056	\$0	\$33,094	\$0	\$22,786
15,000 - 17,499	\$749,153	\$0	\$0	\$0	\$0	\$49,282	\$0	\$0
17,500 - 19,999	\$344,554	\$49,864	\$0	\$0	\$0	\$0	\$0	\$0
20,000+	\$280,962	\$0	\$0	\$0	\$0	\$163,846	\$0	\$0
Total	\$6,665,158	\$8,729,451	\$12,164,999	\$3,206,973	\$587,851	\$766,982	\$198,785	\$2,360,038

Depth	California	Illinois	Indiana	Kentucky	Michigan	Mississippi	Montana
0 - 1,249	\$0	\$44,855	\$7,422	\$18,742	\$100,367	\$0	\$25,622
1,250 - 2,499	\$3,029	\$7,233	\$3,353	\$200,675	\$163,114	\$1,944	\$190,529
2,500 - 3,749	\$8,585	\$0	\$0	\$154,979	\$89,294	\$13,144	\$39,956
3,750 - 4,999	\$11,788	\$0	\$0	\$214,913	\$34,091	\$12,346	\$0
5,000 - 7,499	\$206,443	\$0	\$0	\$54,960	\$38,570	\$303,607	\$0
7,500 - 9,999	\$216,155	\$0	\$0	\$23,449	\$0	\$62,990	\$0
10,000 - 12,499	\$32,168	\$0	\$0	\$0	\$80,989	\$67,723	\$0
12,500 - 14,999	\$0	\$0	\$0	\$0	\$0	\$92,817	\$0
15,000 - 17,499	\$0	\$0	\$0	\$0	\$0	\$581,603	\$0
17,500 - 19,999	\$0	\$0	\$0	\$0	\$0	\$63,102	\$0
20,000+	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$478,168	\$52,088	\$10,775	\$667,718	\$506,425	\$1,199,276	\$256,107

Depth	U.S. (Onshore)					
	Nebraska	North Dakota	Utah	Appalachian*	Other U.S.**	U.S.
0 - 1,249	\$0	\$0	\$5,042	\$58,320	\$4,630	\$812,207
1,250 - 2,499	\$89,967	\$13,490	\$20,209	\$370,061	\$306,484	\$3,572,076
2,500 - 3,749	\$69,748	\$0	\$39,227	\$940,826	\$142,712	\$3,272,294
3,750 - 4,999	\$0	\$0	\$48,331	\$1,225,925	\$143,791	\$3,074,645
5,000 - 7,499	\$32,170	\$0	\$268,396	\$1,393,112	\$222,394	\$12,783,557
7,500 - 9,999	\$0	\$0	\$2,582,082	\$197,399	\$6,770	\$30,772,543
10,000 - 12,499	\$0	\$0	\$521,240	\$98,248	\$0	\$29,641,998
12,500 - 14,999	\$0	\$65,862	\$270,521	\$138,224	\$0	\$13,233,592
15,000 - 17,499	\$0	\$0	\$159,932	\$0	\$0	\$6,728,403
17,500 - 19,999	\$0	\$0	\$0	\$0	\$0	\$2,461,860
20,000+	\$0	\$0	\$0	\$0	\$0	\$1,192,662
Total	\$191,885	\$79,352	\$3,914,981	\$4,422,114	\$826,603	\$107,545,659

*Includes New York, Ohio, Pennsylvania, and West Virginia; **Includes Nevada, South Dakota, Tennessee, and Virginia
Source: 2007 Joint Association Survey on Drilling Costs, American Petroleum Institute, December 2008 and IHS Global Insight estimates.

4. Divide the spending by category into labor and materials/equipment spending using ratios from various industry sources to allocate employees to natural gas in oil and gas support industries (NAICS 213111 and 213112) as well as nonresidential site preparation (NAICS 238912). For example, the labor share of expenditure was developed from typical well tasks and estimates of days of labor per well, as shown in the following table.

Labor Requirements for a Typical Natural Gas Well			
Direct Parties involved	Head Count	Days	Man Hours
Seismic permitting	16	210	13440
Seismic surveying	30	90	7200
Drilling shot holes for 3-D seismic shoot	36	90	8640
Laying out receivers and recording data	50	90	12000
Drilling contractor and all their personnel	27	51	7067
Top Drive provider	4	40	192
Surveying	4	2	80
Construction and Restoration	15	14	1300
Trucking/Transportation - Drilling	39	2	710
Drilling mud and chemicals provider	2	45	204
Mudlogging			
Directional drilling company	5	15	970
Casing crews to run casing in well	8	4	989
Cementers	10	2	745
On site supervision	4	51	1652
Frac Tank providers	3	7	168
Frac tree and manifold set up	7	1	84
Coil tubing clean outs	10	3	240
Set up water transfer pumps & equipment	6	1	72
Fracture stimulate well	40	6	2880
Wireline company personnel	4	6	144
Flow back well and haul water, turn to sales	4	7	672
On site supervision	1	20	300
Workover rig crews	8	2	192
Crews to install and hook up production equipment	8	8	600
State inspectors	1	2	16
Indirect Parties involved	Head Count	Days	Man Hours
Various hardware and software providers			
Construction services	23	4	436
Misc Services	37	2	416
Seismic shoot planning and processing	9	160	1280
Saltwater and oil haulers	12	14	1120
Other trucking/transportation	15	10	900
Staffing professionals			
Building security			
Mineral owners			
Financial services providers			

Source: El Paso, Frank Falleri, Vice President, Central District

- Use the cross-reference of national BLS occupational data to the 6 digit NAICS employment data to allocate occupations within the 34 well categories.

- Use occupational wage rates and cost indices from various public and private industry sources, including Questor, the Bureau of Labor Statistics, and IHS Global Insight databases, to translate spending into person years of employment and physical requirements for materials. Calculate the average annual wage rates from survey results for average hourly wage times 2080 hours per year. Scale up the annual labor cost per employee, including the benefit burden, overtime, bonuses and commissions, and corporate overhead, based on the annual wage rate by occupation.

The data used for the cost indices are given in the following table. Drilling techniques improved between 2006 and 2008 while a high level of activity led to significant inflation in costs. Since the cost categorization for gas wells reflects 2008 data, cost expenditure shares were adjusted for relative inflation and for the very large changes in the application of horizontal drilling and fracturing between 2006 and 2008.

Cost Indices			
(2006=1.00)			
	2006	2007	2008
Oil Field Machinery	1.000	1.073	1.160
Oil Field Rigs	1.000	1.093	1.149
Oil Field Pdn	1.000	1.059	1.200
Cement	1.000	1.054	1.051
Pipe	1.000	1.023	1.258
Fuel	1.000	1.082	1.266
Transport	1.000	1.011	1.061
Engineering Services	1.000	1.041	1.049
Legal Services	1.000	1.058	1.113
Industrial Chemicals	1.000	1.066	1.293
Sulfuric Acid	1.000	1.176	4.334
Computers	1.000	0.930	0.851
Pumps	1.000	1.056	1.101
Communication Systems	1.000	1.005	1.023
Communication Equipment	1.000	0.999	1.013
Trucks	1.000	1.004	1.019
Ship Building	1.000	1.016	1.024
Ship Repair	1.000	1.014	1.024
Freight Hauling	1.000	1.011	1.010
Equipment Rental	1.000	1.047	1.098

Source: U.S. Bureau of Labor Statistics; IHS Global Insight Cost Planner.

- Calculate natural gas employment by state by in the upstream BLS labor categories, using the following equation for employment in category c :

$$\text{Natural Gas Employment}_c = \text{Expenditure}_c * \text{Labor Share}_c / \text{Wage Rate}_c$$

As an example, if \$42,098 million were spent on drilling gas wells and \$3,640 million were spent on drilling gas-related dry holes in Texas in 2007, the number of natural gas rig workers that would be included in natural gas drilling and support industries (NAICS 213111 and 213112) would be calculated as follows:

- Spending in each of the 11 depth categories on gas wells would be multiplied by 19.24%, the share of rigs in a gas well in Texas, resulting in spending of \$8,098 million;
- Spending at each depth on gas-related dry holes would be multiplied by 27.37%, a higher share than for completed gas wells since there are fewer categories of spending because dry holes are not completed, giving spending of \$996 million;
- Together, a total of \$9,094 million would have been spent on rigs.

- If 45% of that spending was assumed to be spent on labor and the average wage was \$74,512, then 54,922 full-time equivalent jobs in rigs would result.
8. Compare the indicated natural gas employment with the Bureau of Labor Statistics employment by occupation and total employment by state by 6 digit category, as a check on the reasonableness of the results.

Definition of Cost for Joint Association Survey

API's Joint Association Survey on Drilling Costs was a key input for the analysis described in this Appendix. This section provides information about that data set.

Costs generally exclude land and leasing, many overhead categories, installation of service facilities and expenditures after the "Christmas Tree".

Excerpt on Costs to Report, Quoted from the JAS Survey Questionnaire:

"Report the total cost (tangible and intangible) of each well completed by you as operator in the survey year. The dollar amount to be reported is the accumulated cost of such wells from the time locations were made until the wells were completed as productive wells or abandoned after drilling was terminated because they were non-productive.

"In general, the elements contributing to reported cost are the expenditures for drilling dry holes and productive wells and equipping new productive wells through the "Christmas Tree" installation. More specifically, these cost elements are the costs of labor, materials, supplies, water, fuels, power, and direct overhead (i.e., field, district and regional), for such operations as site preparation, road building, erecting and dismantling derricks and drilling rigs, drilling hole, running and cementing casing, hauling materials, etc. Include the total cost of water, if purchased, or cost of water well, if drilled and chargeable to oil or gas well drilling operations. Well costs also include machinery and tools charges and rentals, and depreciation charges, where appropriate, for rigs and other equipment and facilities which will be used in drilling more than one well. Deduct the condition value of materials salvaged after use where appropriate.

"Do not report the cost of lease equipment such as artificial lift equipment and downhole lift equipment, flow lines, flow tanks, separators, etc., that are required for production. Do not reduce the costs by test well, bottom hole, or dry hole contributions."

Appendix 4: Completing the Direct State Job Estimates

This appendix summarizes the estimated direct employment totals for each industrial category analyzed and discusses the methods used to estimate direct natural gas jobs per state where the BLS data included non-natural gas jobs or were not published. Each of the industrial categories is discussed separately. Where the methodology described in the previous appendix (related to the upstream industries) was used, that methodology is referred to concisely rather than explained repetitively in each of those sections.

Jobs in Natural Gas-Only Industrial Categories

Three of the BLS employment data categories are devoted only to natural gas. The only data adjustments performed for industries in this category were to fill state-level gaps where BLS had chosen not to publish the data out of concern that the small number of companies in a state could cause the individual companies to be identified and competitive information inferred.

Pipeline Transportation of Natural Gas

Definition

Pipeline transportation of natural gas is NAICS industry 486210, a natural gas-only data category. It covers transmission from processing plants to local distribution systems; local distribution itself is covered in category 221210. Activities associated with pipeline transportation are included, such as booster pumping stations and storage. Construction, however, is not included; it is part of industry 237120, oil and gas pipeline construction.

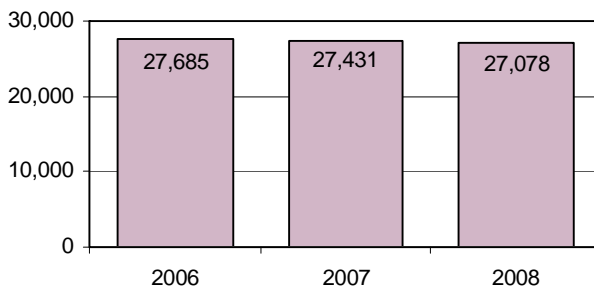
Results and Analysis

Employment in natural gas pipeline transportation totaled just over 27,000 workers in 2008, approximately 600 lower than in 2006. Workers in this activity are widely scattered across the nation.

State level data observations were not published for several of the states, for proprietary reasons, although the U.S. totals do include the non-published amounts. The non-published data account for less than one-quarter of the U.S. total employment in this industry. Various methods were used to assign values to the states having non-published data. Where data were available for recent years, values similar to those figures were used. Where no recent values were available, employment was calculated by multiplying pipeline line-miles in that state by the ratio of employment to line-miles in neighboring states. (DOE/EIA provides, at its website, U.S. total natural gas pipeline mileage by state. Interstate and intrastate transmission are included, but local distribution companies are not included in those mileage figures.) Finally, the small U.S. total of local government employees in gas pipeline transportation—none of which are reported in individual states—was allocated to the few states that had "non-disclosed" (as opposed to zero) government employment in this category (even where they had published data for private employment). Line-miles were used to allocate this amount.

Employment in Natural Gas Pipeline Transportation

(Average annual workers)



Natural Gas Distribution

Definition

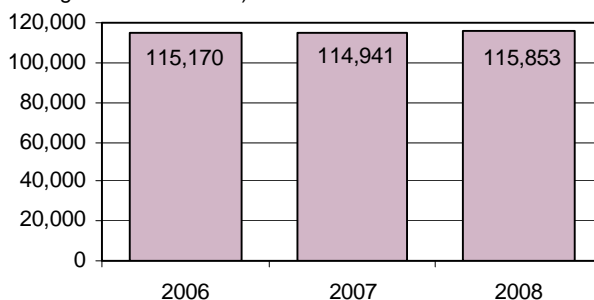
Natural gas distribution, as defined in BLS category 221210, does not include just local distribution companies. This category also includes natural gas marketers, who buy natural gas at the well and sell it to distribution companies; and brokers or agents, who arrange the sale of natural gas over distribution systems operated by others. All of employees in this category are related to natural gas.

Results and Analysis

This category is one of the largest employers of natural gas-related workers, averaging around 115,000. Employment in this category is widely scattered throughout the United States. The number of workers fluctuated little during the 2006-08 historical period analyzed.

U.S. Employment in Natural Gas Distribution

(Average annual workers)



Although BLS publishes the full employment number for this industry at the U.S. level, a significant minority of states had non-published data for some or all of the study period. In many of the cases, the only non-reported data were for the small local-government component, but in several other states the larger private-company employment figures were also withheld.

Employment for the non-reported states was estimated using a combination of methods. Data reported for years surrounding the missing observations provided some guidance. In a few cases, the principal distribution companies operating in those states were willing to provide employment estimates. Annual reports for key companies provided partial information. Where information from these sources was not available, the ratios of employees to the total number of residential and commercial customers in

neighboring states were applied to the customers in the "missing" states. (DOE/EIA publishes customer data in its *Natural Gas Annual* publication.) Adjustments to these estimates were made iteratively until the remaining non-disclosed total dropped to zero.

Natural Gas Liquids Extraction

Definition

All of the workers in natural gas liquids extraction (NAICS 211112) are employed directly in the natural gas industry. The industry comprises establishments primarily engaged in the recovery of liquid hydrocarbons from oil and gas field gases. Establishments primarily engaged in sulfur recovery from natural gas are included in this industry. Recovery of helium from natural gas, on the other hand, is classified under 325120, industrial gas manufacturing.

Methodology

The number of people employed directly in natural gas liquids extraction is small, about 5,000 workers annually. Between 2006 and 2008, the number of jobs increased about 11%, from 4,670 to 5,179. Of this number, approximately 4-6% of employment is not disclosed annually for proprietary reasons. It was necessary to allocate the difference between total employment reported for the U.S. and the sum of the states that were reported to the non-disclosure states.

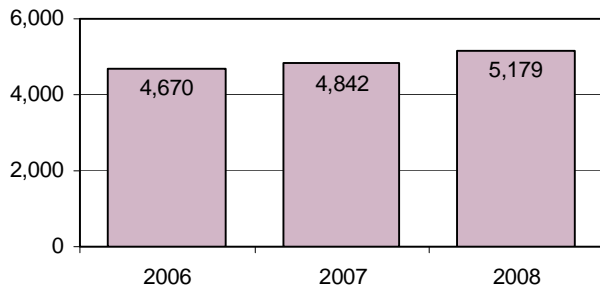
Two approaches were used to make the allocation. If data were reported for adjacent years in the 2006-2008 period, then an interpolation was made for the missing year or years; these states included Arkansas, New Mexico, Ohio, Utah, Virginia, and Wyoming. The states that had all non-disclosed data for the 2006-2008 period included: Alabama, Colorado, Mississippi, New Jersey, and West Virginia. For these states, employment estimates were made by reference to states with similar amounts of natural gas liquids production and/or reference to reported employment figures for prior years.

Results

In 2008, 5,179 thousand workers were employed in natural gas liquids extraction in the United States, more than 500 more than in 2006. All of the workers are attributable to natural gas.

Employment: Natural Gas Liquids Extraction

(Average annual workers)



Natural Gas Jobs in Combined Oil/Natural Gas Exploration and Production Categories

Natural Gas Extraction

Drilling Natural Gas Wells (Contract or Fee Basis)

Support Activities for Natural Gas Operations [upstream] (Contract or Fee Basis)

Definition

Natural gas is a major share of employment for the three combined oil and natural gas industries of extraction, drilling and support activities. There are overlaps in activities across the three categories, because a major differentiation is whether the work is done on a company's own account or whether the work is done on a contract or fee basis. Employment for those companies that do their own gas well drilling is reported under the extraction industry. However, almost all drilling is performed under a contract or fee basis and is thus included in the drilling industry. Support activities are for both drilling and production. Because of the close linkage between these three categories, they are analyzed and discussed here jointly.

211111 - Crude Petroleum and Natural Gas Extraction: According to the Census Bureau, industry 211111 "comprises establishments primarily engaged in (1) the exploration, development, and/or the production of petroleum or natural gas from wells in which the hydrocarbons will initially flow or can be produced using normal pumping techniques or (2) the production of crude petroleum from surface shales or tar sands or from reservoirs in which the hydrocarbons are semisolids. Establishments in this industry operate oil and gas wells on their own account or for others on a contract or fee basis." (Note that other "contract or fee basis" activities are included in the 213 categories, discussed below.)

213111 – Drilling Oil and Gas Wells: This is a combined oil and gas category. The parent category, 213, is support activities for mining; it includes two oil and gas categories (213111 and 213112) as well as three support categories for all other types of mining (coal, metals, non-fuel non-metallic minerals). The basis of this industry is that the activity is done on a "contract or fee basis." The vast majority of employees in the parent category are in the two oil/gas categories.

According to Census, "This U.S. industry comprises establishments primarily engaged in drilling oil and gas wells for others on a contract or fee basis. (Emphasis added by IHS.) This industry includes contractors that specialize in spudding in, drilling in, re-drilling, and directional drilling."

213112 – Support Activities for Oil and Gas Operations: This is a combined oil and gas category. Per Census, "This U.S. industry comprises establishments primarily engaged in performing support activities on a contract or fee basis for oil and gas operations (except site preparation and related construction activities). (Emphasis added by IHS.) Services included are exploration (except geophysical surveying and mapping); excavating slush pits and cellars, well surveying; running, cutting, and pulling casings, tubes, and rods; cementing wells, shooting wells; perforating well casings; acidizing and chemically treating wells; and cleaning out, bailing, and swabbing wells."

Related oil/gas activities that are classified elsewhere: 238910 for site preparation on a contract or fee basis; 541360 for geophysical services; 21111 for operating oil and gas field operations on contract or fee basis; 237120 for pipeline and related structures construction.

Results for Upstream Natural Gas Industry Employment

Natural gas employment in extraction, drilling and support services totaled 305,025 workers in 2008 or 65% of the 471,151 people working in these three combined oil and natural gas upstream industries. These results were obtained using the detailed methodology discussed in the previous appendix, which involved analyzing natural gas production as well as expenditures across 34 well categories for the 28 states and offshore areas where natural gas exploration and production occurs.

The following table presents the number of workers in three combined oil and natural gas upstream industries--extraction (NAICS 211111), drilling services (213111), and support services (213112). (Tables that follow show the components of these totals.)

Employment in Natural Gas Drilling, Support and Extraction			
	2006	2007	2008
U.S. Oil and Natural Gas	381,133	422,864	471,151
Natural Gas Employment	238,281	285,018	305,025
Natural Gas Share	63%	67%	65%

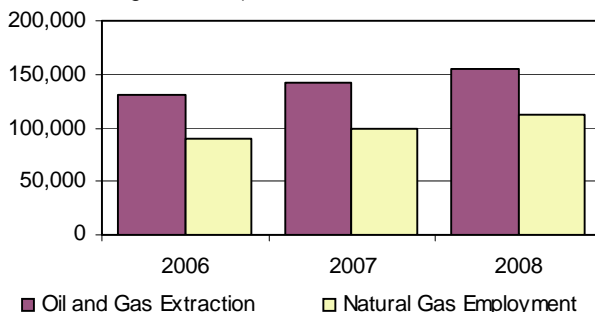
On a percentage basis, the share of natural gas employment in the three combined industries ranged between 63% and 67% over the past three years although the number of workers has continued to rise, topping 300,000 by 2008. A large number of factors, primarily differences in drilling activity levels by location, contribute to the variations in year-over-year figures. Changes in costs of materials and labor are also important factors in the movements in employment levels.

Natural gas employment in natural gas extraction alone (NAICS 211111) was estimated at 112,064 workers in 2008, or 72% of the combined oil/gas category. This employment share is consistent with the relative shares of natural gas in combined oil and natural gas production in each state.

Employment in Natural Gas Extraction			
	2006	2007	2008
Oil and Gas Extraction	130,188	141,239	154,876
Natural Gas Employment	89,683	99,504	112,064
Natural Gas Share	69%	70%	72%

Employment: Natural Gas Extraction

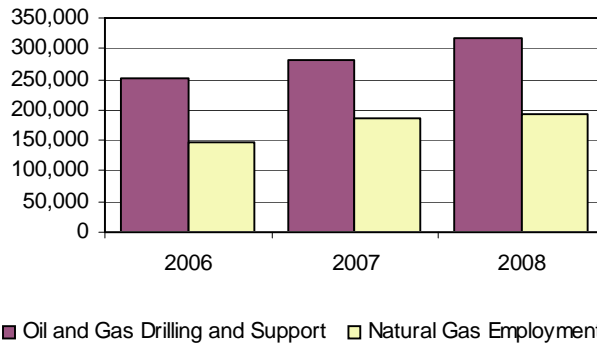
(Annual average workers)



Natural gas employment in drilling and support activities (NAICS industries 213111 and 213112) totaled 192,961 workers in 2008 or 61% of the 316,275 total for oil and natural gas activities. Because of the methodology used to develop these estimates as described in the previous appendix, natural gas employment must be combined for contract drilling and support activities since the 34 drilling activities cover both of these industries.

Employment in Natural Gas Drilling and Support			
	2006	2007	2008
Oil and Gas Drilling and Support	250,945	281,625	316,275
Natural Gas Employment	148,598	185,514	192,961
Natural Gas Share	59%	66%	61%

Employment: Natural Gas Drilling and Support



As discussed, 65% or 305,025 of the 471,151 workers in 2008 in the three combined oil and gas upstream industries (211111, 213111, and 213112) are estimated to have been working in natural gas activities, based on the methodology that was discussed in Appendix 3 and referenced immediately above. When the nonresidential site preparation workers are added in, the total U.S. employment figure for the four combined upstream industries increases to 688,335 in 2008 and the number of workers in the natural gas portion rises to 340,373 or 49% of the total.

U.S. Employment in Oil and Natural Gas				U.S. Employment in Natural Gas			
	2006	2007	2008		2006	2007	2008
Total For Oil and Natural Gas				Total For Natural Gas Only			
Extraction (211111)	130,188	141,239	154,876	Extraction	89,683	99,504	112,064
Drilling and Support	250,945	281,625	316,275	Drilling and Support	148,598	185,514	192,961
Contract Drilling (213111)	79,818	84,525	92,729	Site Preparation	25,993	33,329	35,349
Support Services (213112)	171,127	197,100	223,546	Total Gas Field	264,274	318,347	340,373
Site Preparation (238912)	227,011	231,986	217,184				
Total Oil and Gas Field	608,144	654,850	688,335				
Source: Bureau of Labor Statistics Industry Totals for Oil and Natural Gas Categories.				Source: Bureau of Labor Statistics Industry Totals for Oil and Natural Gas Categories; IHS Global Insight			
				Excluding Site Prep	238,281	285,018	305,025
				Share of BLS Data	62.5%	67.4%	64.7%
				Including Site Prep	264,274	318,347	340,373
				Share of BLS Data	43.5%	48.6%	49.4%

Example State-Level Results: Upstream natural gas employment varies greatly by state, with the largest number of workers being found in Texas and the largest percentages being found in Colorado and Wyoming. Approximately half of all upstream gas field workers are employed in Texas, where natural gas employment is above 70% of the combined oil and gas total. In Colorado, about 90% of the oil and gas employment can be attributed to natural gas; its share of U.S. total upstream industry workers in that state is less than 10%, much smaller than the share for Texas.

Texas Employment in Oil and Natural Gas				Texas Employment in Natural Gas			
	2006	2007	2008		2006	2007	2008
Total For Oil and Natural Gas				Total For Natural Gas Only			
Extraction (211111)	67,128	72,182	78,730	Extraction	46,869	51,895	58,637
Drilling and Support	103,943	118,974	134,641	Drilling and Support	68,071	91,098	98,262
Contract Drilling (213111)	37,049	39,354	43,592	Site Preparation	10,184	13,217	15,657
Support Services (213112)	66,894	79,620	91,049	Total Gas Field	125,123	156,211	172,556
Site Preparation (238912)	20,232	21,432	21,574				
Total Oil and Gas Field	191,303	212,588	234,945				
Source: Bureau of Labor Statistics Industry Totals for Oil and Natural				Source: Bureau of Labor Statistics Industry Totals for Oil			
				Excluding Site Prep	114,940	142,993	156,898
				Share of BLS Data	67.2%	74.8%	73.5%
				Including Site Prep	125,123	156,211	172,556
				Share of BLS Data	65.4%	73.5%	73.4%

Colorado Employment in Oil and Natural Gas				Colorado Employment in Natural Gas			
	2006	2007	2008		2006	2007	2008
Total For Oil and Natural Gas				Total For Natural Gas Only			
Extraction (211111)	5,800	7,200	8,300	Extraction	5,194	6,474	7,541
Drilling and Support	9,343	12,001	14,372	Drilling and Support	8,309	10,970	13,137
Contract Drilling (213111)	2,951	3,693	4,005	Site Preparation	2,701	4,582	4,640
Support Services (213112)	6,391	8,307	10,367	Total Gas Field	16,205	22,026	25,318
Site Preparation (238912)	4,111	4,295	4,349				
Total Oil and Gas Field	19,254	23,496	27,021				
Source: Bureau of Labor Statistics Industry Totals for Oil and Natural Gas Categories.				Source: Bureau of Labor Statistics Industry Totals for Oil and Natural Gas Categories; IHS Global Insight			
				Excluding Site Prep	13,503	17,443	20,678
				Share of BLS Data	89.2%	90.8%	91.2%
				Including Site Prep	16,205	22,026	25,318
				Share of BLS Data	84.2%	93.7%	93.7%

Natural Gas Jobs in Other Combined Oil/Natural Gas Categories

The BLS combines oil and natural gas jobs in additional industrial categories, because of the potential for overlapping oil and natural gas activities. A variety of methods were used to separately identify the natural gas jobs and to adjust for non-disclosure.

Natural Gas Pipeline Construction

Definition

Industry 237120, oil and gas pipeline construction, comprises establishments primarily engaged in the construction of oil and gas lines, mains, refineries, and storage tanks. The work performed may include new work, reconstruction, rehabilitation, and repairs. Specialty trade contractors are included in this group if they are engaged in activities primarily related to construction of oil and gas pipelines and related structures. All structures (including buildings) that are integral parts of oil and gas networks (e.g., storage tanks, pumping stations, and refineries) are included in this industry.

Methodology

In total, the number of people employed annually in oil and gas pipeline construction has increased 33% from about 83,000 in 2006 to 111,000 in 2008. As defined above by the Bureau of Labor Statistics, the industry includes both oil and gas pipelines and related structures. Because of the diverse nature of the construction projects, an estimate of the number of workers employed on building gas-related pipelines and other structures was determined as a share of total employment using the ratio of gas pipeline miles to total pipeline miles. The annual Oil & Gas Journal Survey of worldwide construction projects was the main source of data for pipeline miles constructed. A secondary source used for verification was the Energy Information Administration's bi-annual report on Natural Gas Pipeline Construction Projects Completed.

Oil and gas pipeline construction can take several years to complete. Crews often travel around the country to job sites and work on a variety of pipelines, including crude and oil product pipelines as well as gas pipelines, depending on the location. It is difficult to determine a timeline for each construction project across several years and possibly several states. However, over the past three years, the share of natural gas pipeline mileage in total pipeline mileage averaged 68%. Over 40% of oil and gas construction workers are employed in Texas and Louisiana combined. The next largest states are California, with about 7.5% of U.S. workers, and Wyoming, with 5% of U.S. workers. A large number of states have between 1-2% of total U.S. pipeline construction workers.

Because of the industry concentration in Texas and Louisiana and the highly dynamic nature of pipeline construction work, IHS Global Insight chose to assign the 3-year average share of 68% of natural gas workers to employment in all 50 states.

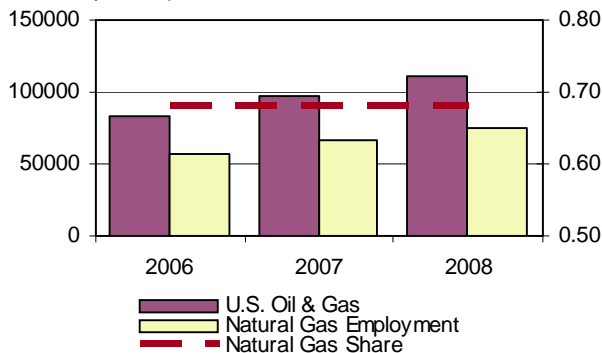
Results

In 2008, nearly 76,000 workers were employed on gas pipeline construction, a 14% increase from 2007 and a 33% increase compared with 2006.

Employment in Oil and Gas Pipeline Construction			
	2006	2007	2008
U.S. Oil & Gas	83,379	97,095	110,926
Natural Gas Employment	56,794	66,137	75,558
Natural Gas Share	68%	68%	68%

Employment in Pipeline Construction

(Workers, percent)



Manufacture of Field Machinery and Equipment Used in Natural Gas Operations

Definition

Oil and gas field machinery and equipment manufacturing (333132) is a combined oil and gas category. It is part of industry 3331, agriculture, construction, and mining machinery manufacturing. *Most of the machinery and equipment produced in this sector can be used either for oil wells or for natural gas wells.*

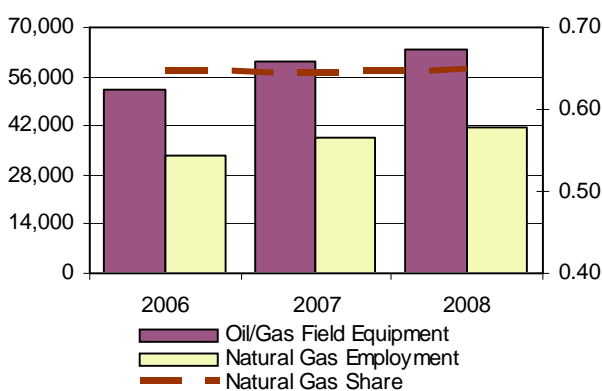
According to the Census Bureau, "This U.S. industry comprises establishments primarily engaged in (1) manufacturing oil and gas field machinery and equipment, such as oil and gas field drilling machinery and equipment; oil and gas field production machinery and equipment; and oil and gas field derricks and (2) manufacturing water well drilling machinery."

Results and Analysis

Total employment in oil and gas field machinery and equipment manufacturing reached 63,847 in 2008, a 22% increase over two years.

The share of natural gas employment in this industry is estimated to reflect the expenditure share of natural gas drilling versus oil drilling.

Employment: Oil/Gas Field Machinery



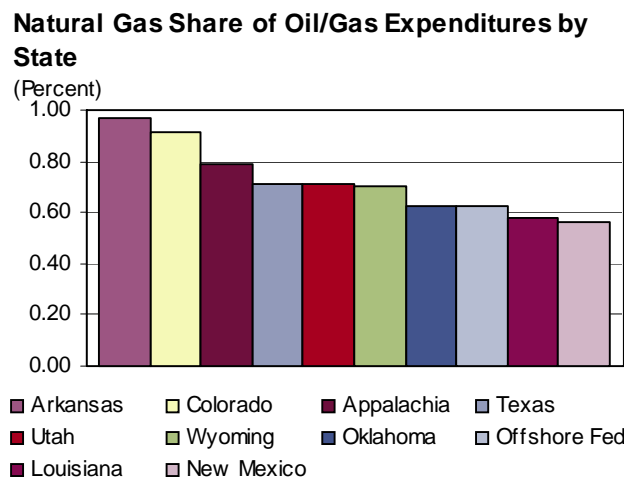
Natural gas employment in this industry is estimated to have increased from nearly 34,000 in 2006 to over 41,000 in 2008.

Employment in Oil and Gas Field Equipment			
	2006	2007	2008
Oil/Gas Field Equipment	52,382	60,045	63,847
Natural Gas Employment	33,794	38,642	41,452
Natural Gas Share	65%	64%	65%

Expenditure on oil and gas field equipment purchased, rented or contracted for the purpose of drilling and completing a natural gas well increased from \$16.2 billion in 2006 to \$32.6 billion in 2008. Major categories of expenditure include drilling rigs, bits, wellhead equipment and production equipment. These are included in the 34 categories of spending on natural gas wells.

Oil Field Equipment Expenditure			
(Million Dollars)			
Category	2006	2007	2008
Bits	3224	4935	6730
Production Equipment	1321	1736	2644
Rentals	2156	4962	4119
Rigs (55% of Total Rig Expenditure)	6318	11681	12629
Sub-Surface Equip	414	533	865
Wellhead Equipment	2788	5137	5581
Total	16220	28985	32568

In each state, the natural gas share of employment in oil and gas field machinery and equipment manufacturing is derived from the natural gas share of drilling expenditures as measured by the Joint Association Survey.



Over 41,000 of the 62,000 total employees in this sector are located in Texas.

Natural Gas Jobs in Mixed Industrial Categories

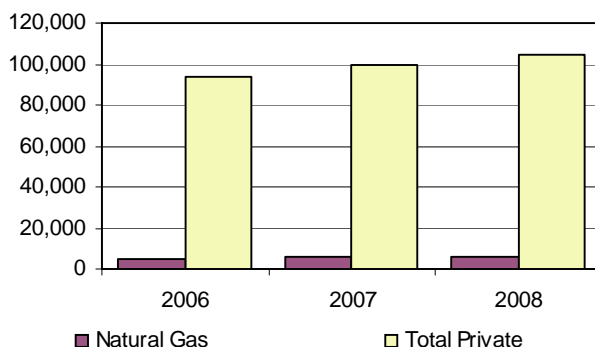
Several types of jobs related to natural gas are embedded, in BLS's employment statistics, in categories that relate to multiple industries. The methodology used in quantifying the natural gas related shares in these industries at the U.S. and state levels included discussions with industry representatives, examination of the expenditure pattern of the natural gas industry, a compilation of the uses of the products of the industries (i.e., by the natural gas industry or by other industries), and a collection of readily available industry metrics. The specific methodology used for each category is described below.

Building/Repairing of Offshore Platforms Used in Natural Gas Drilling/Production

Definition

Building and repairing of offshore platforms used in oil and gas drilling and production is embedded in a much larger BLS category, industry 336611, ship building and repairing. Industry 336611 includes a sizable federal government component that would be related to U.S. Navy ships, and is therefore not included in the tables in this report. For this study, oil/gas platforms first had to be separated, and then employment attributable to the natural gas portion had to be estimated.

U.S. Employment: Private Ship Building/Repair and Natural Gas Component
(Workers)



Results and Analysis

Total ship building and repair employment in the Gulf Coast, excluding the government (e.g., U.S. Defense) sector, totaled 38,964 workers as of 2008, with a small share working on oil and gas platforms. The natural gas-related employment in the private ship construction industry is contained in the Gulf Coast states. Estimation of the natural gas component included the following information:

- Sales of ship building and repair companies located in the Gulf Coast regions totaled \$2.1 billion as of 2006.
- The oil and gas platforms reported by the U.S. Minerals and Management Service as installed in the years from 2006 to 2009 were investigated as to cost and natural gas share of production.
- The reported expenditure on offshore natural gas platforms for 2006 to 2009 totals \$1.1 billion for 2006, \$8.4 billion for 2007, \$7.0 billion for 2008 and \$4.9 billion for 2009 for a total of \$21.4 billion over the period. With expenditure data for 27 of the 49 platforms, the expenditure per platform is greater than \$500 million including total construction and installation costs.
- Natural gas production accounts for 51% of total oil and gas production from the leases that the platforms are installed upon. The annual data for 2006 to 2009 was collected for each lease, accumulated for 2006 to 2009, summed and a natural gas share computed.

The size of the expenditure on oil/gas platforms and the 51% share of natural gas in total lease production indicate the share of shipyard employment that should be assigned to the natural gas category. As a result, an estimated 15% of ship building and repair employment in the Gulf Coast states is estimated to be natural gas-related employment.

	Texas	Louisiana	Mississippi	Alabama	Total Gulf Coast
2006	839	1,895	2,042	335	5,111
2007	1,003	2,044	2,106	472	5,624
2008	1,014	1,998	2,263	570	5,845

Total Ship Building and Repair Workers						
	Texas	Louisiana	Mississippi	Alabama	Total Gulf Coast	Total U.S.
2006	5,593	12,635	13,613	2,234	34,075	93,507
2007	6,688	13,624	14,037	3,146	37,495	99,811
2008	6,759	13,321	15,084	3,800	38,964	104,441

Source: Bureau of Labor Statistics; excludes government workers.

Platforms and drilling rigs are constructed on the Gulf Coast with Louisiana and Mississippi having the majority of workers in the ship building and repair category. Total private ship building and repair employment on the Gulf Coast reached 38,964 as of 2008. A study of the U.S. shipbuilding industry indicates that there were 31 shipyards in the Gulf Coast in 2005 with total employment of 18,200. Most of the major ship building operations are concentrated in a 200 mile area between New Orleans and Mobile, Alabama. Northrop Grumman is the largest employer in both the Louisiana and Mississippi but is primarily a defense contractor. The total sales value of ships and repairs from Gulf Coast shipyards was \$2.1 billion in a compilation of Dun & Bradstreet data in 2007.

If the expenditure for the non-reported 22 platforms were available, then the total expenditure on offshore platforms would be between \$5 and 10 billion per year, in any case much larger than the sales of the shipyards. However, most of the reported expenditure for platforms is for items such as topsides, specialized oil and gas equipment, drilling wells, installing pipelines and production facilities and for other items whose related employment is included in other BLS categories.

Major Gulf Coast Ship Builders	
Active shipbuilding yards	4
Shipyards with build position	7
Repair with dry docking	6
Topside Repair	14
Work Force-2005	18,200
Sources: 2005 report on Survey of U.S. Shipbuilding and Repair Industry, U.S. Department of Commerce, MARAD	

The ship building and repair industry produces offshore platforms and workboats for the oil and gas industry. Investment in platforms also require topsides and substantial sea bottom installations which are not included in the shipbuilding category but are most likely in the oil and gas equipment manufacturing, the pipeline construction, drilling or support services.

The following table contains some background information on the overall shipbuilding industry from a variety of information sources. The indicated U.S. total of ship-building employees is compatible with but slightly lower than the BLS figure that was reported above.

Industry Information on Shipbuilding and Repair (Includes offshore production platforms)				
U.S.	1,034	100	91,855	36,360
Metro Area	Businesses	%Total	Total Workers	Total Sales
Baton Rouge	9	0.9	842	30.4
Bixi-Gport-Pas	10	1	10,553	1,200
Ft Walton Bch	1	0.1	1	0.2
Mobile	21	2	1,783	198.3
New Orleans	48	4.6	8,772	661.7
Pensacola	1	0.1	40	0.9
Total	90	8.7	21,991	2100
Source: Mississippi Gulf Coast Shipbuilding 2007, Mississippi Gulf Coast Alliance for Economic Development				

Platform Descriptions

Year of First Production	Project Name	Operator	System Type	Development Cost
2006	Gomez	ATP	FPU/FPS	\$80 M (includes Gomez, Anduin and two other fields)*
2006	Constitution	Kerr-McGee	Spar	\$600 M*
2006	Ticonderoga	Kerr-McGee	Subsea	\$200 M (includes Lorien, Swordfish and Ticonderoga)
2006	Lorien	Noble Energy	Subsea	Included in \$200 M Ticonderoga cost
2007	Atlantis	BP	Semisub	\$2 B*
2007	Anduin	ATP	Subsea	Included in \$ 80 M Gomez cost*
2007	Independence Hub	Anadarko	Semisub	\$693 M (hub development costs); entire Independence Project = \$2 B, including all subsea tie-backs below*
2007	Vortex/Ind. Hub	Anadarko	FPS/Subsea	Included in \$2 B Ind. Hub cost*
2007	Atlas-Atlas NW/Ind. Hub	Anadarko	FPS/Subsea	Included in \$2 B Ind. Hub cost*
2007	Cheyenne/Ind. Hub	Anadarko	FPS/Subsea	Included in \$2 B Ind. Hub cost*
2007	Merganse/Ind. Hub	Anadarko	FPS/Subsea	Included in \$2 B Ind. Hub cost*
2007	Mondo NW/Ind. Hub	Anadarko	FPS/Subsea	Included in \$2 B Ind. Hub cost*
2007	Spiderman/Ind. Hub	Anadarko	FPS/Subsea	Included in \$2 B Ind. Hub cost*
2007	San Jacinto/Ind. Hub	Eni	FPS/Subsea	Included in \$2 B Ind. Hub cost*
2007	Q/Ind. Hub	Hydro GOM	FPS/Subsea	Included in \$2 B Ind. Hub cost*
2007	Shenzi	BHP Billiton	TLP/Subsea	\$4.4 billion (gross costs for the full field development through 2015)
2007	Wrigley	Newfield	Subsea	\$40 M
2008	Neptune	BHP Billiton	TLP	\$850 M
2008	Thunder Horse	BP	Semisub	\$5 B (total for all Thunder Horse Projects)
2008	Blind Faith	ChevronTexaco	Semisub	\$900 M*
2008	Bass Lite	Mariner	Subsea	\$157 M (for both Bass Lite and NW Nansen)
2009	Mirage and Morgus	ATP	Mini TLP	\$500 M (for both fields, the Telemark field and the ATP Titan platform)*
2009	Thunder Horse North	BP	Subsea tie-back	Included in \$ 5 B Thunder Horse cost
2009	Dorado	BP	Subsea	\$500 M (Dorado encompasses 3 subsea wells)*
2009	Tahiti	Chevron	Spar	\$3.5 B (to develop the field and construct the facility)*
2009	Longhorn	Eni	Subsea	\$112.9 M
2009	Geauxpher	Mariner Energy		\$227 M
2009	Thunder Hawk	Murphy	Semisub	\$2.1 M (lease)

Natural Gas is Half of Offshore Oil/Gas Platform Production

Lease	Crude Oil	Natural Gas	Natural Gas Share	Lease	Crude Oil	Natural Gas	Natural Gas Share
	(Thousand Barrels)	(Billion cubic feet)	(%)		(Thousand Barrels)	(Billion cubic feet)	(%)
AK 37	24.7	58.3	100%	GC 640	32.0	0.0	6%
VK 915	5,757.1	24.4	41%	GC 652	1,751.9	0.8	7%
AT 261	13.7	32.3	100%	LL 1	6.8	18.9	100%
AT 349	12.2	35.0	100%	LL50	3.6	10.0	100%
AT 426	0.0	34.8	100%	LL399	16.8	55.6	100%
AT 575	50.5	0.0	11%	MC 299	59.6	24.9	99%
DC 618	13.4	53.3	100%	MC 711	10,752.9	34.6	35%
DC 621	16.4	44.4	100%	MC 72	903.5	0.9	14%
EB 430	1,785.1	2.4	18%	MC 161	0.0	5.8	100%
GB 244	1,508.5	9.9	52%	MC 248	57.4	4.3	93%
GB 302	554.8	2.7	44%	MC 506	25.9	15.7	99%
GB 625	363.4	0.8	27%	MC 583	797.6	1.9	28%
GC 518	10,989.9	7.6	10%	MC 696	5,905.5	5.1	13%
GC 680	11,566.4	11.2	14%	MC 707	314.2	1.3	40%
GC 768	10,659.7	9.7	13%	MC 755	764.1	0.7	14%
GC 195	80.9	20.2	98%	MC 806	16,501.7	16.9	15%
GC 199	8,351.2	11.0	18%	MC 961	6.3	31.3	100%
GC 244	3,358.9	5.9	23%	Total	93,006.6	592.4	51%

Source: Report Exported 7/26/2009
 OWL Database ©1991-2009, Lexco Data Systems, L.P.

Offshore Platform Installations		Platform Cost (millions)	Crude Oil mb/day	Natural Gas mmcf/day	Design Gas Share %
Reported Cost					
2006					
Gomez	MC711	80			
Constiution	GC680	800			
Dawson Deep	GB625				
K2 North	GC518				
Lorien	GC199	*			
Rigel	MC252				
Seventeen hands	MC299				
SW Horseshoe	EB430				
Ticonderoga	GC768	200			
2007					
Anduin	MC755				
Atlantis	GC787	2000			
Atlas-Atlas NW (Ind. Hub)	LL50	*			
Cheyenne(Ind. Hub)	LL399	*			
Cottonwood	GB244				
Deimos	MC806				
Jubilee(Ind. Hub)	AT349	*			
Merganse (Ind. Hub)	AT37	*			
Mondo NW (Ind. Hub)	LL 1	*			
Q (Ind. Hub)	MC 961	*			
San Jacinto(Ind. Hub)	DC 618	*			
Shenzi	GC652	4400			
Spiderman(Ind. Hub)	DC621	*			
Tiger	GC195				
Vortex (Ind. Hub)	AT261	*			
Wrigley	MC506	40			
Independence Hub		2000		1000	100%
2008					
Thunder Horse	MC778	5000(1)	275	220	12%
Bass Lite	AT426	157			
Blind Faith	MC696	900			
MC 161	MC161				
Neptune	AT575	850			
Raton	MC248				
Valley Forge	MC707				
2009					
Tahiti	GC640	3500	125	70	9%
Thunder Hawk			60	70	16%
Thunder Hawk - Murphy	MC734				
Thunder Horse North	MC776				
Clipper	GC299	227.9			
Longhorn	MC502	112.9			
Geauxpher	GB462	227			
Dorado	VK915	500			
GB 302	GB302				
Isabela	MC562				
MC 72	MC72				
MC 583	MC583				
Mirage and Morgus	MC941	500			
Pegasus	GC385				
Unreleaseable					
Unreleaseable					
Unreleaseable					
2010					
Cascade, Chinook	WR206, WR469		80	16	3%
Phoenix	GC237		45	72	21%
Great White, Silvertip, Tobago	AC857, AC815, AC859		100	200	25%

Gas Share at 6 mcf per barrel of oil equivalent

The Minerals and Management Service is engaged in several large scale studies of the economic impact of the offshore oil and gas industry, which provided some useful information for this analysis. Total offshore employment in oil and natural gas exploration and production is indicated as 22,500 by the Minerals and Management Service. This employment is reported in one of the coastal states by the Bureau of Labor Statistics – Texas, Louisiana, Mississippi and Alabama provide logistic bases for offshore workers.

Offshore expenditure on natural gas drilling including a share of dry hole expense totaled \$11.6 billion in 2007.

Natural Gas Accounts for Majority of Offshore Oil/Gas Spending

	Natural Gas	Oil	Dry Holes	Natural Gas Share	Natural Gas with Dry Holes Allocated
	(million dollars)			(%)	(million dollars)
2006	6,287	3,534	4,924	64%	9,439
2007	7,264	5,539	7,700	57%	11,633

Source: Joint Association Survey of Drilling Costs, American Petroleum Institute

Site Preparation Contractors Used in Natural Gas Operations

Definition

Preparation of sites for natural gas wells is a small component of overall nonresidential site preparation in the U.S.

BLS's industry 238912--nonresidential site preparation contractors—is a mixed-industry with a possibly small component attributable to natural gas production. It is part of industry 238, specialty trade contractors.

The Census description of the site preparation contractor's category is: "This industry comprises establishments primarily engaged in site preparation activities, such as excavating and grading, demolition of buildings and other structures, and septic system installation. Earth moving and land clearing for all types of sites (e.g., building, nonbuilding, mining) is included in this industry. Establishments primarily engaged in construction equipment rental with operator (except cranes) are also included."

The following related activities are categorized elsewhere: drilling oil and gas field water intake wells in 213111; dismantling tanks in oil fields in 213112.

Results and Analysis

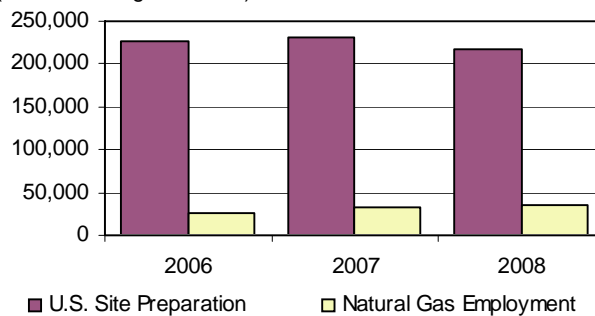
Natural gas wells are often constructed in remote areas that require a road to the drill site. All drilling activity requires extensive preparation of platforms, buildings, holding ponds and other infrastructure necessary for the set up of the drilling rig and drilling operation. For a typical natural gas well, as much as one or more person years of labor is required to perform the requisite site preparation. Employment in

this category that is related to natural gas was based on such gas-industry measures as expenditures, as discussed in Appendix 3. The 11-16% natural gas shares in the following table represent the shares of the total industry (nonresidential site preparation) that can be attributed to natural gas over the past three years. As with the other mixed-industry NAICS categories, the non-natural gas portions include both oil and non-energy related employment.)

Employment in Nonresidential Site Preparation			
	2006	2007	2008
U.S. Site Preparation	227,011	231,986	217,184
Natural Gas Employment	25,993	33,329	35,349
Natural Gas Share	11%	14%	16%

Employment: Nonresidential Site Preparation

(Annual average workers)



Natural Gas Well Site Preparation Expenditure			
(Million Dollars)			
Category	2006	2007	2008
Construction Services	2276	3749	4827
Contract Labor	645	1594	1436
Total	2921	5343	6263

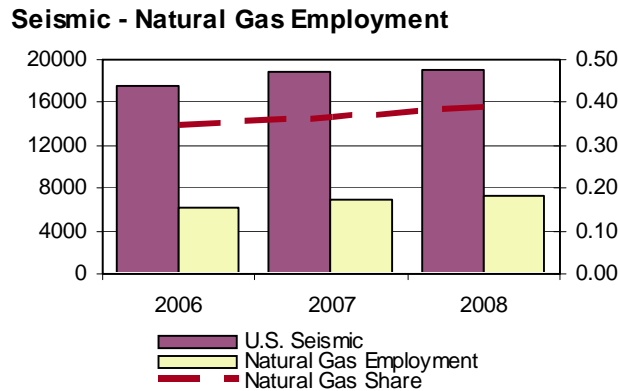
Geophysical Surveying and Mapping Services Used in Natural Gas Exploration and Development

Definition

The geophysical surveying and mapping services industry is BLS category 541360. The BLS parent category is 54—professional, scientific, and technical services—services that are performed for others. This is a mixed-industry category. *Seismic support for the natural gas industry is only one of several major business lines for this industry.*

According to the Census documentation, "This industry comprises establishments primarily engaged in gathering, interpreting, and mapping geophysical data. Establishments in this industry often specialize in locating and measuring the extent of subsurface resources, such as oil, gas, and minerals, but they may also conduct surveys for engineering purposes. Establishments in this industry use a variety of surveying techniques depending on the purpose of the survey, including magnetic surveys, gravity surveys, seismic surveys, or electrical and electromagnetic surveys."

Geophysicists and geologists play a critical role in discovering natural gas and optimizing the resulting production. Seismic information is gathered as part of the search for drilling opportunities which can then be translated into actionable items on what landholdings to acquire and which prospect wells to drill. The results of seismic studies are used to select prospect locations and to generate potential reserves estimates. As fracturing and well stimulation have become much larger of natural gas production, innovative seismic techniques have been developed, further enlarging the role of geophysicists and geologists. Micro seismic techniques are used to assist in determining the optimal locations for fracturing the well.



Results and Analysis

Employment in the geophysical and mapping services industry reached 19,035 in 2008, only an 8% increase over 2006 levels despite the doubling of expenditures on oil and gas drilling during those years. Natural gas is a minority share of the employment in this industry, estimated by IHS Global Insight as accounting for more than 7,000 employees in 2008 or 39% of the total for category 541360. As with the other mixed-industry NAICS categories discussed in this appendix, the non-natural gas portion includes both oil and non-energy related employment.

Employment in Seismic			
	2006	2007	2008
U.S. Seismic	17,555	18,806	19,035
Natural Gas Employment	6,108	6,847	7,365
Natural Gas Share	35%	36%	39%

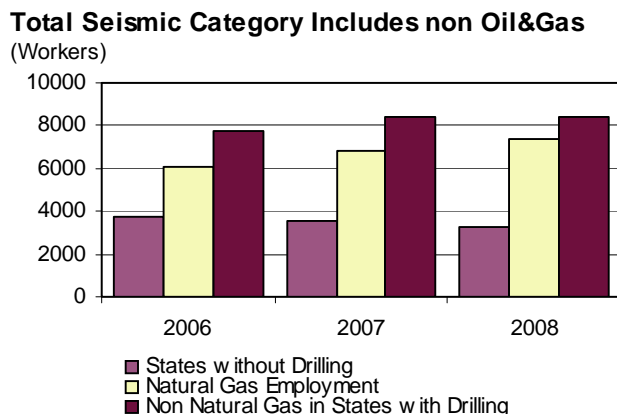
Seismic crews increased from 61 in 2006 to 73 in 2008 as reported by the EIA for maximum active crews by month in the U.S.

Seismic Crews			
	2006	2007	2008
U.S. Monthly Average	61	71	73

Expenditure on information services during the drilling and completion of a natural gas well increased from \$1.6 billion in 2006 to \$3.3 billion in 2008. Information services for formation evaluation, wireline and inspection and testing are included in the 34 categories of spending on natural gas wells. Much of this work would be performed by geologists or geophysical technicians.

Natural Gas Well Information Expenditure			
(Million Dollars)			
Category	2006	2007	2008
Formation Evaluation	844	1149	1799
Inspection & Testing Services	256	349	547
Wireline Services	492	645	973
	<u>1592</u>	<u>2143</u>	<u>3319</u>

The portion of the seismic industry that is involved in non-energy activities is significant. For instance, large numbers of employees in the geophysical and mapping services industry have been identified in states that do not have oil and gas well drilling. The following chart shows the total natural gas employment that has been estimated for this industry, the non-natural gas employment in those states that have drilling (and which therefore would include some oil-related employees), and the seismic employment in states that do not have oil and gas drilling industries.



Pump and Pumping Equipment Manufacture, Portion Attributable to Natural Gas Wells

Definition

The manufacture of pumps used in natural gas wells is included in a larger BLS category (333911) that contains the manufacture of pumps and pumping equipment for multiple purposes. According to Census, "This U.S. industry comprises establishments primarily engaged in manufacturing general purpose pumps and pumping equipment (except fluid power pumps and motors), such as reciprocating pumps, turbine pumps, centrifugal pumps, rotary pumps, diaphragm pumps, domestic water system pumps, oil well and oil field pumps and sump pumps." A pump is loosely defined as a mechanical device used to move liquids or gases.

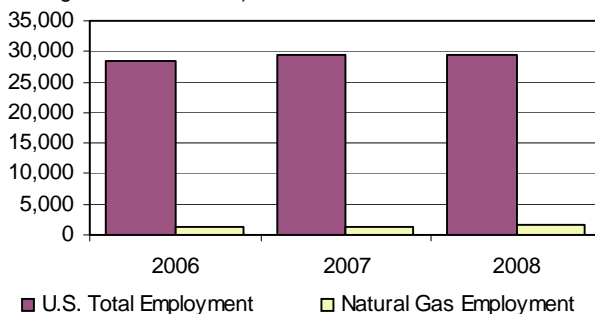
Results and Analysis

Employment related to the manufacture of pumps for natural gas wells is estimated to average less than 1,500 annually, approximately 5% of the total employment in the pump-manufacturing industry.

Employment in Pump & Pumping Equipment Manufacturing			
	2006	2007	2008
U.S. Total Employment	28,613	29,300	29,601
Natural Gas Employment	1,431	1,465	1,480
Natural Gas Share	5%	5%	5%

Employment in Pump Manufacturing

(Average annual workers)



Pumps and pumping equipment sales have grown with the economy during the 2006 to 2008 period after achieving an estimated \$8.1 billion of sales in 2005, powered by the upswing in construction sector. Imports constitute 41.7% of the market and are increasingly becoming a major source of pumps and pumping equipment revenue. Imports grew at a CAGR of 14.4% from 2001 to 2005 in a market that showed a growth of 6.5%.

The major markets for pumps include industries that involve the flow of fluids and gases. The 12 major end use markets for pumps include:

- Natural Gas Production
- Oil Production
- Mineral Mining & Processing
- Oil Refining
- Chemical Industry
- Power Generation
- Food, Drink, Pharmaceuticals
- Pulp & Paper
- Metal Manufacture
- Marine
- Construction Related and Other Industries
- Water & Sewerage

Analysis of the myriad uses of pumps resulted in a conclusion that a 5% share of the employment in manufacturing pumps and pumping equipment should be attributed to natural gas-related employment.

Air and Gas Compressor Manufacture, Portion Attributable to Natural Gas Lines

Definition

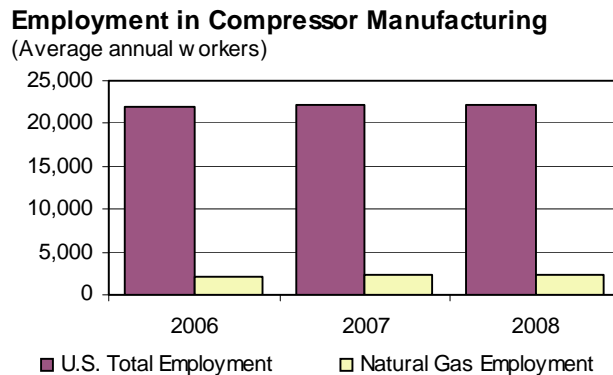
Air and gas compressor manufacturing (333912) is part of industry 333, machinery manufacturing. Per Census, "This U.S. industry comprises establishments primarily engaged in manufacturing general purpose air and gas compressors, such as reciprocating compressors, centrifugal compressors, vacuum pumps (except laboratory), and nonagricultural spraying and dusting compressors and spray gun units."

Although not expressly stated, this would be the appropriate category for compressors used in natural gas transmission or distribution lines and other natural gas related uses.

Results and Analysis

Employment in the manufacture of compressors used in natural gas lines is estimated to average around 2,200 workers, or about 10% of the industry.

Employment in Air & Gas Compressor Manufacturing			
	2006	2007	2008
U.S. Total Employment	21,964	22,258	22,290
Natural Gas Employment	2,196	2,226	2,229
Natural Gas Share	10%	10%	10%



Natural gas pipelines and extraction activities require substantial compression, but there are many other uses of compressors. Natural gas is one of the most important of 15 major uses of compression equipment. Analysis of natural gas industry usage of compressors, including such metrics as pipeline expansions, led to a conclusion that natural gas-related uses should account for a 10% share of the total employment in the air and gas compressor manufacturing industry.

Gas compressors are used in various applications where either higher pressures or lower volumes of gas are needed:

- in pipeline transport of purified natural gas to move the gas from the production site to the consumer.
- in petroleum refineries, natural gas processing plants, petrochemical and chemical plants, and similar large industrial plants for compressing intermediate and end product gases.
- in refrigeration and air conditioner equipment to move heat from one place to another in refrigerant cycles: see Vapor-compression refrigeration.
- in gas turbine systems to compress the intake combustion air
- in storing purified or manufactured gases in a small volume, high pressure cylinders for medical, welding and other uses.
- in many various industrial, manufacturing and building processes to power all types of pneumatic tools.
- as a medium for transferring energy, such as to power pneumatic equipment.
- in pressurized aircraft to provide a breathable atmosphere of higher than ambient pressure.
- in some types of jet engines (such as turbojets and turbofans) to provide the air required for combustion of the engine fuel. The power to drive the combustion air compressor comes from the jet's own turbines.
- in SCUBA diving, hyperbaric oxygen therapy and other life support devices to store breathing gas in a small volume such as in diving cylinders .

- in submarines to store air for later use as buoyancy.
- in turbochargers and superchargers to increase the performance of internal combustion engines by concentrating oxygen.
- in rail and heavy road transport to provide compressed air for operation of rail vehicle brakes or road vehicle brakes and various other systems (doors, windscreen wipers, engine/gearbox control, etc).
- in miscellaneous uses such as providing compressed air for filling pneumatic tires.

Natural gas pipelines are a very large user of compressors with 16.9 million horsepower installed as of 2006. Compressors for natural gas pipelines cost approximately \$1000 per horsepower, so the replacement cost for all of the installed compressors \$17 billion.

In recent years, the number of natural gas pipeline compressor stations attached to the interstate mainline natural gas pipeline grid increased significantly. In 1996 there were approximately 1,047 mainline compressor stations, with installed horsepower of about 13.4 million and a combined throughput capability of approximately 743 billion cubic feet per day. By 2006, these figures had grown to 1,201 mainline compressor stations, 16.9 million installed horsepower, and a throughput capability of 881 Bcf per day. This expansion represented a 26% increase in installed horsepower and a 19% increase in throughput capacity during the period.

This growth was not driven solely by an increase in overall natural gas production and consumption during the period. Rather, a series of factors, reflecting the changing character of the U.S. natural gas industry, influenced this expansion in mainline compression facilities:

- New domestic production sources were developed in areas that required installation of new natural gas pipeline systems or expansion of existing ones.
- As domestic natural gas production reached a plateau during the 1990s, demand increased for Canadian natural gas supplies and new long-distance pipelines to transport them were created.
- Major growth in the number of large-volume natural-gas-fired electric power generating plants required additional pipeline capacity in specific markets.
- Regulatory demands to reduce the environmental footprint of compressor stations increased the

Appendix 5: BLS Data Background

QCEW Background

Data from the U.S. Bureau of Labor Statistics (BLS) were used to frame this study's analysis of employment directly related to natural gas activities. The BLS has a variety of data sets that measure employment and related concepts at various levels of aggregation. The agency's Quarterly Census of Employment and Wages (QCEW) set was chosen because of its comprehensive coverage and suitability to the nature of this study.

BLS's more up-to-date monthly data set was not used, because it does not provide employment at a fine enough level of categorization to facilitate identification of natural gas jobs. That set, the Current Employment Statistics data set, is based on a survey. The agency's occupation-based set (Occupational Employment Statistics) was also rejected, because a given occupation can permeate many industries, again inhibiting segregation of activities (production, transportation, etc.) related to natural gas.

The QCEW data set provides comprehensive coverage at the six-digit NAICS industry-based level of categorization. Because of its extensive coverage and thorough updating, this data set is considered definitive. The BLS estimates that the jobs reported represent roughly 97% of all nonfarm jobs in the nation.

QCEW Is Federal/State Collaboration. The QCEW data set is the result of collaboration between the BLS and state governments. Business establishments with paid employees must report regularly to their state government information related to their contributions to unemployment insurance. States forward the relevant portions of this information to the BLS for inclusion in the agency's quarterly employment and wage data set. NAICS industrial classifications are assigned to each establishment based on the establishment's own description of its business activity in its initial filing or registration as a business in that state. Classifications are updated periodically via confirmation forms sent out by BLS every four years, or more frequently if the establishment chooses to reregister with the state as a different type of business.

Because unemployment insurance rules are specific with regard to employment within each state, most of the jobs counted in the QCEW data are physically located in their respective states. A company can have multiple reporting "establishments" depending on the location and/or specific activity of each.

Key Exclusions: Although QCEW is a virtual census of jobs in the United States, there are small gaps (equal to about 3% of total jobs). These lapses in employment coverage in the QCEW data are related to unemployment insurance coverage gaps. Notable exclusions include self-employed individuals, a minority share of state and local government workers, and some domestic, railroad, and farm workers. A key omission related to natural gas employment is landowners with working wells who contract for production services; a large number of these self-employed proprietors are exempt because they do not have wage or salary workers. In recent years these exempt landowners/proprietors with crude oil or natural wells have been estimated at approximately 200,000, according to the government BEA data supporting the IMPLAN model (which is described in Appendix 6). The natural gas related portions of these proprietors were not counted as direct natural gas jobs in this study, because they are not closely related to the concept of "labor"; their royalty income, however, was included in the calculation of value added, because it is a natural gas related economic contribution.

Non-Disclosure of Some Data Detail: Some of the detailed state or industrial data observations reported to BLS are not published. The principal reason for "non-disclosed" data is where the number of companies in a given category is small enough that the identity of a respondent could be evident. In some of these cases, publishing was withheld at the monthly frequency only, but in others the figures are also not available annually. BLS does include the nonpublished figures in the higher-level industrial aggregates and U.S. totals.

About NAICS Classification

In the QCEW data, each establishment is assigned to one NAICS industrial category based on its primary activity. Different establishments within a company can have different classifications, but each establishment can have only one.

NAICS stands for the North American Industry Classification System, which was developed jointly by the statistical bodies of the U.S., Mexican, and Canadian governments. It organizes industries based on their processes, rather than products. For example, there is not a "natural gas" industry, but rather, an industry (or industrial category) that produces gas (and oil), one that transports gas, one that delivers gas locally (distribution), etc.

Industry Categories Used for Natural Gas Direct Employment

Selection of Direct Employment Industrial Categories: Even with six-digit industry detail, not all relevant activities for natural gas are separately identified in the BLS data. In some cases, the BLS NAICS-based industrial categories are specific to natural gas, e.g., natural gas pipeline transport or natural gas distribution. In others, especially where overlapping activities can occur, natural gas and oil are combined, e.g., crude oil and natural gas extraction, oil and gas well drilling contractors, oil and gas pipeline construction.

Other industrial groupings have relevance to non-energy as well as energy activities. For instance, construction and repair of offshore oil and natural gas platforms is embedded in the large ship building and maintenance category, and production of compressors used in natural gas pipelines is embedded in the general compressor manufacturing category.

The following table lists the natural gas and gas-related industries for which employment figures (reported by BLS or estimated for the study) are provided, along with their parent BLS categories, where applicable. Because of the close relationship between industries 213111 and 213112, the jobs data for those two categories and their natural gas components have been combined in this study's analysis.

Direct Natural Gas Employment Categories, Including Subsets of BLS Categories

	BLS Data	Estimated by IHS
Natural gas liquid extraction (211112)	X	
Pipeline transportation of natural gas (includes storage) (486210)	X	
Natural gas distribution (221210)	X	
Crude petroleum and natural gas extraction (drilling/production etc.) (211111)		
Portion attributable to natural gas extraction		X
Drilling oil and gas wells (on contract or fee basis) (213111)		
Portion attributable to drilling gas wells (contract or fee basis)		X
Support activities for oil and gas operations (on contract or fee basis) (213112)		
Portion attributable to gas operations (contract or fee basis)		X
Oil and gas pipeline construction (237120)		
Gas pipeline construction		X
Oil and gas field machinery and equipment, manufacture of (333132)		
Manufacture of field machinery and equipment used in gas operations		X
Air and gas compressor manufacturing (333912)		
Portion attributable to compressors used in gas lines		X
Pump and pumping equipment manufacturing (333911)		
Portion attributable to pumps used in gas wells		X
Geophysical surveying and mapping services (541360)		
Portion attributable to natural gas exploration and development		X
Nonresidential site preparation contractors (on contract or fee basis) (238912)		
Portion attributable to natural gas operations		X
Ship building and repairing (includes oil and gas offshore platforms) (336611) (1)		
Building/repairing of offshore platforms/drill ships used in gas drilling/production.		X

Note: Shading indicates natural gas-related categories.

Note: Government components are included except for 336611.

(1) Federal government portion excluded from the data for this analysis.

BLS Industry Descriptions

This section describes the NAICS-based BLS industrial employment categories used in the analysis of direct natural gas employment. The source of this information is the U.S. Census' Bureau's official NAICS website, <http://www.census.gov/eos/www/naics/index.html>. The categories are presented below in the order of upstream, midstream, and downstream.

It should be noted that the liquefied natural gas (LNG) industry, which in this country consists primarily of receiving and regasification facilities, does not have its own industrial classification. It is likely employees involved in constructing the facilities would be included in the various construction categories. Employees involved in operating the facilities may be incorporated in the natural gas transportation industry (486210), at least in cases where the LNG operations are owned by pipeline companies—although this is not explicitly stated in the data documentation.

211111 - Crude Petroleum and Natural Gas Extraction

The parent categories—21111, 2111, and 211—are identical; they contain this industry (211111) and 211112, natural gas liquid extraction. This is a combined oil and gas category.

According to the Census Bureau, industry 211111 "comprises establishments primarily engaged in (1) the exploration, development, and/or the production of petroleum or natural gas from wells in which the

hydrocarbons will initially flow or can be produced using normal pumping techniques or (2) the production of crude petroleum from surface shales or tar sands or from reservoirs in which the hydrocarbons are semisolids. Establishments in this industry operate oil and gas wells on their own account or for others on a contract or fee basis." (Note that other "contract or fee basis" activities are included in the 213 categories, discussed below.)

21112 - Natural Gas Liquid Extraction

This is a natural gas category.

Per Census: "This U.S. industry comprises establishments primarily engaged in the recovery of liquid hydrocarbons from oil and gas field gases. Establishments primarily engaged in sulfur recovery from natural gas are included in this industry." Recovery of helium from natural gas is classified under 325120, industrial gas manufacturing.

213111 – Drilling Oil and Gas Wells

This is a combined oil and gas category.

The parent category, 213, is support activities for mining; it includes two oil and gas categories (213111 and 213112) as well as three support categories for all other types of mining (coal, metals, non-fuel non-metallic minerals). The basis of this industry is the activity is done on a "contract or fee basis." The vast majority of employees in the parent category are in the two oil/gas categories.

According to Census, "This U.S. industry comprises establishments primarily engaged in drilling oil and gas wells for others on a contract or fee basis. This industry includes contractors that specialize in spudding in, drilling in, re-drilling, and directional drilling."

213112 – Support Activities for Oil and Gas Operations

This is a combined oil and gas category.

Per Census, "This U.S. industry comprises establishments primarily engaged in performing support activities on a contract or fee basis for oil and gas operations (except site preparation and related construction activities). Services included are exploration (except geophysical surveying and mapping); excavating slush pits and cellars, well surveying; running, cutting, and pulling casings, tubes, and rods; cementing wells, shooting wells; perforating well casings; acidizing and chemically treating wells; and cleaning out, bailing, and swabbing wells."

Related oil/gas activities classified elsewhere: 238910 for site preparation on a contract or fee basis; 541360 for geophysical services; 21111 for operating oil and gas field operations on contract or fee basis; 237120 for pipeline and related structures construction.

541360 – Geophysical Surveying and Mapping Services

The parent category is 54, which contains professional, scientific, and technical services performed for others. This is a mixed-industry category.

According to the Census documentation, "This industry comprises establishments primarily engaged in gathering, interpreting, and mapping geophysical data. Establishments in this industry often specialize in locating and measuring the extent of subsurface resources, such as oil, gas, and minerals, but they may also conduct surveys for engineering purposes. Establishments in this industry use a variety of surveying techniques depending on the purpose of the survey, including magnetic surveys, gravity surveys, seismic surveys, or electrical and electromagnetic surveys."

238912 – Nonresidential Site Preparation Contractors

This is a mixed-industry with a possibly small component attributable to natural gas production. It is part of industry 238 – specialty trade contractors. The NAICS category of site preparation contractors (23891 and 238910) seems to have been divided into residential and nonresidential components for BLS's data.

The Census description of the site preparation contractors category is: "This industry comprises establishments primarily engaged in site preparation activities, such as excavating and grading, demolition of buildings and other structures, and septic system installation. Earth moving and land clearing for all types of sites (e.g., building, nonbuilding, mining) is included in this industry. Establishments primarily engaged in construction equipment rental with operator (except cranes) are also included."

The following related activities are categorized elsewhere: drilling oil and gas field water intake wells in 213111; dismantling tanks in oil fields in 213112.

333132 – Oil and Gas Field Machinery and Equipment Manufacturing

This is a combined oil and gas category. It is part of industry 3331, agriculture, construction, and mining machinery manufacturing.

According to the Census Bureau, "This U.S. industry comprises establishments primarily engaged in (1) manufacturing oil and gas field machinery and equipment, such as oil and gas field drilling machinery and equipment; oil and gas field production machinery and equipment; and oil and gas field derricks and (2) manufacturing water well drilling machinery."

Related activities that are classified elsewhere include manufacturing offshore oil and gas platforms (336611); manufacturing underground mining drills (333131), and manufacturing pumps and pumping equipment (333911).

333911 – Pump and Pumping Equipment Manufacturing

This mixed-industry category (i.e., with oil, gas, and other applications) is part of industry 333, machinery manufacturing.

According to Census, "This U.S. industry comprises establishments primarily engaged in manufacturing general purpose pumps and pumping equipment (except fluid power pumps and motors), such as reciprocating pumps, turbine pumps, centrifugal pumps, rotary pumps, diaphragm pumps, domestic water system pumps, oil well and oil field pumps and sump pumps. "

336611 – Ship Building and Repairing

This mixed-industry category has some applicability to natural gas. It is included in 336, manufacture of transportation equipment.

Per Census documentation, "This U.S. industry comprises establishments primarily engaged in operating a shipyard. Shipyards are fixed facilities with drydocks and fabrication equipment capable of building a ship, defined as watercraft typically suitable or intended for other than personal or recreational use. Activities of shipyards include the construction of ships, their repair, conversion and alteration, the production of prefabricated ship and barge sections, and specialized services, such as ship scaling."

The industry includes the manufacture/building of oil and gas offshore floating platforms. It also includes a large component of federal government jobs, likely related to U.S. Navy activities. For this reason, the data summary tables in this report include only the private-industry component of this industry.

486210 – Pipeline Transportation of Natural Gas

The parent categories of this gas-only category are 4862 and 48621, both of which are identical to 486210. They are part of industry 486, pipeline transportation.

Per Census, "This industry comprises establishments primarily engaged in the pipeline transportation of natural gas from processing plants to local distribution systems." It covers transmission from processing plants to local distribution companies, and includes natural gas storage.

237120 – Oil and Gas Pipeline Construction

This combined oil and gas category is the same as industry 23712 and is part of 2371, utility system construction, which in turn is part of 237, heavy and civil engineering construction.

According to Census documentation, "This industry comprises establishments primarily engaged in the construction of oil and gas lines, mains, refineries, and storage tanks. The work performed may include new work, reconstruction, rehabilitation, and repairs. Specialty trade contractors are included in this group if they are engaged in activities primarily related to oil and gas pipeline and related structures construction. All structures (including buildings) that are integral parts of oil and gas networks (e.g., storage tanks, pumping stations, and refineries) are included in this industry." (Emphasis added by IHS Global Insight.)

333912 – Air and Gas Compressor Manufacturing

This mixed-industry category (i.e., with oil, gas, and other applications) is part of industry 333, machinery manufacturing.

Per Census, "This U.S. industry comprises establishments primarily engaged in manufacturing general purpose air and gas compressors, such as reciprocating compressors, centrifugal compressors, vacuum pumps (except laboratory), and nonagricultural spraying and dusting compressors and spray gun units."

Although not expressly stated, this would be the appropriate category for compressors used in gas pipelines.

221210 – Natural Gas Distribution

This gas-only category is the same as industries 22121 and 2212, and is part of industry 221, utilities.

According to Census, "This industry comprises: (1) establishments primarily engaged in operating gas distribution systems (e.g., mains, meters); (2) establishments known as gas marketers that buy gas from the well and sell it to a distribution system; (3) establishments known as gas brokers or agents that arrange the sale of gas over gas distribution systems operated by others; and (4) establishments primarily engaged in transmitting and distributing gas to final consumers." It excludes the transportation of natural gas to local distribution systems, which is in 486210.

This industry has a relatively small but nevertheless significant share of state and local government workers, because some distribution companies are state- or locally-owned entities.

Use of Other BLS Data in this Study

BLS also produces a cross-match of its OES occupational statistics (referenced above) sorted to selected NAICS industries, at the U.S. total level only. The tables associated with this set provide employment and wages for the vast array of occupations incorporated within a given industry. In recent years the data tables have been provided once per year, but not all of the survey data are collected every year.

This data set includes tables for industry 2111 (production of crude oil, natural gas, and natural gas liquids) and for industry 2131 (support activities for mining on a contract or fee basis). According to the QCEW set, most of the employees in 2131 are involved in the two oil and gas support subcategories.

Some of the detailed employment and wage information from these sets were used in the cost estimates developed to aid in the separation of employment in natural gas-related upstream activities from their parent data categories. That analysis is discussed in Appendix 3.

Appendix 6: Models Used in Quantifying Indirect/Induced Jobs and Economic Impact

As discussed in Chapters 3 and 4, the indirect and induced jobs related to natural gas were quantified through input-output modeling, using the IMPLAN model (national analysis) and IHS Global Insight's Business Market Insight modeling system (allocation of the national results). This modeling effort also produced estimates of value added and labor income related to direct, indirect, and induced natural gas jobs. This appendix supplements the discussion of the analysis in Chapters 3 and 4 with more specific details about the models used.

IMPLAN Model

IMPLAN, short for "Impact Analysis for Planning," is a widely-used commercially available model for input/output analysis. Minnesota IMPLAN Group, Inc., is responsible for the production of the IMPLAN data, model and software. Using classic input/output analysis in combination with regional specific social accounting matrices and multiplier models, IMPLAN provides a highly accurate and adaptable model for its users. The IMPLAN database contains country, state, zip code and federal economic statistics which are specialized by region. IMPLAN accounts closely follow the accounting conventions used in the "Input-Output Study of the U.S. Economy" by the Bureau of Economic Analysis and the rectangular format recommended by the United Nations. The IMPLAN system was designed to serve three functions:

- (1) Data retrieval,
- (2) Data reduction, model development, and
- (3) Impact analysis

Comprehensive and detailed data coverage of the entire U.S. by geography, and the ability to incorporate user-supplied data at each stage of the model building process, provides a high degree of flexibility both in terms of geographic coverage and model formulation. There are two components to the IMPLAN system, the software and databases. The databases provide all information to create regional IMPLAN models. The software performs the calculations and provides an interface for the user to make final demand changes.

The IMPLAN system consists of two major parts:

- (1) A national-level technology matrix and
- (2) Estimates of sectoral activity for final demand, final payments, industry output and employment for each detailed geography in the U.S. along with the aggregate region.

Input-output accounting describes commodity flows from producers to intermediate and final consumers. The total industry purchases of commodities, services, employment compensation, value added, and imports are equal to the value of the commodities produced.

Purchases for final use (final demand) drive the model. Industries produce goods and services for final demand and purchase goods and services from other producers. These other producers, in turn, purchase goods and services. This buying of goods and services (indirect purchases) continues until leakages from the region (imports and value added) stop the cycle.

These indirect and induced effects (the effects of household spending) can be mathematically derived. The derivation is called the Leontief inverse. The resulting sets of multipliers describe the change of output for each and every regional industry caused by a one dollar change in final demand for any given industry.

Creating regional input-output models require a tremendous amount of data. The costs of surveying industries within each region to derive a list of commodity purchases production functions) are prohibitive. IMPLAN was developed as a cost-effective means to develop regional input-output models.

IMPLAN easily allows the user to do the following:

- Develop his/her own multiplier tables;
- Develop a complete set of SAM (Social Accounting Matrix) accounts;
- Change any component of the system, production functions, trade flows, or database;
- Generate type I, II, or any true SAM multiplier internalizing household, government, and/or investment activities
- Create custom impact analysis by entering final demand changes;
- Obtain any report in the system to examine the model's assumptions and calculations.

There are two components to the IMPLAN system, the software and databases. The databases provide all information to create regional IMPLAN models. The software performs the calculations and provides an interface for the user to make final demand changes.

IMPLAN Software

Minnesota IMPLAN Group developed the current version of IMPLAN Professional® version 2.0 in 1999. It is a Windows based software package that performs the calculations necessary to create the predictive model. The software reads the database, creates the complete set of social accounting matrices (SAM), the I/O accounts, and

The IMPLAN Input/Output System derives the predictive multipliers. The software also enables the use to make changes to the data, the trade flows, or technology. It also enables the user to make final demand changes which results in the impact assessment.

Features of the The IMPLAN Professional® features include:

- (1) Windows file and printer management;
- (2) Economic database editor;
- (3) Complete Social Accounting Matrix structure;
- (4) A choice of trade-flow assumptions:

Supply-Demand Pooling;

Regional Purchase Coefficients;

Location quotients;

- (5) Production function editor -i.e., the tools and opportunity necessary to modify the “absorption” and “byproducts” matrices;



- (6) Libraries for production functions and impact analysis expenditures;
- (7) Flexible model aggregation tools;
- (8) Report generator; Many preset reports for all stages of model building and analysis;
Export feature to many of the major PC file formats;
- (9) Flexible assumptions for induced effects;
Type SAM – true SAM multipliers which allow internalizing any number of institutions;
Type II - Based on PCE and SAM based local income relationship;
Type II - Based on user-specified disposable income rate;
Type III (CPMM) - Traditional Forest Service employment based multipliers;
- (10) Menu structure for easy impact analysis;
- (11) Event-based impact databases;
- (12) Built-in and editable transaction margins;
- (13) Built-in and editable deflators;
- (14) Technical support by MIG, Inc.;
- (15) Data in Access Database format.

Database

Each database has information for these components for all 508 industrial sectors in the IMPLAN model.

Employment is total wage and salary and self employed jobs in a region. In the 1985 database, employment was measured as full-time equivalent jobs. This meant that total employment in a region would generally be below most published estimates since these are generally full-time and part-time. In the 1990 and subsequent databases, employment includes both full-time and part-time workers. Employment in the 1990 and subsequent databases are measured in total jobs.

There are four sub-components for Value Added. These are:

1. Employee Compensation;
2. Proprietary Income;
3. Other Property Type Income;
4. Indirect Business Taxes;

Employee compensation is wage and salary payments as well as benefits including health and life insurance, retirement payments, and any other non-cash compensation. This provides a measure of income to workers who are paid by employers.

Proprietary income consists of payments received by self-employed individuals as income. This would be recorded on Federal Tax Form 1040C. This includes income received by private business owners, doctors, lawyers, and so forth. Any income a person receives for payment of self-employed work is counted here.

Other property type income consists of payments from rents royalties and dividends. This includes payments to individuals in the form of rents received on property, royalties from contract, and dividends paid by corporations. This also includes corporate profits earned by corporations.

Indirect business taxes consist primarily of excise and sales taxes paid by individuals to businesses. These taxes are collected during the normal operation of these businesses but do not include taxes on profit or income. Goods and services purchased for their ultimate use by an end user are called final demands. For a region this would include exports as that is a final use for that product. In an input-output framework, final demands are allocated to producing industries with margins allocated to the service sectors (transportation, wholesale and retail trade, insurance) associated with providing that good to the final user.

Thus final demands are in producer prices. There are 13 sub-components for Final Demands. These are:

1. Personal Consumption Expenditures (PCE) - nine income levels;
2. Federal Government Military Purchases;
3. Federal Government Non-Military Purchases;
4. Federal Government Capital Formation Purchases
5. State and Local Government Non-Education Purchases;
6. State and Local Government Education Purchases;
7. State and Local Government Capital Formation Purchases
8. Inventory Purchases;
9. Capital Formation;
10. Foreign Exports;
11. State and Local Government Sales;
12. Federal Government Sales;
13. Inventory Sales.

All final demands in the original data are on a commodity basis. The distinction between industries and commodities is as follows from the 1972 I-O Definitions and Conventions Manual:

- An input-output industry is a grouping of establishments, as classified by SIC;
- An input-output commodity consists of the characteristic products of the corresponding I-O industry wherever made. There are several industries that have no commodities. This is a result of departures from the strict SIC classification of industries. Also, some commodities have no associated industry. An example of this is non-comparable imports.

Personal consumption expenditures (PCE) consist of payments by individuals/households to industries for goods and services used for personal consumption. Individuals tend to buy little directly from industries other than retail trade. However, in an input-output table, purchases made by individuals for final consumption are shown as payments made directly to the industry producing the good. PCE is the largest component of final demand.

Federal Government purchases are divided between military, non-military uses and capital formation. Federal military purchases are those made to support the national defense. Goods range from food for troops to missile launchers. Non-military purchases are made to supply all other government functions.

Payments made to other governmental units are transfers and are not included in Federal Government purchases.

State and local government purchases are divided between public education, non-education and capital formation. Public education purchases are for elementary, high school, and higher education. Noneducation purchases are for all other government activities. These include state government operations, operations including police protection and sanitation. Private sector education purchases are not counted here. Private education purchases show up in IMPLAN sectors 495 and 496.

Inventory purchases are made when industries do not sell all output created in one year. This is generally the case. Each year, a portion of output goes to inventory. Inventory sales occur when industries sell more than they produce and need to deplete inventory. Inventory purchases and sales generally involve goods producing industries (e.g. agriculture, mining, and manufacturing).

Capital formation is private expenditures made to obtain capital equipment. The dollar values in the IMPLAN database are expenditures made to an industrial sector producing the capital equipment. The values are not expenditures by the industrial sector.

Foreign Exports are demands made to industries for goods for export beyond national borders. These represent goods and services demanded by foreign parties. Domestic exports are calculated during the IMPLAN model creation and are not part of the database.

The national transactions matrix is based on the most current National Bureau of Economic Analysis Benchmark Input-Output Model. It is re-sectored to IMPLAN industrial sectoring. We use our IMPLAN data for the current year to update the most recent National Benchmark study.

IMPLAN Multipliers

The notion of a multiplier rests upon the difference between the initial effect of a change in final demand and the total effects of that change. Total effects can be calculated either as direct and indirect effects, or as direct, indirect, and induced effects. Direct effects are production changes associated with the immediate effects or final demand changes. Indirect effects are production changes in backward-linked industries caused by the changing input needs of directly effected industries (for example, additional purchases to produce additional output). Induced effects are the changes in regional household spending patterns caused by changes in household income generated from the direct and indirect effects.

Five different sets of multipliers are estimated by IMPLAN corresponding to five measures of regional economic activity; total industry output, personal income, total income, value added, and employment. For each set of multipliers, four types of multipliers are generated, Type I, Type II, Type SAM and Type III.

Type I Multiplier

A Type I multiplier is the direct effect, produced by a change in final demand, plus the indirect effect divided by the direct effect. Increased demands are assumed to lead to increased employment and population with the average income level remaining constant. The Leontief inverse (Type I multipliers matrix) is derived by inverting the direct coefficients matrix. The result is a matrix of total requirement coefficients, the amount each industry must produce in order for the purchasing industry to deliver one dollar's worth of output to final demand.

Type II Multipliers

Type II multipliers incorporate “induced” effects resulting from the household expenditures from new labor income. The linear relationship between labor income and household expenditure can be customized in the IMPLAN Professional® software:

1. The default relationship is PCE (personal consumption expenditures) and total household expenditures. Each dollar of work-place based income is spent based on the SAM relationship generated by IMPLAN.
2. The second possibility is a RIMS II style of Type II multiplier, where PCE is adjusted to represent only the spending of the disposable income portion of labor income. In this way there is a direct one-to-one relationship to labor income and PCE. Then a ratio which the user can specify, is applied to convert total income to disposable income before the rounds of induced effects are calculated.

Type SAM

Type SAM multipliers are the direct, indirect, and induced effects where the induced effect is based on information in the social account matrix. This relationship accounts for social security and income tax leakage, institution savings, and commuting. It also accounts for inter-institutional transfers. This multiplier is flexible in that you can include any institutions you want. In other words, if you want to create a model closed to households and state and local government, you can. If you select this option, an additional dialog box will be displayed allowing you to select the institutions you want to include.

Output Multipliers

This report shows the total industry output multipliers and per-capita personal consumption expenditures. Output multipliers can be used to gauge the interdependence of sectors; the larger the output multiplier, the greater the interdependence of the sector on the rest of the regional economy. A Type I entry represents the value of production (from direct and indirect effects) required from all sectors by a particular sector to deliver one dollar's worth of output. Type II, SAM and III adds in the induced requirements.

Example: If a Type I multiplier for the Dairy Farm industry is 1.0943, for each dollar of output produced by the Dairy Farm sector, .0943 dollars worth of indirect output is generated in other local industries. If the Type SAM Dairy Farm multiplier is 1.3140, .3140 dollars of indirect and induced output is generated in other local industries. The induced output would be $1.3140 - 1.0943$ or .2197 dollars for each dollar of output produced by the Dairy Farm sector.

Labor Income Multipliers

The labor income multiplier report shows the direct, indirect, and induced employee compensation plus proprietor income effects generated per dollar of output. The Type I personal income multiplier is the direct and indirect employee compensation plus proprietor income divided by the direct income. The Type II, Type SAM and Type III multiplier adds the induced effects component.

Example: If, the Type I multiplier for the Dairy Farm sector is 1.4761 and the Type SAM multiplier is 2.7067 then for each dollar of direct income generated by this industry, .4761 dollars of indirect and 1.2306 dollars of induced income are generated.

Employee Compensation Multipliers

Employee compensation represents all payroll costs of wage and salary workers. The Type I, Type SAM, Type II or Type III total income multipliers are listed in this report along with the direct, indirect, and induced total income effects generated from the production of one dollar's output.

Proprietor Income Multiplier

Proprietor Income is the income earned by the owners of a private- non-incorporated business -i.e., the selfemployed. The Type I, Type SAM, Type II or Type III total income multipliers are listed in this report along with the direct, indirect, and induced total income effects generated from the production of one dollar's output.

Other Property Type Income

Other property type income represents corporate income, rental income and interest. The Type I and Type II/Type SAM/Type III total income multipliers are listed in this report along with the direct, indirect, and induced total income effects generated from the production of one dollar's output.

Value Added Multipliers

Type I and Type II/Type SAM/Type III Value Added multipliers are listed in this report along with the direct, indirect, and induced Value Added effects generated from the production of one dollar or output. Value Added includes: employee compensation, proprietary income, other property type income, and indirect business taxes.

Employment Multipliers

Type I and Type II/Type SAM/Type III employment multipliers are listed in this report along with the direct, indirect, and induced employment effects from the production of one million dollars of output. Employment is in terms of full-time and part-time jobs.

Example: if a Dairy Farm Type I employment multiplier is 1.1158, for each job created directly by the dairy farm industry, .1158 jobs are created indirectly.

IHS Global Insight Business Market Insight

Overview

The analysis of detailed business market insight is undertaken in IHS Global Insight's Advisory Services Divisions. Advisory Services—a custom consulting group—draws from all of the firm's economic analysis services and numerous outside sources to complete specialized applications for clients. To provide detailed and accurate business Market Insight estimates and forecasts, Advisory Services Divisions leverages all of IHS Global Insight core strengths in macro, industry, and regional forecasting, and augments these capabilities with other data bases and resources as required. The approach integrates data, information, and support from a variety of sources in a way that few organizations can match.

Methodology

The county level business demographic series are developed using current and historical data, as well as economic modeling techniques. This process enhances economic analysis in two important ways. First, it utilizes all current data and information to accurately estimate the current location of employment, establishments, and output. Second, it defines the relationships between each variable and the appropriate economic, cyclical, and migratory factors that cause their movements over time.

The model estimation process incorporates the effects of the business cycle on employment trends and, therefore, yields much more accurate forecasts at the county level and above. The estimated relationships are used to develop estimates for the current year and forecasts for the next twenty five years that reflect IHS Global Insight's widely used regional, state, and county economic forecasts.



IHS Global Insight's county level and above forecasts are based on information that is updated quarterly in the context of IHS Global Insight's international network of large-scale economic models. This accurately depicts changes in worldwide, domestic, state, and local economic activity. In this context, the estimates and forecasts account for changes in international, national, state, and local economic conditions and not merely the trends embodied in past censuses.

IHS Global Insight's approach to county, state, and national demographic forecasting models represents a significant departure from previous detailed-geography modeling and forecasting efforts, which use only classical demographic modeling techniques. Most other models are constructed as extrapolated trends of the decennial census data and proportions of the U.S. totals. In the IHS Global Insight system, however, each area is modeled both individually and linked to its respective county, metropolitan area, state, and national modeling system. Thus, the models do not forecast local and regional growth as simple trends and proportions of U.S. totals, but focus on internal economic growth dynamics, differential business cycle responses, and variable migration patterns. This approach is referred to as a top-down bottom-up model, contrasting sharply with pure national/regional share (top-down) models and models that are not linked to national/regional economic models (bottom-up). It contains the best of both approaches.

The basis objective is to forecast local/regional activity in the context of a reliable, consistent, comprehensive, and detailed economic environment provided by IHS Global Insight's U.S. economic, industry analysis, and regional forecasting models. To do this, two key phenomena must be explained:

- why local economic and demographic factors behave differently across geographic areas in the short term over the business cycle; and
- why local economic and demographic factors grow or decline relative to each other across geographic areas over the longer run.

These issues are addressed using detailed, consistent data and information about the local industrial mix, inter-industry and interregional relationships, productivity and relative business costs, cost of living and quality of life, wage and income patterns, and migration trends.

The state, metropolitan statistical area (MSA), and county models are econometric in nature, incorporating underlying behavioral relationships between such concepts as income and jobs, population and jobs, household formation and housing starts, migration trends and life cycle realities, and total wealth and types of income. The linkages at all levels to local behavioral factors and regional/national economic factors lead to greater accuracy and complete consistency. Consequently, each model captures the full business cycle behavior of the economy, including the timing and amplitude of the turning points, reflecting the disparities that exist across states, counties, and local areas.

The three major components of the IHS Global Insight approach to regional, state, MSA, and county geo-demographic forecasting are summarized below.

The major linkages among the models across geographic areas and at different levels of aggregation occur in the economic base or export sectors. (Export refers not only to shipments out of the country, but also shipments from the state or locality to other parts of the country.) These include primarily agriculture, mining, the federal government and most manufacturing industries. In a few local economies, banking, insurance, or services (e.g., hotels) sectors are also classified as export sectors. For the most part, these industries serve national rather than local markets, or are not dependent upon the local market. On the other hand, the income generated from these sectors provides one of the major stimuli to the local economy. The local growth income generated from these sectors helps determine the economic health of the area and its attractiveness to individuals, families, and households.

The local economy is composed of construction, transportation, utilities, communications, finance, insurance, real estate, wholesale and retail trade, services, and state and local government. The major driving forces in this part of each area's economy are local in nature. The income generated by the export sectors circulates and multiplies through the local economy and generates the greater part of regional employment. These interactions and simultaneities can only be captured in an independent model. These factors further characterize economic activity and affect migration decisions of individuals, families, and households.

Detailed County Forecasts

Detailed county level data for employment and establishments are available from a number of government sources. Data provided by County Business Patterns (CBP) published by the Bureau of the Census, Bureau of Labor Statistics (BLS), and data provided by location database serve as the basis for this analysis. The database covers all businesses with one or more paid employees. Farm, railroad, postal service and government employment is based on the 2002 Census of Agriculture, Census of Transportation, USPS, and the BEA, respectively.

To ensure consistency between county level forecasts and IHS Global Insight's national, state, and metropolitan area forecasts, we first created a county level historical database that was internally consistent throughout the entire time period under consideration. To do this, we first produced the detailed level government data so that data before 1997 to be consistent with the aggregate data from BLS. This provides us with a database from which to infer forecast trends, and insures that outlying data will not unduly influence the forecast outcome.

From this base, we are able to estimate county employment trends on a county-by-county basis. The trend estimated by this procedure is independent of any state or national level forecast. By combining this independent trend analysis with IHS Global Insight's state and metropolitan area forecast, we are able to estimate a unique growth path for each of the nation's 3,141 counties. Due to the fact that government data for MSAs are collected independent of the CBP data used for our first estimate of county employment, estimated employment differs from the metro area count by several percentage points. To correct this bias and maintain consistency not only between our state and county estimates, but also with our MSA forecasts, an iterative process was used to isolate the county level employment combination that satisfies all three employment estimates.

Sales or output forecasts were also prepared using national level data estimates, using the revised 2002 benchmark input-output tables, with the exception of the wholesale and retail trade sectors. The input-output table measures industry sales valued at producer prices, which exclude transaction costs (transportation costs and wholesale and retail trade margins), but include excise taxes collected and paid by the producers. For this study, wholesale and retail output is measured as gross sales by the Bureau of Census. The output data are appended with other data services such as ASM, Commerce M3 release, and non-manufacturing survey statistics.

Once output has been matched to a NAICS code, detailed output level data are calculated by allocating output using employment as an indicator of where and when production occurs. This yields national level estimates for output by five/digit NAICS, which are then allocated to the counties.

Business Market Insight Coverage

Dimensions of IHS Global Insight's Business Market Insight database consists of the following concepts:

- Employment;
- Establishments;



- Sales or output in real and nominal dollars

Employment, establishments, and sales are developed for all detailed of 5 to 6 digit NAICS code industries. The historical data at the county level cover from 1990 through the present for employment and establishments, and from 1997 to present for sales. The forecast extends for twenty five years into the future.

U.S. Business Demographic Data Availability by detailed NAICS code Industries

	All States	All MSAs	All Counties
Number of Establishments	5/6	5/6	5/6
Employment	5/6	5/6	5/6
Output or Sales	5/6	5/6	5/6

The number of establishments is reported by size class, by number of employee, in the CBP data. There are 9 distinct size classes reported in this dataset. IHS Global Insight undertakes two tasks to enhance this capability. First, this data are forecasted based on the establishment and employee count by industry and geography. Second, number of employee and values of sales are constructed by size class for the entire dataset by industry and county. For those industries not included in the CBP data IHS Global Insight does not report the data by size class. Again they include farming, railroad, postal service, and government. The size classes are defined as follows:

- 1 to 4 Employees
- 5 to 9 Employees
- 10 to 19 Employees
- 20 to 49 Employees
- 50 to 99 Employees
- 100 to 249 Employees
- 250 to 499 Employees
- 500 to 999 Employees
- 1000 or more Employees

Appendix 7: Comparison of Studies

Introduction

A number of recent studies have analyzed the size and relative importance of employment in the combined natural gas and oil industry in the United States. Some of these studies were narrowly focused on a region, a state, or an area within a state. Others took a broad view of the entire natural gas and oil industry across the country. For America's Natural Gas Alliance (ANGA), IHS Global Insight has undertaken an analysis of the size of the natural gas industry within the combined natural gas and oil industry. The data used, the definitions of direct and indirect employment, and the time frames also varied across studies, making it difficult to compare the results. The following table summarizes the results of a variety of these studies, while subsequent tables compare the IHS Global Insight results with the few studies that are similar in scope.

Comparison of Assessment of Employment in Energy Industries

Report Title	Date Published	Prepared By	Industry Assessment	Jobs Assessment	Employees
Forecasting Oil & Gas Employment for the State of Wyoming	2002	Wyoming Department of Employment, Research & Planning	oil and natural gas	direct	11,800
Fueling the Texas Economy	March 2009	Texas Oil & Gas Association	oil and natural gas	direct-oil & gas direct-oil	136,913 35,669
					172,582
Economic Impact for the State of Ohio	2008	Ohio Oil & Gas Energy Education Program	oil and natural gas	direct indirect/induced Total	4,000 10,400 14,400
The Economic Impact of the Oil and Gas Industry in Pennsylvania	November 2008	Pennsylvania Economy League of Southwestern Pennsylvania, LLC	oil and natural gas	direct indirect induced total	10,538 5,260 10,761 26,599
Oil and Gas Economic Impact Analysis	June 2007	Booz Allen Hamilton, Colorado Energy Research Institute at the Colorado School of Mines	oil and natural gas	direct indirect induced total	15,601 21,468 34,920 71,989
The Economic Contributions to the U.S. National and State Economies by the Oil and Natural Gas Industry	January 15, 2007	PricewaterhouseCoopers' National Economic Consulting Group (prepared for API)	oil and natural gas	direct-oil & gas direct-oil only total direct indirect/induced total	0.73m 1.13m 1.86m 4.07m 5.93m
The Economic Impact of the Natural Gas Industry in West Virginia	August 21, 2008	Center for Business and Economic Research, Marshall University	natural gas	direct/indirect induced total	7,520 7,480 15,000
An Emerging Giant: Prospects and Economic Impacts of Developing the Marcellus Shale Natural Gas Play	July 24, 2009	Penn State College of Earth & Mineral Sciences and The Department of Energy and Mineral Engineering	natural gas	direct indirect induced total	14,307 5,446 9,531 29,284
Projecting the Economic Impact of the Fayetteville Shale Play for 2008-2012 Executive Summary	March 2008	Center for Business and Economic Research, University of Arkansas	natural gas	direct indirect induced total	3,776 1,905 3,852 9,533
An Economic Impact Analysis of the Haynesville Shale Natural Gas Exploration, Drilling and Production	August 28, 2008	Louisiana Department of Natural Resource - Technology Assessment Division	natural gas	40,000/yr (1st 5 years); 25,000/yr (thereafter)	
The Economic Contributions for U.S. Mining in 2007	February 2009	Moore Economics (prepared for the National Mining Association)	coal	direct indirect/induced total	122,930 431,720 554,650
The Economic Impacts of the Oil and Natural Gas Industry on the U.S. Economy: Employment, Labor Income and Value Added	September 8, 2009	PricewaterhouseCoopers' National Economics & Statistics (prepared for API)	oil and natural gas	direct-oil & gas direct-oil only total direct indirect/induced capital investment total	0.92m 1.21m 2.12m 5.70m 1.42m 9.24m

Comparison with the PriceWaterhouseCooper's 2007 Study of the Oil and Natural Gas Industry

The most comparable analyses to that undertaken here are two studies conducted in 2007 and 2009 by PriceWaterhouseCoopers' (PWC) National Economic Consulting Group for the American Petroleum Institute (API). The 2007 study, entitled *The Economic Contributions to the U.S. National and State Economies by the Oil and Natural Gas Industry*. That report, which was released January 15, 2007, looked at direct, indirect, and induced employment in the oil and gas industry using NAICS definitions and the IMPLAN model that also formed the basis of the IHS Global Insight (IGI) work. The major differences between the two studies are:

- PWC analyzed employment in the combined natural gas and oil industry for a single year 2004; IHS Global Insight separated natural gas and oil employment for the most recent three years 2006, 2007, and 2008;
- PWC used the broad definition of employment in the natural gas and oil extraction industry that includes sole proprietors; IHS Global Insight used only employees working for wages and salaries, which excludes sole proprietors;
- IHS Global Insight included more categories in its assessment of direct employment.

Approximately 60% of the 1.86 million direct jobs in the combined natural gas and oil industry as reported in the PWC study is located in oil-only portions of the industry; of this amount, more than 800,000 jobs, or 45%, are accounted for by gasoline station workers. In the IHS Global Insight analysis, the largest share of natural gas only industry jobs is in drilling and support, followed by natural gas distribution, and natural gas extraction.

In our study, IHS Global Insight determined that 2.2 million indirect and induced jobs would result from the 622,000 direct jobs in the natural gas industry in 2008, a multiplier effect of 4.5. The 2007 PWC study of natural gas and oil employment identified 4.1 million indirect plus induced jobs, for a total of 5.9 million jobs in 2004.

PriceWaterhouseCooper 2007 Study for API: Direct Employment in 2004

NAICS	Natural Gas and Oil Categories	Implan sector	Implan-04 data
211	Oil and gas extraction	19	377,383
213111	drilling oil and gas wells	27	60,291
213112	support activities for oil and gas operations	28	153,827
2212	natural gas distribution	31	105,024
486	Pipeline transportation	396	37,210
	Sub-total		733,735
32411	petroleum refineries	142	68,621
324191	petroleum lubricating oil and grease manufacturing	145	9,301
4247	Petroleum and petroleum products merchant wholesalers	390	107,429
4711, 44719	gasoline stations with convenience stores, other gasoline stations	407	843,814
45431	fuel dealers	412	100,677
	Sub-total		1,129,842
	Total		1,863,577

Comparison with PWC's 2009 Study of the Oil and Natural Gas Industry

The API recently released a new study, *The Economic Impacts of the Oil and Natural Gas Industry on the U.S. Economy [in 2007]: Employment, Labor Income and Value Added*. The study, prepared for API by PricewaterhouseCoopers and released on September 8, 2009, is an update of the 2007 report, discussed above, which measured the economic impact of the oil and natural gas industry in 2004.

The 2009 study is comprised of two separate analyses that the authors refer to as:

- Operational assessment
- Capital investment assessment

For the operational assessment, the number of direct jobs in oil-only sectors increased nearly 7% between the two studies. Part of this increase resulted from the addition of the asphalt category. For the direct jobs in the combined oil and natural gas categories, the increase was 25% between the study released in 2007 measuring 2004 performance and the new study on the 2007 data year. However, more than half of that increase is attributable to the addition of categories. Without the category additions, the increase in the number of oil and natural gas direct jobs in the combined oil/natural gas categories would be less than 12%. Total direct oil and natural gas jobs in the new study are 14% higher than in the earlier study.

PWC again utilized the IMPLAN model. The resulting multiplier is 3.7, with more than 7.8 million jobs attributable to the oil and natural gas industry.

For the capital investment assessment, PWC developed an estimate of the oil and natural gas industry's investment in 2007 based on data from the Census Bureau and the U.S. Department of Commerce. Their analysis showed that the oil and natural gas industry invested over \$150 billion in 2007. The impacts of this capital investment on jobs, labor income and value-added were derived from a customized version of the IMPLAN model.

The state assessments reflect only the operational impacts.

Comparison of PWC Studies of Oil/Natural Gas Employment with IGI Study on Natural Gas Employment

	PWC study (Jan-07) <u>2004 jobs</u>	PWC study (Sept-09) <u>2007 jobs</u>
Direct Jobs -- Oil Only	1,129,842	1,206,432
Direct Jobs -- Oil & Natural Gas Combined	733,735	916,857
Direct Jobs	1,863,577	2,123,289
Indirect/Induced Jobs	4,066,260	5,695,148
Total Operational Jobs	5,929,837	7,818,437
Multiplier	3.2	3.7
PWC's Capital Investment Impact	--	1,418,944
Total Oil/Natural Gas Jobs	5,929,837	9,237,381
	IGI study (Sept-09)	
	<u>IGI natural gas jobs - 2007</u>	<u>IGI natural gas jobs - 2008</u>
Direct Jobs -- Natural Gas Only	586,502	622,412
Indirect / Induced Jobs	2,106,035	2,205,940
Total Natural Gas Jobs	2,692,537	2,828,352
Multiplier	4.6	4.5



Comparing the IGI study results for 2007 with the PWC study for that year, the IGI direct natural gas jobs are 64% of the PWC direct oil and natural gas jobs (586,502 / 916,857), which is in line with the share of natural gas production from total oil and natural gas production on a Btu-equivalent basis.

Comparison with Moore Economics' Study of the Mining Industry

The National Mining Association commissioned Moore Economics to analyze the employment impacts of the mining industry. In that study, "The Economic Contributions of U.S. Mining in 2007," the authors identified 122,930 direct jobs in coal mining and 431,720 indirect and induced jobs as a result of direct coal mining activities, giving a multiplier of 4.5 between direct and total jobs.

Summary

The following table compares the key employment results of energy-industry studies performed on a scale comparable to the IHS Global Insight study for America's Natural Gas Alliance.

Summary of Energy Employment Impacts in Key Comparable Studies

	Coal (2007)	Natural Gas (2008)	Natural Gas & Oil (2004)	Natural Gas & Oil (2007)
	Moore Economics for National Mining Association	IHS Global Insight for America's Natural Gas Alliance	PriceWaterhouseCoopers for American Petroleum Institute	PriceWaterhouseCoopers for American Petroleum Institute
Direct Jobs	122,930	622,412	1,863,578	2,123,289
Indirect/Induced Jobs	431,720	2,205,939	4,066,259	5,695,148
Direct, Indirect, Induced Jobs	554,650	2,828,352	5,929,837	7,818,437
Multiplier (Total / Direct)	4.5	4.5	3.2	3.7
Capital Investment Jobs	n/a	n/a	n/a	1,418,944
Total with Capital Investment Jobs	n/a	n/a	n/a	9,237,381

List of Studies

Recent examples of studies on oil/gas industry employment include:

1. "The Economic Impacts of the Oil and Natural Gas Industry on the U.S. Economy: Employment, Labor Income and Value Added," PriceWaterhouseCooper's National Economic & Statistics, prepared for **American Petroleum Institute**, September 9, 2009.
2. "The Economic Contributions to the U.S. National and State Economies by the Oil and Natural Gas Industry," PriceWaterhouseCoopers' National Economic Consulting, prepared for **American Petroleum Institute**, January 15, 2007.
3. "The Economic Impact of the Natural Gas Industry in **West Virginia**," Center for Business and Economic Research, Marshall University, prepared for West Virginia Oil & Natural Gas Association and the Independent Oil & Gas Association of West Virginia, August 21, 2008.
4. "The Economic Impact of the Oil and Gas Industry in **Pennsylvania**," Pennsylvania Economy League of Southwestern Pennsylvania, LLC, prepared for the Marcellus Shale Committee, November 2008.
5. "An Economic Impact Analysis of the **Haynesville** Shale Natural Gas Exploration, Drilling and Production: Some Preliminary Results," Dix, Manfred, Ph.D., Louisiana Department of Natural Resources and Greg Albrecht, Louisiana Legislative Office, August 28, 2008.
6. "Projecting the Economic Impact of the **Fayetteville** Shale Play for 2008-12: Executive Summary," Center for Business and Economic Research, Sam M. Walton College of Business, University of Arkansas, prepared for Arkansas Land and Exploration, LLC, Chesapeake Energy Corporation, Petrohawk Energy Corporation, and Southwestern Energy Company, March 2008.
7. "Economic Impact for the State of **Ohio**," Ohio Oil & Gas Energy Education Program, 2008.

8. "Oil and Gas Economic Impact Analysis," **Colorado** Energy Research Institute, Colorado School of Mines, Golden, Colorado, June 2007.
9. "Fueling the Economy," **Texas** Oil and Gas Association, with assistance from the American Royalty Council and the Texas Independent Producers and Royalty Owners Association, March 2009.
10. "Forecasting Oil & Gas Employment for the State of **Wyoming**," Bullard, David, Wyoming Department of Employment, Research & Planning, 2002.

Glossary

AFE	Application for Expenditure
API	American Petroleum Institute
ANGA	America's Natural Gas Alliance
BEA	Bureau of Economic Analysis, U.S. Department of Commerce
BLS	Bureau of Labor Statistics
BMI	IHS Global Insight's U.S. Business Market Insights
IMPLAN	Economic impact model using input/output economics, University of Minnesota, based on BEA data
JAS	Joint Association Survey on Drilling Costs, American Petroleum Institute
LNG	Liquefied Natural Gases
LPG	Liquefied Petroleum Gases
NAICS	North American Industrial Classification System, established in 1997 by Canada, Mexico, and the United States
OES	BLS Occupational Employment Statistics
QCEW	BLS Quarterly Census of Employment and Wages
Que\$tor	IHS Global Insight's drilling database with data on over 750,000 wells