The Economic and Local Impact of Oklahoma's Oil and Natural Gas Industry 2006

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THE ECONOMIC IMPACT OF OIL AND GAS PRODUCTION AND DRILLING ON THE OKLAHOMA ECONOMY

Prepared for

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AND

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INTRODUCTION

The oil and gas sector continues to serve as the trademark industry of Oklahoma. Despite the contraction of the industry since the oil bust, oil and gas drilling and production remain vital components of the state economy. Oklahoma likewise remains an important component of the U.S. energy infrastructure ranking fifth among the states in crude oil production and second in natural gas production in 2005. Currently, the state produces an estimated 3.3 percent of the nation's crude output and 8.8 percent of natural gas output.

The substantial nature of oil and gas drilling and production produces significant economic multiplier, or ripple, effects that impact most every sector of the state economy. The industry produced an estimated $23 billion in output, employed more than 60,000 workers, and generated more than $6.2 billion in income in 2005. Because the industry produces more output per worker than nearly all other industry sectors, oil and gas firms subsequently are able to pay relatively high wages per worker.

The recent upward shift in energy prices has once again triggered a surge in activity in Oklahoma's oil and gas industry. Drilling activity has expanded across the state as oil and gas firms have added more than 10,000 jobs since the bottom in hiring in 2002. The industry is also undergoing an important structural change in terms of the relative proportions of oil and gas produced. Crude oil production continues to decline in importance relative to natural gas, and recent well completions favor natural gas over crude oil by 4 to 1.

This report evaluates the current economic impact of Oklahoma's oil and gas industry on the broader state economy.[1] The report first evaluates current trends in employment, drilling, and production and evaluates the role of the state in the national energy complex. Next, the economic impact on the state economy is examined in terms of employment and income generated, output produced, purchases by the oil and gas industry from other state firms, and tax revenue generated. The final section discusses forecasts of future crude oil and natural gas production and employment in the industry through 2010.

INDUSTRY TRENDS

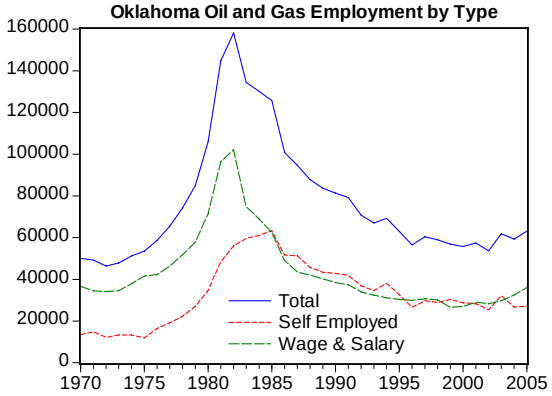
The Oklahoma oil and gas industry has undergone significant restructuring the past two decades in response to changing geological fundamentals and market conditions. This section of the paper examines the impact of these changes on the role of oil and gas workers in the state labor force, including trends in total employment and wage levels. The next two sections examine changes in Oklahoma crude oil and natural gas production, along with the state's changing role in the national energy infrastructure. A final section examines recent trends in exploration and drilling activity across the state.

Employment and Wages

From 1975 to the height of the oil boom in 1982, Oklahoma's oil and gas companies added workers at an unprecedented pace, increasing the number of energy-related jobs statewide from approximately 50,000 to nearly 160,000. At the peak of the price-driven boom, nearly 1 in 10 state workers was employed in the oil patch.

Although oil and gas employment entered a long phase of contraction following the bust, the industry nevertheless remains an important and vital element of the state economy. Oil and gas employment as a share of the total state workforce bottomed at 2.7 percent in 2002 and the recent surge in oil and gas prices has once again generated hiring gains in the industry. As shown in Figure 1, total hiring expanded by more than 20 percent between 2002 and 2005 with the creation of more than 10,000 oil and gas jobs. Roughly three in four of the newly created jobs are wage and salary.

FIGURE 1
Oklahoma Oil and Gas Employment by Type



Source: Bureau of Labor Statistics, Bureau of Economic Analysis

Total employment at the state's oil and gas firms reached a reported 60,616 persons in 2005, or about 3.0 percent of the total state workforce. Table 1 provides a breakdown of state oil and gas employment in 2005 by type (wage and salary versus self-employed) and activity (production versus drilling). Wage and salary employment is estimated at 33,709 workers, while self-employed workers total 26,907. The oil and gas industry is unique relative to other state industries in its large share of self-employed workers relative to wage and salaried workers.

The oil and gas industry generated total labor income of $6.22 billion in 2005; employee compensation reached $2.83 billion, while self-employed workers earned an additional $3.4 billion in income. Wage and salary workers earned an average of $83,858 and self-employed workers more than $126,000 in compensation in 2005.

Production jobs outnumber drilling jobs by more than 10 to 1, as shown in Table 1, or approximately 56,142 production jobs versus 4,474 drilling jobs. Production jobs include mostly administrative, professional, and technical staff and are heavily concentrated in the Oklahoma City and Tulsa metropolitan areas. Drilling jobs include mostly field personnel and are dispersed throughout the state. Average pay in 2005 was significantly higher for production workers ($104,461) than for drilling workers ($79,893).

Table 1. Oklahoma Oil and Gas Industry Employment and Income (2005)[2]

	Employ-ment	% Share	Total Labor Income	% Share	Avg. Labor Income
Employment Type:					
Wage and Salary	33,709	55.6%	$2,826,785,000	45.4%	$83,858
Self Employed	26,907	44.4%	3,395,342,000	54.6%	126,188
Total by Type	60,616	100.0%	$6,222,127,000	100.0%	$102,648
Oil and Gas Activity:					
Production	56,142	92.6%	$5,864,706,625	94.3%	$104,461
Drilling	4,474	7.4%	357,420,375	5.7%	79,893
Total by Activity	60,616	100.0%	$6,222,127,000	100.0%	$102,648

Source: Bureau of Economic Analysis, Bureau of Labor Statistics, Oklahoma State Econometric Model

The high level of output generated by the oil and gas sector has long allowed the industry to pay attractive salaries relative to other industries in the state. Table 2 illustrates the average pay for wage and salary workers in the highest paying 3-digit NAICS (North American Industry Classification System) industry sectors in Oklahoma. NAICS industries 211 and 213 contain oil and gas production and drilling employment in 2005, and both appear among the top ten highest paying industries. The average wage for NAICS 211 Oil and Gas Extraction (contains only production workers) was estimated at $86,696 and Support Activities for Mining (contains both production and drilling workers) at $52,915. These average pay levels are, respectively, more

than 170 percent and more than 66 percent higher than the state average pay of $31,722 for wage and salary workers across all industries.

Table 2. Highest Paying Wage and Salary Jobs by 3-Digit NAICS Industry (2005)

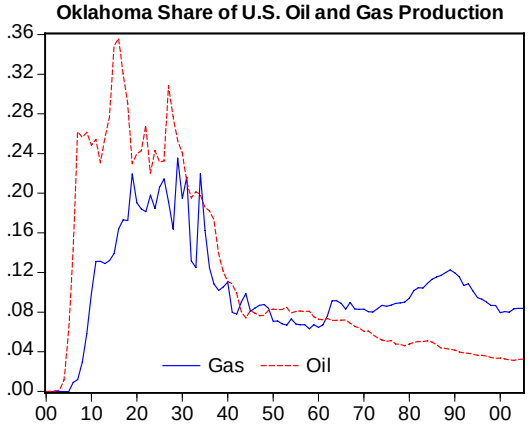
NAICS	Industry Division	Average Annual Pay	Employ-ment	Total Wages	Establish-ments
211	**Oil And Gas Extraction**	**$86,696**	**14,160**	**$1,227,636,133**	**1,108**
523	Securities, Commodity Activities	68,762	3,905	268,540,054	908
221	Utilities	64,713	9,540	617,361,266	434
486	Pipe Transportation	64,004	1,678	107,408,572	99
324	Petroleum And Coal Products Manufacture	63,811	2,091	133,422,739	56
551	Management Of Companies And Enterprises	58,002	12,401	719,288,097	369
213	**Support Activities For Mining**	**52,915**	**19,677**	**1,041,207,921**	**1,181**
515	Broadcasting(Except Internet)	52,550	4,778	251,094,909	135
481	Air Transportation	51,912	8,880	460,956,342	64
322	Paper Manufacturing	49,281	3,192	157,324,257	42
	All Industries	$31,722	1,465,384	$46,485,502,954	94,603
	Private Industries	31,558	1,158,141	36,548,520,628	89,123
	Government	32,343	307,243	9,936,982,326	5,481

Source: Bureau of Labor Statistics Quarterly Census of Employment and Wages (QCEW)

Crude Oil and Natural Gas Production – Oklahoma vs. the U.S.

Oklahoma crude oil production peaked in 1927-29 with average annual production around 250 million barrels. As shown in Figure 2, Oklahoma's share of total U.S. output approached 35 percent during this period. Much of the decline in the state's share of U.S. crude production occurred in the early 1930s, but the decline slowed markedly and reached a somewhat steady share of about 8 percent in the 1943 to 1966 period, before resuming a steady but slower decline that is currently approaching 3 percent of U.S. output.

FIGURE 2
Oklahoma Share of U.S. Oil and Gas Production



Source: Oklahoma Corporation Commission, U.S. Dept. of Energy

Oklahoma's share in 1966 was 7.2 percent, 5 percent in 1982 at the height of the oil boom, and 3.3 percent of total U.S. production in 2005. Even though the state's share of total

domestic oil production has declined, Oklahoma oil and gas fields remain strong relative to other states and remain an important component of the overall U.S. energy program. Oklahoma ranked fifth in U.S. Department of Energy crude oil production estimates in 2005, as shown in Table 3. Oklahoma has held this approximate rank since 2002. Among the 33 crude oil producing states and federal offshore fields, only 12 produced 1 percent or more of U.S. crude output.

Table 3. Top 10 Crude Oil and Natural Gas Producing States (2005)

Rank	State	Crude Production (barrels)	% of U.S. Crude Production	Rank	State	Natural Gas Production (billion cf)	% of U.S. Gas Production
1	Texas	385,144,000	20.6%	1	Texas	5,233.9	27.3%
2	Alaska	315,420,000	16.9%	**2**	**Oklahoma**	**1,678.7**	**8.8%**
3	California	229,963,000	12.3%	3	Wyoming	1,646.9	8.6%
4	Louisiana	72,823,000	3.9%	4	New Mexico	1,608.7	8.4%
5	**Oklahoma**	**61,543,000**	**3.3%**	5	Louisiana	1,295.5	6.8%
6	New Mexico	60,603,000	3.2%	6	Colorado	1,098.1	5.7%
7	Wyoming	50,900,000	2.7%	7	Alaska	488.3	2.6%
8	North Dakota	34,744,000	1.9%	8	Kansas	365.4	1.9%
9	Kansas	33,635,000	1.8%	9	California	319.6	1.7%
10	Montana	33,011,000	1.8%	10	Utah	301.6	1.6%
	Other	591,204,000	31.6%		Other	5,108.0	26.7%
	United States	1,868,990,000	100.0%		United States	19,144.8	100.0%

Source: U.S. Department of Energy, Energy Information Administration (EIA)

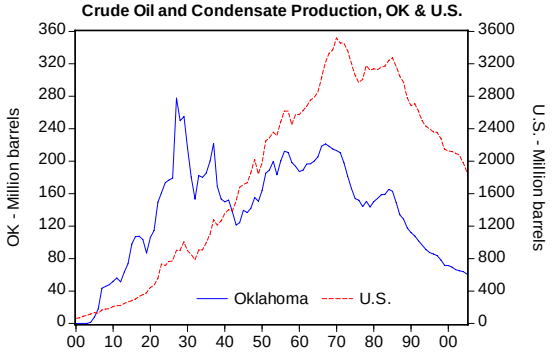
Relative to crude, Oklahoma remains a more important component of the U.S. natural gas infrastructure. As shown in Figure 2, the state's contribution to national gas output was at its highest in 1932 when it provided 16 percent of the U.S. natural gas supply. The decline in Oklahoma's share was steep from around 1935 to 1946, then rose slightly to 9.1 percent, and once again began to decline in the early 1950s. Natural gas production showed favorable gains through the 1980s when the state's share peaked at 12.8 percent in 1989. The decline resumed from that year, albeit at a slower rate. Since the recent surge in energy prices beginning in late 2000, the state has maintained at least an 8 percent share of U.S. production. In preliminary 2005 U.S. Department of Energy data in Table 3, the state ranks second at 1.68 trillion cubic feet, only slightly ahead of Wyoming but well behind leading onshore producer Texas.

Crude Oil Trends

Crude oil production levels are shown in Figure 3 relative to overall U.S. production. The highs and lows in Oklahoma crude production have largely mirrored changes in U.S. production since the early 1940s. Prior to that time Oklahoma was experiencing oil discoveries at a much greater rate than the U.S. overall. State production has experienced little variability other than a steady decline since the modest bounce in crude output statewide during the oil boom. The boom was largely reflected in the form of higher market prices, not large production increases.

Production peaked most recently at 165 million barrels in 1984, well behind the more than 200 million barrels produced two years in the 1950s, six years in the 1960s, and two in the 1970s. Crude oil output totaled 112 million barrels in 1990 and progressively declined throughout the remainder of the decade. Oklahoma's recent position relative to U.S. production remains constant because the state's overall decline rate has closely mirrored the decline in production at the national level. Since 1999, Oklahoma has maintained a share of approximately 3 percent of the nation's overall crude production.

FIGURE 3
Crude Oil and Condensate Production, OK & U.S.



Source: Oklahoma Corporation Commission, U.S. Dept. of Energy

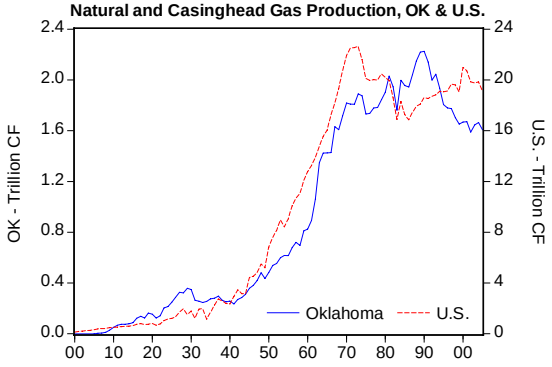
Neither state nor national production, however, has increased in response to the recent upward shift in energy prices. Decline rates have slowed, but the responsiveness of state crude production appears to be dominated by geological fundamentals at current market prices. Recent Oklahoma Tax Commission estimates indicate state crude oil and condensate production totaled 60.9 million barrels in 2005, less than 40 percent of the crude production from the recent peak in 1984. The decline in crude production in the two-decade period 1984 to 2005 represents a 4.6 percent annual decline rate.

Natural Gas Trends

Figure 4 illustrates the path of long-run natural gas production in Oklahoma from 1906 to 2005, and as compared to the nation in the period. Natural gas production in Oklahoma maintained a close relationship to U.S. production until the recent state peak set in 1990. In

1990, state production reached 2.22 trillion cubic feet before declining to the recent low of 1.59 trillion cubic feet by 2002. In contrast, natural gas output at the national level has increased consistently in the period since 1990, pushing the state's share of U.S. production down from 12 percent to 8.8 percent in the period.

FIGURE 4
Natural and Casinghead Gas Production, OK & U.S.



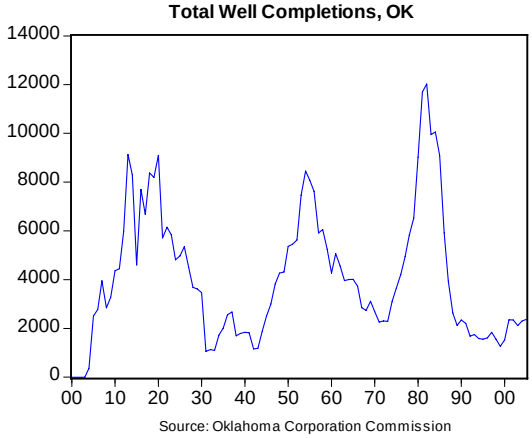
Source: Oklahoma Corporation Commission, U.S. Dept. of Energy

While state output of natural gas has declined by one-fourth since the 1990 peak, it has shown much more responsiveness to the recent surge in energy prices than state crude production. Oklahoma natural gas output managed to post small increases in both 2003 and 2004, but declined 3.5 percent to 1.61 trillion cubic feet in 2005. The cumulative decline rate for natural gas production in the 1990 to 2005 period is 2.15 percent per year.

Oil and Gas Drilling Activity

Drilling activity in Oklahoma has completed three major cycles of expansion and contraction in the past century, as shown in Figure 5. The most recent cycle stretched from the mid 1970s to the mid 1980s and culminated with an all-time peak in drilling activity of more than 12,000 well completions in 1982. Following the peak, total completions declined rapidly to only 1,264 in 1999, the lowest number of completions since the World War II era.

FIGURE 5
Total Well Completions, OK



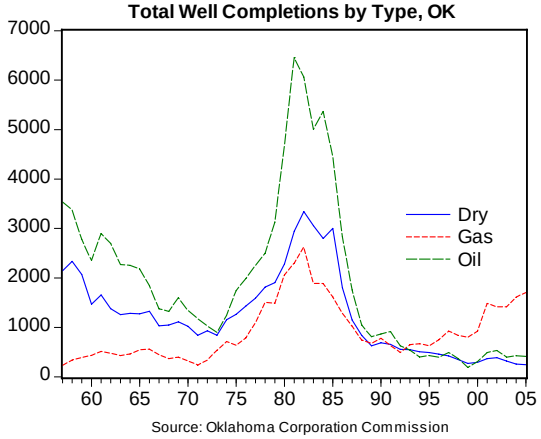
Source: Oklahoma Corporation Commission

However, the recent surge in energy prices has again stimulated drilling activity in Oklahoma. From 2000 to 2005, well completions have been on an upswing with a post-bust high of 2,369 wells completed in 2005 and an average of 2,294 wells completed annually in the 2001 to 2005 period. However, given both the relatively measured response of drilling activity to the current price environment and the diminishing geological fundamentals of the state's fields, it is unlikely that the recent surge in drilling signals the onset of another major cycle of oil and gas

exploration across the state.

Prior to the early 1990s, oil wells typically outnumbered gas wells among total well completions. However, the mix of wells being drilled in Oklahoma has since shifted in favor of natural gas and continues to reflect an increasing emphasis statewide on natural gas relative to crude. As seen in Figure 6, both gas and oil well completions have increased since 2000, however the majority of the increase is in gas drilling. Of the 2,369 wells completed across the state in 2005, 1,704 were gas wells, 415 were oil wells, and 250 were dry. This ratio of nearly 4 to 1 gas to oil wells is in contrast to drilling activity in 1982 when oil wells comprised more than 50 percent of total well completions. The percentage of dry wells continues to decline as the industry posts increasingly higher success rates. Dry holes have averaged less than 14 percent since 2001, falling as low as 10.6 percent in 2005, ratios well below the historical state average of more than 30 percent dry wells since the 1950s.

FIGURE 6
Total Well Completions by Type, OK



Source: Oklahoma Corporation Commission

Another trend in state drilling activity is the ongoing shift toward recovering deep reserves in the state's natural gas fields. Oklahoma has long played an important role in the development of deep drilling. The first well drilled below 30,000 feet for commercial production purposes was completed in Beckham County in 1972. From an economic impact point of view, drilling a deep well is a much more significant economic event than drilling a typical shallow well. Much greater capital investment is required and deep wells tend to produce significantly greater average quantities of gas, both of which lead to greater economic impacts. From a recent study of deep drilling in Oklahoma,[3] most wells less than 10,000 feet deep cost less than $1.5 million to complete, while deep wells below 15,000 feet can range from $5 million to $15 million. On average, a deep well is estimated to have an economic impact six times that of a typical shallow well under 15,000 feet.

ECONOMIC IMPACT

The drilling and production activities of the oil and gas industry have a large and pervasive effect on the Oklahoma economy. The recent upward shift in oil and gas prices has stimulated the expansion of the industry after it began to languish as recently as 1999 in response to the decline of oil prices to below $11 per barrel. As discussed in earlier sections, the industry has expanded rapidly since 2001, experiencing strong hiring gains and a resurgence in drilling activity. The industry has also enjoyed a substantial increase in the value of total industry output. The state's oil and gas sector produced an estimated $23 billion in total output in 2005, more than double the level at the recent bottom in 1999. More than 95 percent of total industry output is generated by production, which includes professional, administrative, and technical workers. Less than 5 percent of output was a result of drilling and exploration activities.

These activities create significant economic multiplier, or ripple, effects throughout the state economy. The oil and gas sector is well known to produce among the largest economic impacts of all industry sectors. The relatively large impact is the result of several factors, including the high value of output produced by the industry, the capital intensive nature of production and drilling, the large number of purchases made by oil and gas firms from other state firms, the high average wages paid to workers, and the large stream of tax revenue generated from severance taxes.

The impact of the industry reaches most every area of the state as well, as oil and gas workers resided in every county and the production of either oil or gas occurred in 71 of the state's 77 counties in 2005. These economic impacts are examined in the following sections along with forecasts of future production and hiring activity for the industry through 2010.

LINKAGES TO OTHER OKLAHOMA INDUSTRIES

Oklahoma oil and gas companies purchase inputs from business establishments both within and outside of Oklahoma. Purchases from Oklahoma businesses generate beneficial indirect effects on the Oklahoma economy. Table 4 provides an estimate of the purchases made by Oklahoma companies engaged in oil and gas activities within the state in 2005.

Total inputs purchased for production and drilling activities by Oklahoma oil and gas companies were an estimated $11.1 billion in 2005. Of this amount, 63 percent or $7.0 billion in value was transacted with Oklahoma businesses. The remaining 37 percent ($4.1 billion) was

spent on purchases from businesses located in other states or foreign counties. When evaluated for production (versus drilling), $6.9 billion (63 percent) was from inputs purchased from Oklahoma businesses and $4.0 billion (37 percent) from businesses outside the state. Because drilling activities produce significantly less output than production, the expenditures on inputs are proportionately smaller than for production. As shown in Table 4, $92.8 million (48 percent) was spent on inputs from Oklahoma businesses and $100.1 million (52 percent) from businesses outside of Oklahoma.

Direct purchases by the state's oil and gas firms reach most every industry sector of the state, including both goods- and services-producing sectors. As detailed in Table 4, production and drilling require large amounts of machinery and equipment from specialty manufacturers in the state. Chemical, petroleum, and mineral companies likewise are important suppliers to oil and gas firms. Traditional service firms such as eating and drinking establishments, food and beverage stores, and general merchandise stores receive significant purchases from the oil and gas industry. Payments for the use of real estate also make up a significant component of in-state purchases for both production and drilling. Purchases of services from legal, financial, and medical professionals comprise a significant portion of the purchases made by the state's oil and gas firms. Transportation and warehousing firms play a key role in the ongoing activities of the industry, while utility, communications, and construction firms are also recipients of significant energy industry purchases.

Table 4. Inputs Used in Oklahoma Oil and Gas Production and Drilling (2005)

Production			Drilling		
Oklahoma Input Demand:			**Oklahoma Input Demand:**		
Oil & Gas Production	$3,232,665,742	14.54%	Petroleum & Coal Products	$15,465,845	1.99%
Rental & Leasing	2,207,519,105	9.93%	Management of Companies	10,913,675	1.41%
Professional-Scientific & Technical Services	254,194,476	1.14%	Professional-Scientific & Technical Services	10,470,352	1.35%
Management of Companies	242,011,266	1.09%	Wholesale Trade	7,972,605	1.03%
Petroleum & Coal Products	169,270,334	0.76%	Transportation & Warehousing	6,437,194	0.83%
Transportation & Warehousing	134,026,872	0.60%	Machinery Mfg	5,503,693	0.71%
Wholesale Trade	111,428,982	0.50%	Financial Services	5,092,808	0.66%
Utilities	100,921,830	0.45%	Rental & Leasing	3,589,835	0.46%
Financial Services	87,062,562	0.39%	Chemical Manufacturing	2,876,193	0.37%
Machinery Manufacturing	78,809,419	0.35%	Utilities	2,494,142	0.32%
Chemical Manufacturing	52,732,263	0.24%	Administrative Support Services	1,052,442	0.14%
Plastics & Rubber Products	31,845,109	0.14%	Plastics & Rubber Products	1,034,420	0.13%
Real Estate	26,412,368	0.12%	Information	774,914	0.10%
Information	22,054,616	0.10%	Computer & Other Electronic Manufacturing	720,850	0.09%
Administrative Support Services	16,841,497	0.08%	Real estate	706,433	0.09%
Nonmetal Mineral Products	15,789,625	0.07%	Metal Manufacturing & Fabrication	670,391	0.09%
Metal Manufacturing & Fabrication	15,500,650	0.07%	Transportation Equipment	612,723	0.08%
Transportation Equipment	11,639,936	0.05%	Non-Metal Mineral Products	500,991	0.06%
Food Services & Drinking Places	8,218,465	0.04%	Food & Beverage Stores	320,778	0.04%
Construction	6,842,942	0.03%	Building Materials & Garden Dealers	255,902	0.03%
Art Entertain & Recreation	6,149,400	0.03%	Motor vehicle & Parts Dealers	216,255	0.03%
Accommodations	3,028,464	0.01%	Waste Management & Remediation Services	183,817	0.02%
Educational Services	2,254,009	0.01%	General Merchandise Stores	180,213	0.02%
Waste Management & Remediation Services	1,907,239	0.01%	Gasoline Stations	72,085	0.01%
Food & Beverage Stores	1,537,350	0.01%	Educational Services	61,272	0.01%
Computer & other Electronics	1,340,847	0.01%	Construction	39,647	0.01%
Building Materials & Garden Dealers	1,225,256	0.01%	Wood Paper & Printing	28,834	0.00%
Motor Vehicle & Parts Dealers	1,028,753	0.00%	Oil & Gas Production	21,626	0.00%
General Merchandise Stores	866,927	0.00%	Accommodations	18,021	0.00%
Wood Paper & Printing	427,684	0.00%	Other Industries	14,478,280	1.87%
Gasoline Stations	346,771	0.00%	**Oklahoma Input Demand**	**$92,766,235**	**11.96%**
Electrical Equipment & Appliances	312,094	0.00%			
State & Local Government	115,590	0.00%			
All Other Industries	59,112,844	0.27%			
Oklahoma Input Demand	**$6,905,441,288**	**31.05%**			
Imported Inputs	**$3,995,883,160**	**17.97%**	Imported Inputs	**$100,103,622**	**12.91%**
Total Input Demand	**$10,901,324,448**	**49.02%**	**Total Input Demand**	**$192,869,857**	**24.88%**
Value Added:			**Value Added:**		
Employee Compensation	2,542,581,271	11.43%	Employee Compensation	284,203,729	36.65%
Proprietor's Income	3,322,125,354	14.94%	Proprietor's Income	73,216,646	9.44%
Other Property Income	4,531,250,778	20.38%	Other Property Income	181,871,740	23.46%
Indirect Business Taxes	940,864,767	4.23%	Indirect Business Taxes	43,187,223	5.57%
Total Value Added	**$11,336,822,170**	**50.98%**	**Total Value Added**	**$582,479,338**	**75.12%**
Total Inputs	**$22,238,146,618**	**100.00%**	**Total Inputs**	**$775,349,194**	**100.00%**

Source: Bureau of Economic Analysis, IMPLAN Input-Output Model, Oklahoma State Econometric Model

Multiplier Effects

The flow of business activity between Oklahoma oil and gas companies and other businesses within the state creates interrelationships that are typically referred to as economic multiplier, or ripple, effects. The impact can be described using common measures of economic activity such as output, employment, and the components of value added, which include labor income (employee compensation plus proprietor's income), other property income, and indirect business taxes. The economic impacts are described using the following three measures:[4]

- direct effect - the employment and income generated directly within the Oklahoma oil and gas industry;
- indirect effect - the employment and income generated as a result of state oil and gas firms doing business with firms in other industries within the state;
- induced effect - the economic activity generated by new household spending resulting from compensation generated from the direct and indirect effects.

The three effects provide a convenient way to describe the resulting multiplier effects that occur as the oil and gas industry engages in drilling and production (direct effect), then impacts those firms that support and supply the oil and gas sector (indirect effect), and then finally affects the broader regional economy as worker's incomes and spending patterns are affected (induced effect).

Table 5 summarizes the estimated economic impact of the oil and gas industry on the broader state economy in 2005. The impacts are estimated separately for production and drilling and measured in three ways: 1) total economic impact, 2) impact per $1 million in final output by the industry, and 3) impact per 1,000 jobs in the industry.

Activity on the production side of the industry generated more than $22 billion in output in 2005, resulting in multiplier effects (indirect and induced) supporting the production of an estimated $27.3 billion in additional goods and services in other state industries. Drilling activities generated $878 million in output in 2005 while simultaneously supporting the production of $1.1 billion in indirect and induced goods and services in other industries.

In terms of direct oil and gas employment, 56,142 workers were employed in production-related activities and 4,474 in drilling. These workers supported an additional 186,016 jobs statewide (sum of the indirect and induced employment). In total, an estimated 246,632 jobs statewide are provided either directly by the oil and gas sector or supported through multiplier

effects generated by the industry. In other words, each direct job in the oil and gas sector supported 3.1 additional jobs in the broader state economy in 2005. Total direct labor income earned by workers in oil and gas is estimated at $6.22 billion in 2005; $5.86 billion for production and $357.4 million for drilling. Through multiplier effects, an additional $11.8 billion in labor income is supported statewide.

In Part B of Table 5, the multiplier effects are estimated per $1 million dollars of final output by the oil and gas industry. Each $1 million dollars in oil and gas production generates an additional $1.23 million of indirect and induced goods and services across Oklahoma; drilling activities generate $1.25 million. There were 2.5 direct jobs for every million dollars in production activities, and 5.1 jobs in drilling. In terms of the indirect and induced effects, a total of 7.9 jobs were supported for every million dollars in direct production output, and 11.6 jobs supported by drilling activities.

For every $1 million dollars in final output in production, workers receive $264,941 in direct labor income, versus a comparatively higher $407,253 for drilling workers. These payments of labor income to production and drilling employees per $1 million in output support an estimated $506,882 and $638,659, respectively, in additional labor earnings to workers in other industries throughout Oklahoma.

Finally, the economic impacts are described per 1,000 production and drilling jobs in Part C of Table 5. For every 1,000 production jobs, $394.3 million dollars was generated in direct output, and through indirect and induced effects an additional $485.7 million in goods and services was generated statewide. Every 1,000 production jobs contributed to 3,132 additional jobs, while every 1,000 drilling jobs added 2,270 jobs statewide. For every 1,000 production jobs, $104.5 million dollars was paid in direct employee compensation and proprietor's income; $79.9 million for every 1,000 drilling job. Every 1,000 production and drilling workers support an additional $199.9 million and $125.3 million, respectively, in wages and salaries through indirect and induced multiplier effects.

Table 5. Economic Impact of Oklahoma Oil and Gas Production and Drilling (2005)

Part A. Total

	Production				Drilling			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
Output ($ Million)	$22,136	$8,317	$18,954	$49,407	$878	$262	$832	$1,971
Employment (Jobs)	56,142	45,744	130,117	232,003	4,474	1,578	8,577	14,629
Value Added: ($ Million)								
Employee Compensation	$2,543	$2,120	$6,094	$10,757	$284	$81	$367	$732
Proprietor's Income	3,322	1,190	1,816	6,328	$73	36	77	186
Other Property Income	4,531	1,506	2,291	8,328	182	30	114	326
Indirect Business Taxes	941	260	625	1,826	43	7	31	81
Total Value Added	$11,337	$5,077	$10,826	$27,239	$582	$154	$589	$1,325

Part B. Per $1 Million in Final Output

	Production				Drilling			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
Output	$1,000,000	$375,705	$856,274	$2,231,979	$1,000,000	$298,000	$948,000	$2,246,000
Employment (Jobs)	2.5	2.1	5.9	10.5	5.1	1.8	9.8	16.7
Value Added:								
Employee Compensation	$114,863	$95,779	$275,322	$485,963	$323,828	$92,157	$417,620	$833,605
Proprietor's Income	150,079	53,748	82,034	285,861	83,425	41,261	87,621	212,307
Other Property Income	204,702	68,053	103,483	376,238	207,229	34,658	129,791	371,678
Indirect Business Taxes	42,504	11,761	28,221	82,486	49,209	7,544	35,839	92,591
Total Value Added	$512,147	$229,341	$489,059	$1,230,548	$663,690	$175,619	$670,871	$1,510,181

Part C. Per 1,000 Jobs

	Production				Drilling			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
Output	$394,281,445	$148,133,510	$337,612,950	$880,027,904	$196,163,844	$58,456,826	$185,963,324	$440,583,994
Employment (Jobs)	1,000	815	2,318	4,132	1,000	353	1,917	3,270
Value Added:								
Employee Compensation	$45,288,174	$37,763,770	$108,554,348	$191,606,292	$63,523,408	$18,077,809	$81,921,947	$163,523,165
Proprietor's Income	59,173,326	21,191,802	32,344,436	112,709,564	16,364,919	8,093,974	17,188,139	41,647,032
Other Property Income	80,710,133	26,832,164	40,801,232	148,343,529	40,650,814	6,798,564	25,460,336	72,909,714
Indirect Business Taxes	16,758,578	4,637,099	11,127,026	32,522,702	9,652,933	1,479,795	7,030,231	18,162,959
Total Value Added	$201,930,211	$90,424,835	$192,827,042	$485,182,088	$130,192,074	$34,450,142	$131,600,654	$296,242,870

Source: Bureau of Economic Analysis, IMPLAN Input-Output Model, Oklahoma State Econometric Model

TAX REVENUE ATTRIBUTED TO THE OIL AND GAS SECTOR

Activity in the oil and gas sector generates a large amount of tax revenue and plays a major role in determining the fiscal health of state and local government. By far the largest source of tax revenue is the gross production tax on oil and gas extraction. However, oil and gas industry activity also generates significant amounts of personal and corporate income taxes and sales and use taxes. The impact of the tax revenue generated both directly and indirectly by the oil and gas industry is discussed below.

Gross Production Tax

Because the Oklahoma gross production tax is levied on the gross value of crude oil and natural gas produced, the recent rise in energy prices has produced windfall amounts of tax revenue to the state and has become an increasingly important component of the funding formula for government at the state and local levels.

Table 6 details the annual production tax revenue generated from oil and gas extraction for the fiscal years 1984 to 2006. This period captures the relatively high production tax receipts at the end of the oil boom, the subsequent decline in receipts up to the recent bottom in industry activity in 1999, and the surge in receipts driven by the recent upward shift in energy prices. The tax stream has shifted from a fairly equal contribution from crude oil and natural gas during the 1980s to a much greater reliance on gas relative to crude. Starting in 1997, the share of gross production tax revenue from natural gas began to rise to its current level of approximately 80 percent of the overall total.

An all time high in gross production receipts was achieved in fiscal year 2006 with a total of $1.07 billion; natural gas totaled $812.1 million (76.2 percent) and crude oil $254.1 million (23.8 percent). With the surge in energy prices in the four most recent fiscal years, 2003 through 2006, total severance tax receipts have averaged $775 million.

Oklahoma law determines the allocation of severance tax receipts, and Table 7 shows the distribution in fiscal years 2001, 2004, 2005, and 2006. For oil, a greater share of the allocation goes to education. In total, 77.16 percent of the revenues are evenly distributed among the Common Education Technology Fund, Higher Education Capital Fund, and the Tuition Scholarship Fund. Education receives an additional 7.14 percent that is allocated to local school

Table 6. Oklahoma Gross Production Tax by Source

Fiscal Year	Crude Oil Tax	Crude as % of Total	Natural Gas Tax	Gas as % of Total	Total Tax
1984	326,893,006	47.9%	355,855,539	52.1%	682,748,545
1985	308,200,319	45.7%	366,093,122	54.3%	674,293,441
1986	236,712,824	45.0%	288,890,749	55.0%	525,603,573
1987	142,177,551	40.8%	206,020,761	59.2%	348,198,312
1988	155,779,858	41.9%	215,635,138	58.1%	371,414,996
1989	130,633,053	36.0%	232,290,970	64.0%	362,924,023
1990	142,368,628	36.4%	248,411,884	63.6%	390,780,512
1991	173,963,235	43.6%	225,212,160	56.4%	399,175,395
1992	135,814,455	39.6%	206,934,429	60.4%	342,748,884
1993	123,711,551	32.4%	258,421,295	67.6%	382,132,846
1994	93,692,790	27.0%	252,903,783	73.0%	346,596,573
1995	99,959,189	35.4%	182,466,669	64.6%	282,425,858
1996	105,087,666	33.7%	206,378,476	66.3%	311,466,142
1997	120,998,227	31.0%	269,834,041	69.0%	390,832,268
1998	89,114,322	26.0%	253,618,812	74.0%	342,733,134
1999	43,357,704	17.8%	199,886,735	82.2%	243,244,439
2000	112,017,406	29.2%	272,006,710	70.8%	384,024,116
2001	139,027,814	19.4%	577,415,242	80.6%	716,443,056
2002	103,642,265	26.7%	284,600,893	73.3%	388,243,158
2003	126,562,485	21.1%	472,931,614	78.9%	599,494,099
2004	140,684,370	20.5%	544,985,974	79.5%	685,670,344
2005	192,892,072	23.5%	558,303,985	76.5%	751,196,057
2006e	254,061,959	23.8%	812,110,645	76.2%	1,066,172,604

Source: Oklahoma Tax Commission, OSU Center for Applied Economic Research

Table 7. Distribution of Oklahoma Gross Production Tax Receipts

	Gross Production Tax on Crude Oil				
Fund (Crude Oil Distribution)	**Allocation**	**FY-2001**	**FY-2004**	**FY-2005**	**FY-2006e**
To Counties for Highways	7.14%	$9,926,586	$10,044,864	$13,772,494	$18,140,024
To Local School Districts	7.14%	9,926,586	10,044,864	13,772,494	18,140,024
County Bridge & Road Improvement Fund	4.28%	5,950,390	6,021,291	8,255,781	10,873,852
Water Resources Board Fund	4.28%	5,950,390	6,021,291	8,255,781	10,873,852
Common Education Technology Fund	25.72%	35,757,954	36,184,020	49,611,841	65,344,736
Higher Education Capital Fund	25.72%	35,757,954	36,184,020	49,611,841	65,344,736
Tuition Scholarship Fund	25.72%	35,757,954	36,184,020	49,611,841	65,344,736
Total - Crude Oil	100.00%	$139,027,814	$140,684,370	$192,892,072	$254,061,959

	Gross Production Tax on Natural Gas				
Fund (Natural Gas Distribution)	**Allocation**	**FY-2001**	**FY-2004**	**FY-2005**	**FY-2006e**
General Revenue Fund	85.72%	$494,960,345	$467,161,977	$478,578,176	$696,141,245
To Counties for Highways	7.14%	41,227,448	38,911,999	39,862,905	57,984,700
To Local School Districts	7.14%	41,227,448	38,911,999	39,862,905	57,984,700
Total - Natural Gas	100.00%	$577,415,242	$544,985,974	$558,303,985	$812,110,645

Source: Oklahoma Tax Commission, Oklahoma Office of State Finance, OSU Center for Applied Economic Research

districts. Counties receive 7.14 percent of the revenues for highways. Another 4.28 percent is allocated to the County Bridge and Improvement Fund. The Water Resources Board Fund receives the remaining 4.28 percent.

The gross production revenues from natural gas are distributed to fewer funds. The State General Revenue Fund is the largest recipient and is allocated 85.72 percent of the gross production tax revenues from natural gas. In fiscal year 2006, this amounted to nearly $700 million. The remaining allocation is shared equally by local school districts and counties for highway use, with each receiving 7.14 percent of the tax revenues, respectively.

Other Tax Revenue

Tax revenue generated by the oil and gas sector extends beyond the gross production tax. Estimates of the full range of taxes paid both directly and indirectly as a result of oil and gas industry activity are shown in Table 8. While the gross production tax is by far the highest and represented 66.5 percent of the tax revenues in fiscal year 2006, the personal income tax generated over $196 million with its share of the total estimated at 12.2 percent.

Table 8. Oklahoma Tax Revenue Attributable to Oil and Gas Activity (FY2006)

Type of Tax	Tax Revenue	% of Total
Gross Production Tax		
Crude Oil	$254,061,959	15.8%
Natural Gas	812,110,645	50.6%
Total Gross Production Tax	1,066,172,604	66.5%
Personal Income Tax	196,322,836	12.2%
Corporate Income Tax	17,486,973	1.1%
Motor Vehicle Tax	39,004,332	2.4%
Sales and Use Tax		
State	169,445,362	10.6%
Local	115,576,273	7.2%
Total Sales and Use Tax	285,021,635	17.8%
Total Tax Revenue	$1,604,008,379	100.0%

Source: Oklahoma Tax Commission, IMPLAN Input-Output Model, Oklahoma State Econometric Model, Oklahoma Office of State Finance

Another large source of tax revenue is the sales and use tax. This tax generated nearly $170 million for state government and around $115 million for local government in fiscal year 2006. Total sales and use tax collections accounted for 17.8 percent of the total tax revenues attributed to the oil and gas sector. The remaining sources of tax revenues are the corporate income tax, which brought in an estimated $17.5 million, and the motor vehicle tax at over $39 million. These final two sources contributed a smaller share percentage wise, yet are sizeable in dollar amounts and important sources of revenue for funding state government.

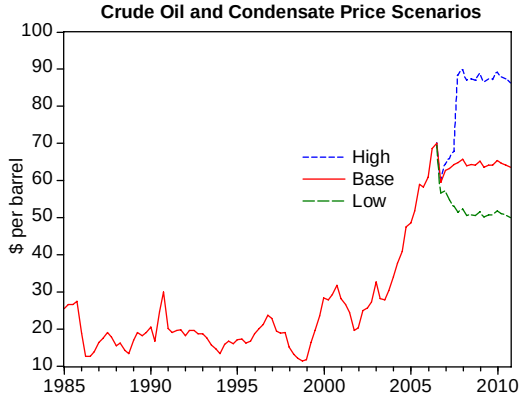
FORECASTS OF CRUDE OIL AND NATURAL GAS PRODUCTION THROUGH 2010

This section presents forecasts for state production of crude oil and natural gas in the 2006 to 2010 period developed using the Oklahoma State Econometric Model.[5] The Model is a large-scale econometric forecasting model maintained at Oklahoma State University and provides information on the probable performance of the Oklahoma economy in upcoming years.

Energy Price Scenarios

Forecasts for the Oklahoma price of crude oil and natural gas are based on three price scenarios: 1) a base case projection using Global Insight's[6] long-range energy price forecast, 2) an optimistic case based on historically high energy prices, and 3) a pessimistic case based on historically low energy prices. The three production forecasts are generated by alternating the price series used in the estimated equations and then re-solving the model forecasts through 2010.

Figure 7
Crude Oil and Condensate Price Scenarios

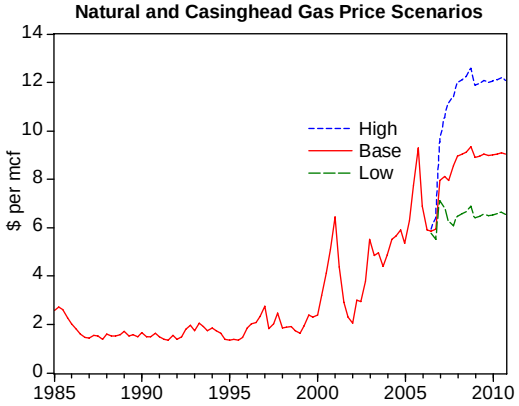


Source: Oklahoma State Econometric Model, Global Insight

The underlying price scenarios for Oklahoma crude oil and natural gas are shown in Figures 7 and 8. For crude oil in Figure 7, the base case price reaches a peak at approximately $70/barrel in the third quarter of 2006, falls back to near $60/barrel in the fourth quarter of 2007, and then trends to around $65/barrel through 2010. The high price scenario for crude follows the same growth pattern as the base case, but spikes rapidly upward to $90/barrel by 2008. The low price crude scenario trends downward to around $50/barrel by 2008.

The base case natural gas price, shown in Figure 8, increases to $8.00/mcf by the first quarter of 2007 and then increases slowly to a new long-run trend of $9.00/mcf through 2010. The high price scenario for natural gas follows the same growth trend as the base case but reaches a new long-run price of $12.00/mcf by 2010. In the low price scenario, gas prices fluctuate around a new long-run price of $6.50/mcf through 2010.

Figure 8
Natural and Casinghead Gas Price Scenarios

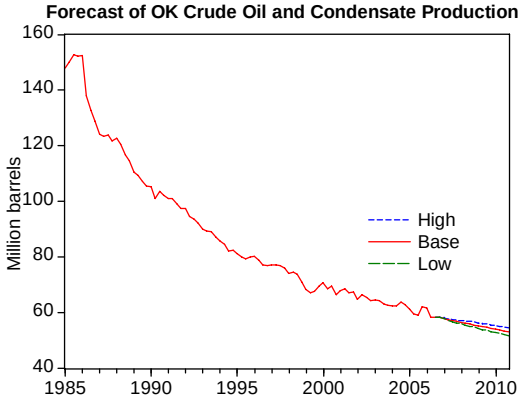


Source: Oklahoma State Econometric Model, Global Insight

Crude Oil Production Forecast – 2006 to 2010

Figure 9 highlights the three forecast scenarios through 2010 for crude oil production along with actual production levels since 1985. The forecast scenarios suggest that state-based crude production is not expected to be highly responsive to changes in the market price of oil below the $90/barrel level. The expected impact of the high and low price scenarios on future production is best described as a slight change in the long-run decline rate in production. No sharp response in crude output is predicted for either the high or low crude price scenario.

Figure 9
Forecast of OK Crude Oil and Condensate Production



Source: Oklahoma State Econometric Model

The base crude oil forecast suggests a continuation of the ongoing decline in output, with crude production falling to 53.0 million barrels by 2010. The forecasted base case output level equates to an expected decline rate of approximately 3.0 percent annually through 2010, an improvement over the 4.6 percent annual decline rate experienced since 1984. The slowing of the decline rate in the base forecast is due to the expected small positive response of state oil production to historically high oil prices.

Under the high price scenario with oil reaching nearly $90/barrel, Oklahoma production of crude oil falls to 54.5 million barrels per year in 2010. However, the high price crude oil output

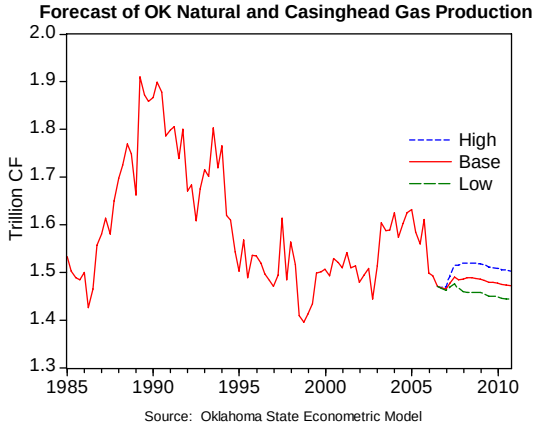
forecast is only 3 percent above the base case in 2010. Conversely, under the low price scenario, total production falls to only 51.7million barrels in 2010, or 2.5 percent below the base case forecast in 2010.

In general, at the price levels considered, state production of crude oil is expected to be predominately driven by geological fundamentals and to exhibit a steady decline rate through 2010. The high and low price scenarios result in only a small adjustment to the expected base case decline rate.

Natural Gas Production Forecast – 2006 to 2010

The forecast scenarios for Oklahoma natural gas are shown in Figure 10 and suggest that gas production is expected to be more price responsive than crude oil. The base case forecast, with gas prices rising to $9.00/mcf, calls for a small increase in gas production through 2007 in response to the surge in price before declining steadily to total production of 1.47 trillion cubic feet (TCF) in 2010.

Figure 10
Forecast of OK Natural and Casinghead Gas Production



Source: Oklahoma State Econometric Model

The high gas price scenario of $12.00/mcf provides a slightly more favorable outlook, with total output increasing approximately 2 percent in 2007 and 1.4 percent in 2008 before retreating to a production level of 1.50 trillion cubic feet in 2010, a level 2.0 percent above the base case forecast.

Under the low price scenario with gas prices declining to approximately $6.50/mcf, total natural gas output does not respond to the price spike in 2007 and production declines steadily to 1.44 trillion cubic feet by 2010. This results in Oklahoma natural gas output falling 3.0 percent below the base case forecast in 2010.

Energy Industry Employment Forecasts

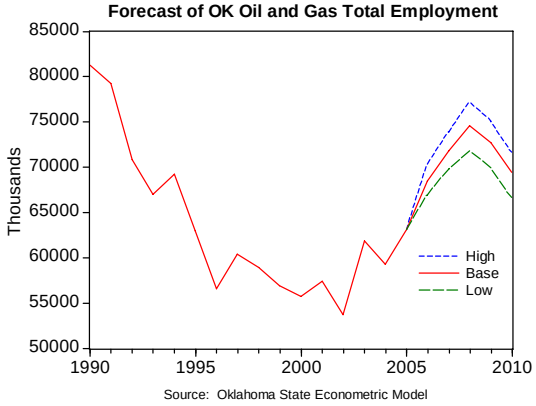
Employment in the state's oil and gas sector is also responsive to changes in energy prices. The recent upward shift in energy prices has served to reverse the long-run decline in oil and gas hiring underway since the oil bust and has generated significant new hiring by state oil and gas

firms. More than 10,000 self-employed and wage and salary jobs were created in the industry in the 2002 to 2005 period alone.

The impact of energy price changes on total oil and gas employment is modeled under three scenarios. The first scenario assumes that the base case price forecasts for both oil and gas from the prior section are realized. The remaining two scenarios examine the high and low price scenarios for crude oil and natural gas where either the two high price scenarios or the two low price scenarios occur simultaneously. The employment forecasts are formed in two stages. First, a linear regression of employment on oil and gas production levels in the 1984 to 2005 period is estimated. Forecasts of employment in the 2006 to 2010 period are then formed using the estimated regression equation along with forecasts of oil and gas production.

Figure 11 illustrates the expected path for total oil and gas employment through 2010 for the three price scenarios. Employment increases rapidly in the short run in response to the current high level of energy prices in all three scenarios, but peaks in 2008 as energy prices begin to trend sideways. In the base case, the state is expected to add more than 5,300 jobs (8.5 percent gain) in 2006 and 3,300 jobs (4.9 percent gain) in 2007, before peaking at 74,593 total oil and gas workers in 2008, or a level 23,400 workers (39 percent increase) above the 2002 bottom in hiring. In the high price scenario, the state adds 7,250 oil and gas workers (11.5 percent gain) in 2006 and 3,500 (4.9 percent gain) in 2007, and then peaks at 77,188 in 2008, a level 3.5 percent above the base case in 2010. In the low price scenario, 3,800 jobs (6.0 percent gain) are added in 2006 and 2,800 (4.2 percent gain) in 2007 before peaking at 71,834 jobs by 2008, or 3.7 percent below the base case. In the three price scenarios examined, the forecast suggests that the industry will increase employment in both 2006 and 2007 before peaking in 2008, and then retreat gradually to a new long-run level of employment by 2010.

Figure 11
Forecast of OK Oil and Gas Total Employment



Source: Oklahoma State Econometric Model

SUMMARY

Although the Oklahoma oil and gas industry has downsized from the height of the oil boom in 1982 when the industry employed nearly 160,000 workers, the sector remains an important component of the state economy. The recent upward shift in oil and gas prices has stimulated another cyclical expansion of the industry. Total oil and gas employment expanded by more than 20 percent (10,000 jobs) between 2002 and 2005, reaching a reported 60,616 persons in 2005, or about 3.0 percent of the total state workforce. Wage and salary employment is estimated at 33,709 workers, while self-employed workers total 26,907.

The oil and gas industry generated total labor income of $6.22 billion in 2005; employee compensation reached $2.83 billion while self-employed workers earned an additional $3.4 billion in income. The oil and gas industry continues to pay high wages relative to other state industries; wage and salary workers earned an average of $83,858 while self-employed workers earned more than $126,000 in income in 2005.

Oklahoma's oil and gas fields remain strong relative to most other states and remain an important component of the overall U.S. energy program. Oklahoma's share of total U.S. crude production continues to fall slowly, reaching 3.3 percent in 2005 as compared to 7.2 percent in 1966 and 5 percent in 1982 at the height of the oil boom. Oklahoma ranked fifth among the states in 2005 crude oil production. Since the recent surge in energy prices, the state has maintained at least an 8 percent share of U.S. natural gas production and ranked second among the states in total natural gas production in 2005.

Drilling activity in Oklahoma has responded to higher market prices for crude oil and natural gas. From 2000 to 2005, well completions have been on an upswing with a post-bust high of 2,369 wells completed in 2005 and an average of 2,294 wells completed annually in the 2001 to 2005 period. The mix of wells being drilled in Oklahoma continues to shift in favor of natural gas relative to crude. The current ratio of nearly 4 to 1 gas to oil wells is in contrast to drilling activity in 1982 when oil wells comprised more than 50 percent of total well completions.

The drilling and production activities of the oil and gas industry have a large and pervasive effect on the Oklahoma economy and create significant economic multiplier, or ripple, effects. These impacts can be measured in terms of purchases of inputs from other state firms, employment and income generated, output produced, and tax revenue generated.

Total inputs purchased by Oklahoma oil and gas companies were an estimated $11.1 billion in 2005. From this amount, 63 percent or $7.0 billion in value was transacted with Oklahoma businesses. Direct purchases by the state's oil and gas firms reach most every industry sector of the state, including both the goods- and services-producing sectors.

In terms of direct oil and gas employment, 56,142 workers were employed in production-related activities and 4,474 in drilling. These workers supported an additional 186,016 jobs statewide. In total, an estimated 246,632 jobs statewide are either provided directly by the oil and gas sector or supported through multiplier effects generated by the industry. In other words, each direct job in the oil and gas sector supported 3.1 additional jobs in the broader state economy in 2005. Total direct labor income earned by workers in oil and gas is estimated at $6.22 billion in 2005; $5.86 billion for production and $357 million for drilling. Through multiplier effects, an additional $11.8 billion in labor income is supported statewide.

The recent rise in energy prices has produced windfall amounts of tax revenue to the state. An all time high in gross production receipts was achieved in fiscal year 2006 with a total of $1.1 billion; natural gas totaled $901.6 million (79.5 percent) and crude oil $232.7 million (20.5 percent). In fiscal years 2003 through 2006, total severance tax receipts have averaged more than $790 million. The personal income tax generated an estimated $146.6 million, the corporate income tax brought in $13.1 million, and the motor vehicle tax totaled $29.1 million. The industry directly and indirectly generated over $126.5 million in sales and use tax for state government and around $86.3 million for local government in fiscal year 2006.

Forecasts through 2010 suggest that state crude oil production is not expected to increase in response to any of the price level scenarios modeled (below $80 per barrel), though natural gas production is expected to increase slightly in the near term at current or higher natural gas prices. Forecasts for employment suggest that the industry will add jobs in both 2006 and 2007, adding 3,100 jobs in the base case, and then retreat gradually to a new long-run level of employment by 2010.

THE LOCAL IMPACT OF OIL AND GAS PRODUCTION AND DRILLING IN OKLAHOMA

Prepared for

OKLAHOMA COMMISSION ON MARGINALLY PRODUCING OIL AND GAS WELLS

AND

OKLAHOMA ENERGY RESOURCES BOARD

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The Local Impact of Oil and Gas Production and Drilling In Oklahoma

INTRODUCTION

This report examines the economic impact of Oklahoma's oil and gas industry at the local level.[7] While production and drilling occur in most areas of the state, the economic impact is not distributed evenly across all regions of the state. The local impacts are examined at the county level and by Oklahoma Corporation Commission District and illustrate the dispersion of oil and gas industry employment, income, drilling, and production across the state.

LOCAL PRODUCTION[8]

Oil and gas deposits are found throughout most of Oklahoma's 77 counties, with oil production occurring in 68 counties and gas production in 69 counties in 2005. The bulk of the state's oil production is confined to three areas: a large block of counties stretching across much of the central and south central portion of the state; the Texas County area in the panhandle; and Osage, Creek, and Noble Counties in the north central portion of the state. The major natural gas producing areas are found in the west central portion of the state (Anadarko Basin), Texas and Beaver Counties in the panhandle, and Latimer and Pittsburg Counties in the southeast.

Crude oil production remains largely concentrated in a small number of counties containing the state's most highly productive fields. As shown in Part A of Table 1, Carter County with over 6.3 million barrels and Stephens County at just over 6.0 million barrels are the two largest crude oil producing counties. Both counties are located in south central Oklahoma and account for a combined 20 percent of the crude oil production in the state. The next tier of crude oil producing counties includes Osage, Grady, Texas, and Garvin and in order range from slightly under 4.3 million barrels to just over 3.1 million barrels. These four counties, together with the higher crude oil producing Carter County and Stephens County, account for 43.4 percent of the state's oil production. Map 1 illustrates the broad geographic distribution of oil production across the state, as well as the relatively small amount of crude oil production originating in the extreme eastern portion of the state.

Table 1. Rankings of Oil and Gas Production by County (2005)

A. Crude Oil and Condensate Barrels (bbls)					B. Natural and Casinghead Gas Thousand Cubic Feet (mcf)					C. Barrel of Oil Equivalent Production (1 Barrel = 6 mcf)				
Rank	County	Production	% of Total	Cumulative % of Total	Rank	County	Production	% of Total	Cumulative % of Total	Rank	County	Equivalent Production	% of Total	Cumulative % of Total
1	Carter	6,321,680	10.4%	10.4%	1	Roger Mills	148,461,559	9.2%	9.2%	1	Beckham	31,065,273	9.5%	9.5%
2	Stephens	6,054,799	9.9%	20.3%	2	Latimer	138,106,499	8.6%	17.8%	2	Roger Mills	29,072,549	8.8%	18.3%
3	Osage	4,292,885	7.0%	27.4%	3	Beckham	136,718,598	8.5%	26.4%	3	Latimer	27,079,318	8.2%	26.5%
4	Grady	3,503,814	5.7%	33.1%	4	Grady	85,931,897	5.4%	31.7%	4	Grady	17,825,797	5.4%	32.0%
5	Texas	3,154,799	5.2%	38.3%	5	Pittsburg	83,590,743	5.2%	36.9%	5	Texas	17,086,590	5.2%	37.2%
6	Garvin	3,141,754	5.2%	43.4%	6	Caddo	79,484,488	5.0%	41.9%	6	Caddo	16,389,169	5.0%	42.2%
7	Pontotoc	2,526,763	4.1%	47.6%	7	Texas	68,856,689	4.3%	46.2%	7	Stephens	14,002,878	4.3%	46.4%
8	Creek	2,333,584	3.8%	51.4%	8	Custer	65,917,607	4.1%	50.3%	8	Pittsburg	13,319,852	4.1%	50.5%
9	Caddo	2,039,380	3.3%	54.8%	9	Washita	61,626,228	3.8%	54.1%	9	Washita	12,310,418	3.7%	54.2%
10	Oklahoma	1,924,149	3.2%	57.9%	10	Stephens	61,107,855	3.8%	57.9%	10	Custer	12,108,792	3.7%	57.9%
11	Seminole	1,846,738	3.0%	60.9%	11	Beaver	52,219,482	3.3%	61.2%	11	Beaver	10,549,985	3.2%	61.1%
12	Major	1,680,435	2.8%	63.7%	12	Woodward	46,201,584	2.9%	64.0%	12	Canadian	9,380,699	2.9%	64.0%
13	Pottawatomie	1,465,891	2.4%	66.1%	13	Canadian	45,652,593	2.8%	66.9%	13	Carter	9,074,657	2.8%	66.7%
14	Beaver	1,290,494	2.1%	68.2%	14	Major	45,167,844	2.8%	69.7%	14	Major	8,818,468	2.7%	69.4%
15	Lincoln	1,138,107	1.9%	70.1%	15	Blaine	40,532,979	2.5%	72.2%	15	Garvin	7,893,604	2.4%	71.8%
16	Kingfisher	1,107,336	1.8%	71.9%	16	Haskell	37,481,283	2.3%	74.6%	16	Blaine	7,354,217	2.2%	74.1%
17	Noble	1,082,083	1.8%	73.7%	17	Dewey	34,123,752	2.1%	76.7%	17	Dewey	6,769,375	2.1%	76.1%
18	McClain	1,082,065	1.8%	75.5%	18	Garvin	30,721,182	1.9%	78.6%	18	Woodward	6,202,262	1.9%	78.0%
19	Canadian	973,218	1.6%	77.1%	19	Ellis	29,506,220	1.8%	80.4%	19	Haskell	5,890,921	1.8%	79.8%
20	Roger Mills	813,509	1.3%	78.4%	20	LeFlore	29,498,926	1.8%	82.3%	20	Ellis	5,729,997	1.7%	81.5%
21	Kay	805,275	1.3%	79.7%	21	Woods	26,490,519	1.6%	83.9%	21	Kingfisher	5,220,362	1.6%	83.1%
22	Dewey	727,288	1.2%	80.9%	22	Kingfisher	25,550,348	1.6%	85.5%	22	Osage	4,985,679	1.5%	84.7%
23	Payne	702,036	1.2%	82.1%	23	Harper	21,989,598	1.4%	86.9%	23	Logan	4,366,969	1.3%	86.0%
24	Logan	696,586	1.1%	83.2%	24	Logan	19,775,081	1.2%	88.1%	24	Woods	3,992,433	1.2%	87.2%
25	Ellis	682,858	1.1%	84.3%	25	Garfield	14,769,096	0.9%	89.0%	25	Harper	3,144,374	1.0%	88.2%
26	Cleveland	632,995	1.0%	85.4%	26	McClain	13,936,022	0.9%	89.9%	26	LeFlore	2,955,665	0.9%	89.1%
27	Custer	575,715	0.9%	86.3%	27	Carter	13,115,435	0.8%	90.7%	27	Lincoln	2,761,621	0.8%	89.9%
28	Garfield	541,462	0.9%	87.2%	28	Lincoln	12,371,177	0.8%	91.5%	28	Oklahoma	2,603,325	0.8%	90.7%
29	Woods	518,607	0.9%	88.0%	29	Oklahoma	12,129,388	0.8%	92.2%	29	McClain	2,540,172	0.8%	91.5%
30	Grant	488,862	0.8%	88.9%	30	Osage	8,990,094	0.6%	92.8%	30	Garfield	1,987,211	0.6%	92.1%
31	Love	469,980	0.8%	89.6%	31	Pushmataha	8,956,423	0.6%	93.4%	31	Creek	1,962,717	0.6%	92.7%
32	Beckham	464,323	0.8%	90.4%	32	Pottawatomie	8,198,095	0.5%	93.9%	32	Pontotoc	1,830,672	0.6%	93.2%
33	Pawnee	432,712	0.7%	91.1%	33	Hughes	7,927,562	0.5%	94.4%	33	Pottawatomie	1,753,972	0.5%	93.8%
34	Washita	432,352	0.7%	91.8%	34	Nowata	7,747,964	0.5%	94.8%	34	Seminole	1,723,679	0.5%	94.3%
35	Jefferson	407,621	0.7%	92.5%	35	Coal	6,434,741	0.4%	95.2%	35	Noble	1,480,078	0.5%	94.7%
36	Alfalfa	385,987	0.6%	93.1%	36	Grant	6,354,849	0.4%	95.6%	36	Hughes	1,445,129	0.4%	95.2%
37	Hughes	381,071	0.6%	93.7%	37	McIntosh	5,722,097	0.4%	96.0%	37	Pushmataha	1,334,754	0.4%	95.6%
38	Okfuskee	370,442	0.6%	94.3%	38	Seminole	5,587,358	0.3%	96.3%	38	Nowata	1,301,668	0.4%	96.0%
39	Okmulgee	367,259	0.6%	94.9%	39	Washington	5,511,805	0.3%	96.7%	39	Grant	1,285,893	0.4%	96.4%
40	Blaine	365,158	0.6%	95.5%	40	Alfalfa	4,934,475	0.3%	97.0%	40	Alfalfa	1,187,571	0.4%	96.7%
41	Woodward	333,709	0.5%	96.1%	41	Payne	4,648,028	0.3%	97.3%	41	Payne	1,108,380	0.3%	97.1%
42	Murray	317,927	0.5%	96.6%	42	Marshall	4,593,525	0.3%	97.6%	42	Love	1,083,515	0.3%	97.4%
43	Tulsa	290,661	0.5%	97.1%	43	Kiowa	4,085,734	0.3%	97.8%	43	Coal	971,617	0.3%	97.7%
44	Washington	255,848	0.4%	97.5%	44	Noble	3,856,066	0.2%	98.1%	44	Washington	898,526	0.3%	98.0%
45	Harper	253,026	0.4%	97.9%	45	Cimarron	3,135,143	0.2%	98.3%	45	Marshall	775,550	0.2%	98.2%
46	Nowata	183,459	0.3%	98.2%	46	Sequoyah	3,079,623	0.2%	98.5%	46	Cleveland	696,730	0.2%	98.4%
47	Comanche	174,414	0.3%	98.5%	47	Creek	2,821,596	0.2%	98.6%	47	Okfuskee	644,680	0.2%	98.6%
48	Marshall	144,750	0.2%	98.7%	48	Okfuskee	2,703,911	0.2%	98.8%	48	Kay	595,402	0.2%	98.8%
49	Cotton	135,914	0.2%	99.0%	49	Atoka	2,675,966	0.2%	99.0%	49	McIntosh	581,908	0.2%	99.0%
50	Cimarron	112,019	0.2%	99.2%	50	Love	2,613,621	0.2%	99.1%	50	Oklahoma	547,623	0.2%	99.1%

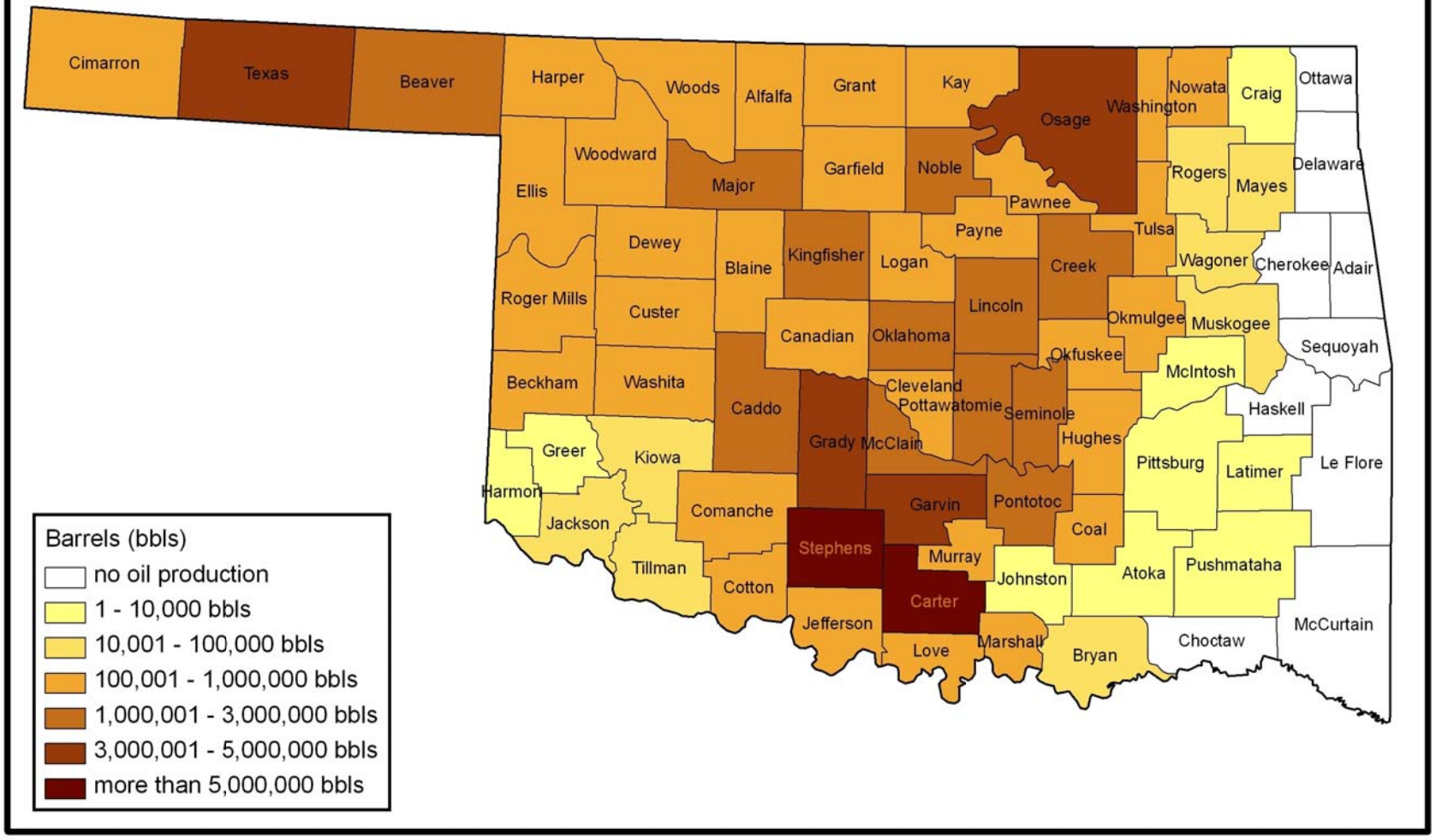
Continued

Table 1. (Continued) Rankings of Oil and Gas Production by County (2005)

A. Crude Oil and Condensate (Barrels (bbls))					B. Natural and Casinghead Gas (Thousand Cubic Feet (mcf))					C. Barrel of Oil Equivalent Production (1 Barrel = 6 mcf)				
Rank	County	Production	% of Total	Cumulative % of Total	Rank	County	Production	% of Total	Cumulative % of Total	Rank	County	Equivalent Production	% of Total	Cumulative % of Total
51	Coal	105,564	0.2%	99.3%	51	Comanche	2,070,576	0.1%	99.3%	51	Kiowa	450,660	0.1%	99.3%
52	Jackson	91,251	0.1%	99.5%	52	Rogers	1,980,208	0.1%	99.4%	52	Comanche	421,286	0.1%	99.4%
53	Muskogee	80,025	0.1%	99.6%	53	Okmulgee	1,769,574	0.1%	99.5%	53	Sequoyah	374,954	0.1%	99.5%
54	Tillman	68,962	0.1%	99.7%	54	Cleveland	1,633,644	0.1%	99.6%	54	Pawnee	341,236	0.1%	99.6%
55	Bryan	43,614	0.1%	99.8%	55	Bryan	1,600,193	0.1%	99.7%	55	Jefferson	310,313	0.1%	99.7%
56	Wagoner	31,539	0.1%	99.8%	56	Craig	1,185,900	0.1%	99.8%	56	Cimarron	229,189	0.1%	99.8%
57	Rogers	27,367	0.0%	99.9%	57	Kay	1,153,958	0.1%	99.8%	57	Tulsa	219,693	0.1%	99.8%
58	Kiowa	24,532	0.0%	99.9%	58	Pontotoc	872,649	0.1%	99.9%	58	Bryan	169,974	0.1%	99.9%
59	Mayes	24,056	0.0%	100.0%	59	Tulsa	656,296	0.0%	99.9%	59	Murray	133,439	0.0%	99.9%
60	Atoka	8,767	0.0%	100.0%	60	Pawnee	486,298	0.0%	100.0%	60	Atoka	89,817	0.0%	100.0%
61	Harmon	3,118	0.0%	100.0%	61	Muskogee	324,519	0.0%	100.0%	61	Rogers	57,205	0.0%	100.0%
62	McIntosh	2,722	0.0%	100.0%	62	Cotton	97,896	0.0%	100.0%	62	Craig	19,038	0.0%	100.0%
63	Johnston	1,844	0.0%	100.0%	63	Greer	57,697	0.0%	100.0%	63	Cotton	11,460	0.0%	100.0%
64	Greer	1,047	0.0%	100.0%	64	Wagoner	43,251	0.0%	100.0%	64	Muskogee	8,256	0.0%	100.0%
65	Pittsburg	681	0.0%	100.0%	65	Johnston	37,194	0.0%	100.0%	65	Jackson	6,880	0.0%	100.0%
66	Craig	234	0.0%	100.0%	66	Jackson	36,673	0.0%	100.0%	66	Tillman	6,346	0.0%	100.0%
67	Pushmataha	168	0.0%	100.0%	67	Murray	18,135	0.0%	100.0%	67	Mayes	3,191	0.0%	100.0%
68	Latimer	82	0.0%	100.0%	68	Jefferson	16,402	0.0%	100.0%	68	Wagoner	2,816	0.0%	100.0%
	Cherokee	0	0.0%	100.0%	69	Mayes	65	0.0%	100.0%	69	Greer	11	0.0%	100.0%
	Choctaw	0	0.0%	100.0%		Cherokee	0	0.0%	100.0%	70	Johnston	0	0.0%	100.0%
	Delaware	0	0.0%	100.0%		Choctaw	0	0.0%	100.0%	71	Harmon	0	0.0%	100.0%
	Haskell	0	0.0%	100.0%		Delaware	0	0.0%	100.0%		Adair	0	0.0%	100.0%
	LeFlore	0	0.0%	100.0%		Harmon	0	0.0%	100.0%		Cherokee	0	0.0%	100.0%
	McCurtain	0	0.0%	100.0%		McCurtain	0	0.0%	100.0%		Choctaw	0	0.0%	100.0%
	Ottawa	0	0.0%	100.0%		Ottawa	0	0.0%	100.0%		Delaware	0	0.0%	100.0%
	Sequoyah	0	0.0%	100.0%		Tillman	0	0.0%	100.0%		McCurtain	0	0.0%	100.0%
	Adair	0	0.0%	100.0%		Adair	0	0.0%	100.0%		Ottawa	0	0.0%	100.0%
	Statewide	60,939,372				**Statewide**	1,605,654,476				**Statewide**	328,548,451		

Source: Oklahoma Corporation Commission

Map 1. Crude Oil Production - 2005



Part B of Table 1 shows that 26.5 percent of Oklahoma's natural gas production occurs in Roger Mills, Latimer, and Beckham Counties with production levels ranging from 148.5 billion cubic feet to 136.7 billion cubic feet. The top twelve gas producing counties account for 64.0 percent of the natural gas production in Oklahoma. With the exception of Latimer County and Pittsburg County in the southeast, natural gas production is heavily concentrated in western Oklahoma. Map 2 illustrates the location of natural gas production throughout Oklahoma in 2005.

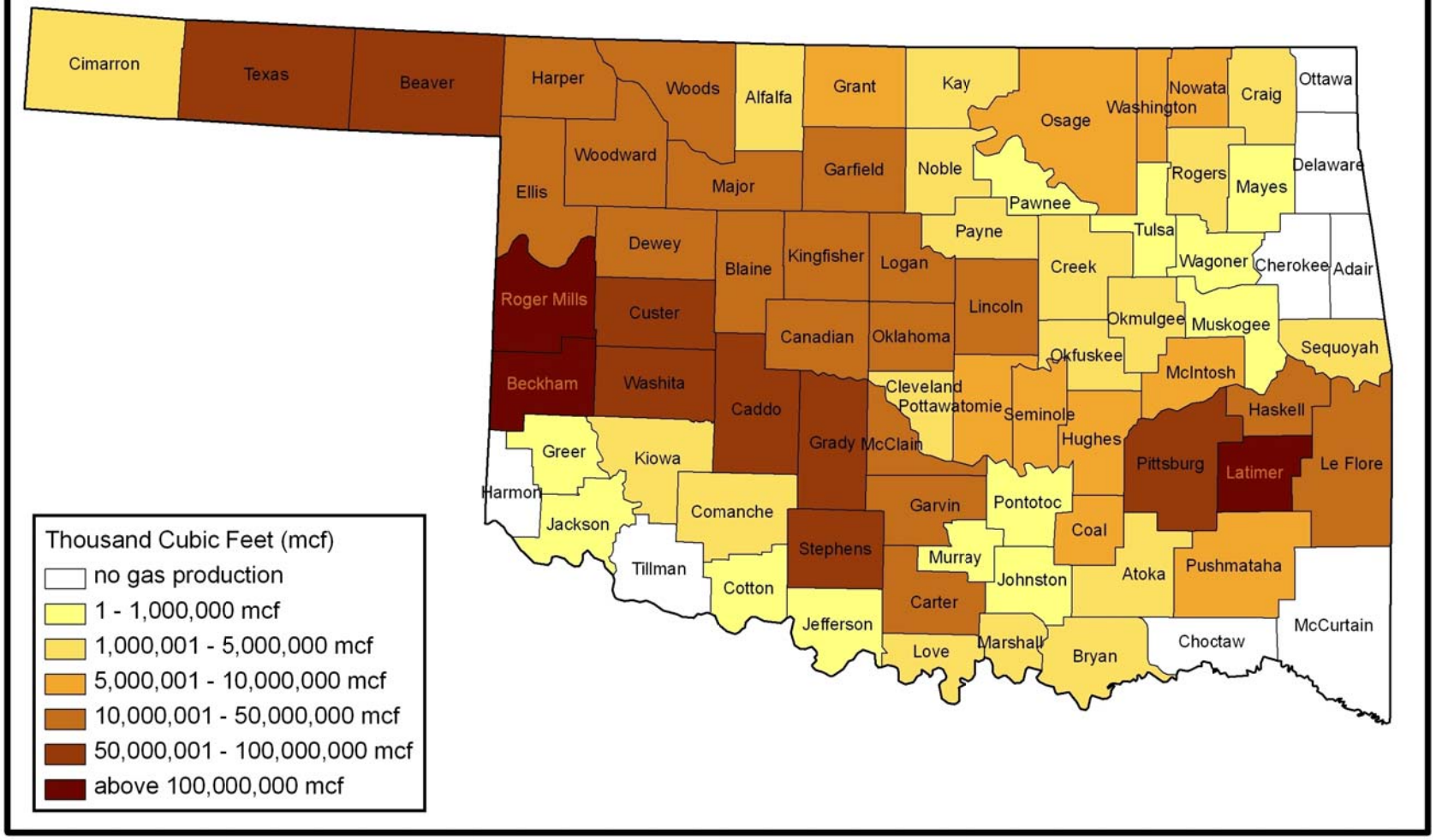
Few counties are large producers of both crude oil and natural gas. Grady and Texas Counties standout, with Grady ranked fourth in both crude oil and natural gas production and Texas fifth in crude oil production and seventh in natural gas. Converting natural gas to its crude oil equivalent, as shown in Part C of Table 1, allows the ranking of counties by combined crude oil and natural gas production. Natural gas production is converted to barrels of crude oil using the conversion ratio of 6,000 cubic feet (6 mcf) of natural gas per barrel of oil. On an equivalent basis, 50.5 percent of crude oil and natural gas production occurs in eight counties. Six of these eight counties are major natural gas producing counties. First and second ranked crude oil producing Carter and Stephens Counties ranked thirteenth and seventh, respectively, in equivalent production. By contrast, the three top natural gas producing counties, Roger Mills, Latimer, and Beckham, are also the three top oil equivalent producing counties. Map 3 illustrates the statewide distribution of oil equivalent production of crude oil and natural gas by county.

Table 2 displays crude oil and gas production trends over the ten year period 1995 to 2005. Crude oil production declined markedly in most counties in the period, with Texas County the only county among the top ten crude oil producing counties to show an increase in production. Production rose in Texas County by 1.06 million barrels, which equates to a 50.4 percent increase. Carter and Stephens Counties, the top two 2005 crude oil producing counties each had a decline in production compared to the 1995 levels. Production in Carter County declined by 5.1 million barrels (44.7 percent reduction) and in Stephens County by 1.6 million barrels (20.8 percent reduction). Production rose in only nine counties in the period with the overall increase insignificant in all but Texas County.

Oklahoma continues to rank among the major natural gas producing states, ranking second in natural gas production in 2005 based on preliminary U.S. Department of Energy data.[9] The decline in production seen in the crude producing counties since 1995 is not typical of most gas producing counties. Table 2 details county-level production of natural gas and highlights the

growing importance of natural gas relative to crude oil within the state. In the ten year period, natural gas production rose in 30 counties and declined in 39. When comparing natural gas production among the top three producing counties in 2005 (i.e., Roger Mills, Latimer, and Beckham Counties), an increase occurred only in Beckham County where production rose by 67.7 billion cubic feet, a 98.1 percent increase. Natural gas production in Roger Mills and Latimer Counties declined by 22.3 billion cubic feet (33.0 percent) and 11.9 billion cubic feet (25.6 percent decrease), respectively.

Map 2. Natural Gas Production - 2005



Map 3. Barrel of Oil Equivalent Production - 2005

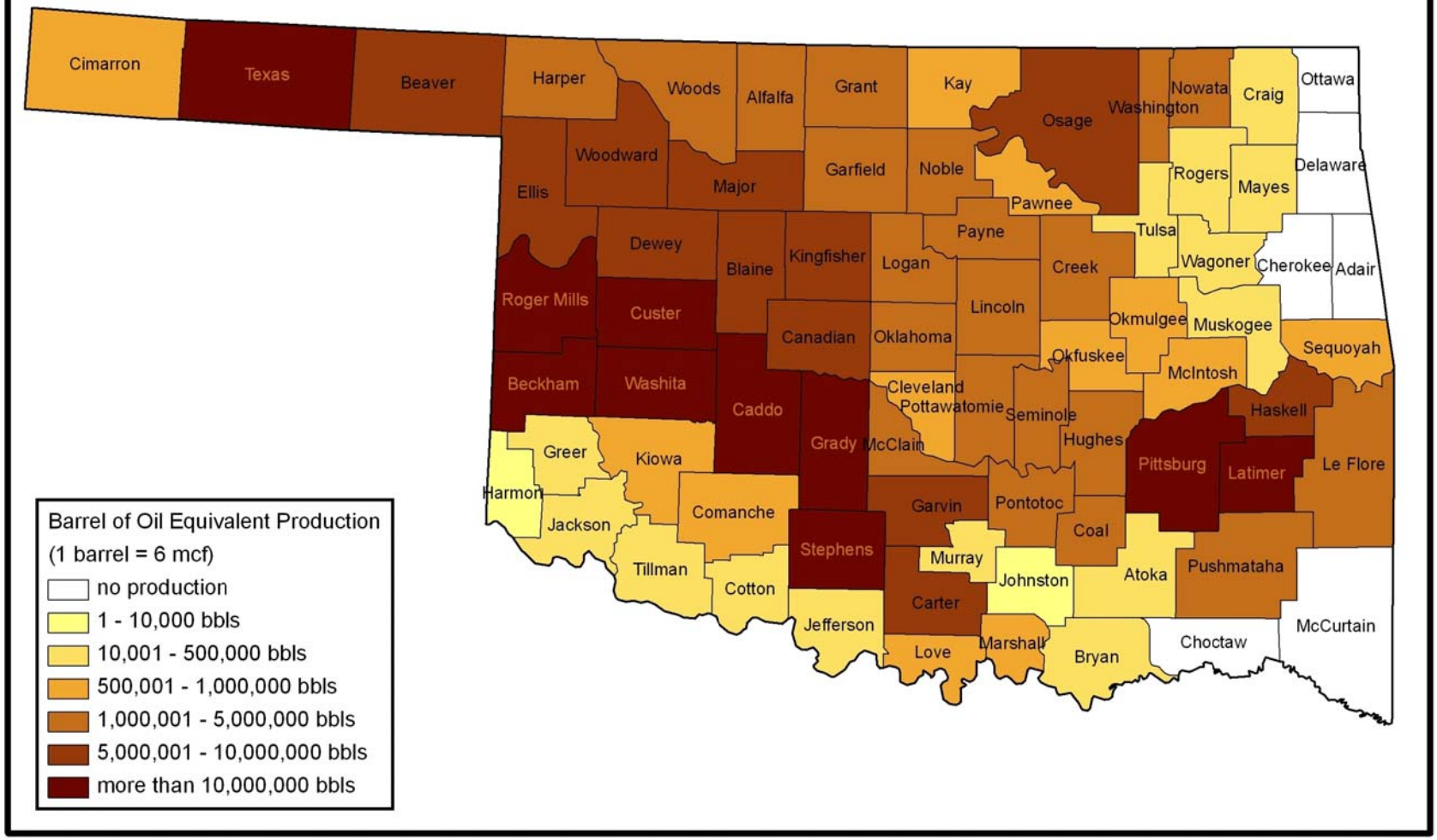


Table 2. Change in Crude Oil and Natural Gas Production (1995 to 2005)

Crude Oil and Condensate (Barrels)					Natural and Casinghead Gas (mcf)				
County	1995	2005	Period Change	Period % Change	County	1995	2005	Period Change	Period % Change
Texas	2,098,165	3,154,799	1,056,634	50.4%	Beckham	69,005,280	136,718,598	67,713,318	98.1%
Jefferson	265,794	407,621	141,827	53.4%	Woodward	26,741,648	46,201,584	19,459,936	72.8%
Woodward	235,066	333,709	98,643	42.0%	Stephens	50,575,119	61,107,855	10,532,736	20.8%
Lincoln	1,085,520	1,138,107	52,587	4.8%	Logan	10,518,359	19,775,081	9,256,722	88.0%
Washita	390,014	432,352	42,338	10.9%	Pushmataha	0	8,956,423	8,956,423	na
Atoka	453	8,767	8,314	1835.3%	Nowata	398,585	7,747,964	7,349,379	1843.9%
Johnston	0	1,844	1,844	na	Pottawatomie	1,359,160	8,198,095	6,838,935	503.2%
Pushmataha	0	168	168	na	Osage	3,498,171	8,990,094	5,491,923	157.0%
Pittsburg	548	681	133	24.3%	Pittsburg	78,414,320	83,590,743	5,176,423	6.6%
Adair	0	0	0	na	Washington	748,614	5,511,805	4,763,191	636.3%
Cherokee	0	0	0	na	Lincoln	8,028,876	12,371,177	4,342,301	54.1%
Choctaw	0	0	0	na	Seminole	1,457,259	5,587,358	4,130,099	283.4%
Delaware	0	0	0	na	Kiowa	90,336	4,085,734	3,995,398	4422.8%
Haskell	0	0	0	na	Washita	57,635,975	61,626,228	3,990,253	6.9%
LeFlore	0	0	0	na	Haskell	34,059,766	37,481,283	3,421,517	10.0%
McCurtain	0	0	0	na	McIntosh	3,218,595	5,722,097	2,503,502	77.8%
Ottawa	0	0	0	na	Grant	3,876,840	6,354,849	2,478,009	63.9%
Sequoyah	0	0	0	na	Payne	2,601,805	4,648,028	2,046,223	78.6%
Latimer	371	82	-289	-77.9%	Coal	4,505,794	6,434,741	1,928,947	42.8%
McIntosh	4,525	2,722	-1,803	-39.8%	Rogers	201,671	1,980,208	1,778,537	881.9%
Craig	2,780	234	-2,546	-91.6%	Craig	0	1,185,900	1,185,900	na
Harper	256,954	253,026	-3,928	-1.5%	Pontotoc	385,968	872,649	486,681	126.1%
Greer	6,365	1,047	-5,318	-83.6%	Love	2,164,766	2,613,621	448,855	20.7%
Tillman	75,083	68,962	-6,121	-8.2%	Atoka	2,315,656	2,675,966	360,310	15.6%
Mayes	33,028	24,056	-8,972	-27.2%	Woods	26,324,297	26,490,519	166,222	0.6%
Jackson	101,002	91,251	-9,751	-9.7%	Cotton	0	97,896	97,896	na
Harmon	15,656	3,118	-12,538	-80.1%	Tulsa	559,289	656,296	97,007	17.3%
Kiowa	41,033	24,532	-16,501	-40.2%	Wagoner	1,864	43,251	41,387	2220.3%
Bryan	61,909	43,614	-18,295	-29.6%	Jackson	0	36,673	36,673	na
Ellis	702,923	682,858	-20,065	-2.9%	Johnston	4,046	37,194	33,148	819.3%
Rogers	53,374	27,367	-26,007	-48.7%	Adair	0	0	0	na
Muskogee	118,982	80,025	-38,957	-32.7%	Cherokee	0	0	0	na
Wagoner	81,679	31,539	-50,140	-61.4%	Choctaw	0	0	0	na
Coal	162,654	105,564	-57,090	-35.1%	Delaware	0	0	0	na
Beckham	553,620	464,323	-89,297	-16.1%	Harmon	0	0	0	na
Cotton	232,865	135,914	-96,951	-41.6%	McCurtain	0	0	0	na
Nowata	284,358	183,459	-100,899	-35.5%	Ottawa	0	0	0	na
Marshall	253,782	144,750	-109,032	-43.0%	Tillman	0	0	0	na
Dewey	844,188	727,288	-116,900	-13.8%	Mayes	77	65	-12	-15.6%
Comanche	292,934	174,414	-118,520	-40.5%	Jefferson	50,461	16,402	-34,059	-67.5%
Love	594,471	469,980	-124,491	-20.9%	Murray	79,954	18,135	-61,819	-77.3%
Tulsa	436,562	290,661	-145,901	-33.4%	Noble	3,919,346	3,856,066	-63,280	-1.6%
Cimarron	270,221	112,019	-158,202	-58.5%	Greer	179,703	57,697	-122,006	-67.9%
Washington	426,115	255,848	-170,267	-40.0%	Muskogee	456,385	324,519	-131,866	-28.9%
Blaine	553,593	365,158	-188,435	-34.0%	Bryan	1,923,991	1,600,193	-323,798	-16.8%
Hughes	595,462	381,071	-214,391	-36.0%	Okmulgee	2,171,215	1,769,574	-401,641	-18.5%
Kay	1,022,046	805,275	-216,771	-21.2%	Pawnee	1,132,360	486,298	-646,062	-57.1%
Roger Mills	1,053,408	813,509	-239,899	-22.8%	Kay	2,051,164	1,153,958	-897,206	-43.7%
Noble	1,357,471	1,082,083	-275,388	-20.3%	Creek	3,769,409	2,821,596	-947,813	-25.1%
Okmulgee	672,706	367,259	-305,447	-45.4%	Okfuskee	3,740,936	2,703,911	-1,037,025	-27.7%
Cleveland	996,641	632,995	-363,646	-36.5%	Marshall	5,797,830	4,593,525	-1,204,305	-20.8%
Pawnee	800,157	432,712	-367,445	-45.9%	Cleveland	3,191,736	1,633,644	-1,558,092	-48.8%
Pontotoc	2,916,382	2,526,763	-389,619	-13.4%	Cimarron	5,197,755	3,135,143	-2,062,612	-39.7%

Continued

Table 2. (Continued) Change in Crude Oil and Natural Gas Production (1995 to 2005)

Crude Oil and Condensate (Barrels)					Natural and Casinghead Gas (mcf)				
County	**1995**	**2005**	**Period Change**	**Period % Change**	**County**	**1995**	**2005**	**Period Change**	**Period % Change**
Okfuskee	770,207	370,442	-399,765	-51.9%	Comanche	4,981,153	2,070,576	-2,910,577	-25.5%
Logan	1,113,128	696,586	-416,542	-37.4%	Hughes	10,953,637	7,927,562	-3,026,075	-60.8%
Seminole	2,266,681	1,846,738	-419,943	-18.5%	Ellis	32,592,573	29,506,220	-3,086,353	-52.8%
Garfield	1,031,709	541,462	-490,247	-47.5%	Sequoyah	6,244,285	3,079,623	-3,164,662	-22.8%
Grant	989,187	488,862	-500,325	-50.6%	Carter	17,453,812	13,115,435	-4,338,377	-68.3%
Murray	823,180	317,927	-505,253	-61.4%	Alfalfa	11,998,961	4,934,475	-7,064,486	-5.6%
Osage	4,802,295	4,292,885	-509,410	-10.6%	McClain	21,183,528	13,936,022	-7,247,506	-57.9%
McClain	1,600,001	1,082,065	-517,936	-32.4%	Oklahoma	21,487,950	12,129,388	-9,358,562	-35.0%
Custer	1,116,028	575,715	-540,313	-48.4%	Garfield	25,050,317	14,769,096	-10,281,221	-37.1%
Beaver	1,839,483	1,290,494	-548,989	-29.8%	Garvin	41,871,862	30,721,182	-11,150,680	-29.9%
Woods	1,087,389	518,607	-568,782	-52.3%	Dewey	45,432,713	34,123,752	-11,308,961	-51.4%
Payne	1,313,285	702,036	-611,249	-46.5%	Latimer	150,056,257	138,106,499	-11,949,758	-25.6%
Grady	4,359,770	3,503,814	-855,956	-19.6%	LeFlore	41,911,749	29,498,926	-12,412,823	-28.9%
Creek	3,190,889	2,333,584	-857,305	-26.9%	Caddo	93,242,903	79,484,488	-13,758,415	-20.3%
Oklahoma	2,872,957	1,924,149	-948,808	-33.0%	Canadian	61,428,755	45,652,593	-15,776,162	-33.1%
Caddo	3,026,600	2,039,380	-987,220	-32.6%	Kingfisher	42,893,165	25,550,348	-17,342,817	-27.3%
Alfalfa	1,389,561	385,987	-1,003,574	-72.2%	Blaine	59,118,375	40,532,979	-18,585,396	-25.1%
Canadian	1,998,663	973,218	-1,025,445	-51.3%	Major	66,317,989	45,167,844	-21,150,145	-19.8%
Pottawatomie	2,496,868	1,465,891	-1,030,977	-41.3%	Beaver	73,585,631	52,219,482	-21,366,149	-48.5%
Kingfisher	2,306,804	1,107,336	-1,199,468	-52.0%	Roger Mills	170,754,824	148,461,559	-22,293,265	-33.0%
Garvin	4,696,527	3,141,754	-1,554,773	-33.1%	Harper	45,480,225	21,989,598	-23,490,627	-24.1%
Stephens	7,643,658	6,054,799	-1,588,859	-20.8%	Custer	92,517,959	65,917,607	-26,600,352	-38.8%
Major	3,537,679	1,680,435	-1,857,244	-52.5%	Grady	112,935,834	85,931,897	-27,003,937	-26.6%
Carter	11,433,907	6,321,680	-5,112,227	-44.7%	Texas	103,580,227	68,856,689	-34,723,538	-33.2%
Statewide	87,657,316	60,939,372	-26,717,944	-30.5%	**Statewide**	1,775,429,065	1,605,654,476	-169,774,589	-9.6%

Source: Oklahoma Corporation Commission

DRILLING AND EXPLORATION ACTIVITY

In order to examine changes in drilling activity over time, well completions by type (oil, gas, dry, and total) are compared for the years 1995 and 2005 in Table 3. Completions are significantly higher in 2005 relative to 1995 due to the more attractive drilling environment presented by current historically high energy prices. Well completions in 2005 numbered 2,377, with a 90 percent success ratio, compared to 1,427 in 1995, with an 85 percent ratio. In 2005, 10 counties had a 100 percent success ratio, 29 counties fell at the 90th percentile or above, and 19 fell between the 80th and 50th percentiles. The change in the average well depth statewide was insignificant between the two years, increasing from 7,229 feet to 7,366 feet over the ten year period. In 2005, the number of counties above the state average well depth was 20. For the high natural gas producing Beckham County, the average depth increased by about 2,500 feet to 14,953 feet and reflects the increased emphasis on deep gas exploration. By contrast, the high crude oil producing Carter County experienced no significant change in the average well depth in the county of approximately 3,800 feet.

In 2005, five counties accounted for 32 percent of total well completions statewide: Roger Mills (193), Pittsburg (183), Woodward (175), Stephens (113), and Texas (97). In the high crude oil producing Stephens County, 74 wells were crude oil, 35 were natural gas, and 4 were dry. The second highest number of crude oil completions occurred in Carter County, which had only 42 total wells with 38 being crude oil wells, 2 gas wells, and 2 dry wells. Consistent with the declining role of crude oil relative to natural gas, the number of oil well completions statewide decreased from 505 in year 1995 to 419 in 2005.

In contrast, the total number of gas wells completed more than doubled from 709 in 1995 to 1,713 in 2005. Among the top 8 natural gas producing counties, Roger Mills County showed the greatest increase from 51 natural gas wells in 1995 to 187 in 2005. The changes in completions over the period for the remaining top eight producing counties are Latimer going from 63 natural gas wells to 69; Beckham 18 to 66; Grady 39 to 41; Pittsburg 45 to 179; Caddo 16 to 39; Texas 12 to 47; and Custer 17 to 36. These top eight natural gas producing counties accounted for 50.3 percent of the natural gas well completions in 2005. Woodward County, which ranked twelfth in natural gas production, had 162 natural gas well completions in 2005 and joined Pittsburg and Roger Mills as the only counties with more than 100 natural gas well completions.

Table 3. Well Completions by County (1995 and 2005)

County	1995							2005							Period Change in Total Wells
	Oil	Gas	Dry	Total Wells	Total Depth (feet)	Avg. Depth	Success Ratio	Oil	Gas	Dry	Total Wells	Total Depth (feet)	Avg. Depth	Success Ratio	
Adair	0	0	0	0	0.0%	0.0%	0.0%	0	0	0	0	0.0%	0.0%	0.0%	0
Alfalfa	10	10	2	22	131,834	5,992	90.9%	4	5	2	11	63,544	5,777	81.8%	-11
Atoka	0	1	1	2	7,840	3,920	50.0%	0	3	0	3	26,829	8,943	100.0%	1
Beaver	13	57	4	74	541,833	7,322	94.6%	7	52	10	69	503,635	7,299	85.5%	-5
Beckham	0	18	3	21	262,108	12,481	85.7%	2	66	2	70	1,046,708	14,953	97.1%	49
Blaine	3	25	5	33	314,749	9,538	84.9%	5	35	6	46	466,235	10,136	87.0%	13
Bryan	0	1	0	1	5,081	5,081	100.0%	0	0	1	1	7,200	7,200	0.0%	0
Caddo	6	16	1	23	303,657	13,202	95.7%	13	39	8	60	825,751	13,763	86.7%	37
Canadian	4	19	1	24	253,725	10,572	95.8%	7	26	4	37	372,401	10,065	89.2%	13
Carter	66	1	20	87	330,197	3,795	77.0%	38	2	2	42	159,817	3,805	95.2%	-45
Cherokee	0	0	0	0	0	0	0.0%	0	0	0	0	0	0	0.0%	0
Choctaw	0	0	0	0	0	0	0.0%	0	0	0	0	0	0	0.0%	0
Cimarron	3	0	0	3	14,370	4,790	100.0%	0	9	7	16	77,539	4,846	56.3%	13
Cleveland	3	0	3	6	42,480	7,080	50.0%	2	0	1	3	21,246	7,082	66.7%	-3
Coal	4	0	3	7	33,555	4,794	57.1%	0	13	4	17	138,452	8,144	76.5%	10
Comanche	2	5	0	7	62,876	8,982	100.0%	1	2	0	3	24,901	8,300	100.0%	-4
Cotton	1	0	1	2	3,534	1,767	50.0%	0	0	1	1	2,450	2,450	0.0%	-1
Craig	0	0	0	0	0	0	0.0%	0	2	0	2	2,110	1,055	100.0%	2
Creek	18	5	6	29	80,078	2,761	79.3%	5	7	1	13	42,368	3,259	92.3%	-16
Custer	0	17	1	18	239,566	13,309	94.4%	3	36	2	41	539,808	13,166	95.1%	23
Delaware	0	0	0	0	0	0	0.0%	0	0	0	0	0	0	0.0%	0
Dewey	4	16	2	22	75,042	3,411	90.9%	6	24	11	41	419,683	10,236	73.2%	19
Ellis	1	27	3	31	270,928	8,740	90.3%	11	27	9	47	437,167	9,301	80.9%	16
Garfield	10	3	2	15	103,551	6,903	86.7%	3	0	1	4	23,489	5,872	75.0%	-11
Garvin	59	11	16	86	673,364	7,830	81.4%	19	5	8	32	198,545	6,205	75.0%	-54
Grady	27	39	9	75	897,872	11,972	88.0%	23	41	1	65	709,656	10,918	98.5%	-10
Grant	3	2	2	7	45,214	6,459	71.4%	5	13	16	34	174,749	5,140	52.9%	27
Greer	0	0	0	0	0	0	0.0%	0	0	0	0	0	0	0.0%	0
Harmon	0	0	0	0	0	0	0.0%	0	0	0	0	0	0	0.0%	0
Harper	1	25	1	27	205,260	7,602	96.3%	4	18	8	30	207,250	6,908	73.3%	3
Haskell	1	30	3	34	196,478	5,779	91.2%	0	70	6	76	322,270	4,240	92.1%	42
Hughes	2	13	2	17	66,606	3,918	88.2%	0	28	9	37	149,977	4,053	75.7%	20
Jackson	1	0	2	3	32,641	10,880	33.3%	0	0	2	2	8,400	4,200	0.0%	-1
Jefferson	0	0	0	0	0	0	0.0%	12	0	3	15	24,684	1,646	80.0%	15
Johnston	0	0	0	0	0	0	0.0%	0	0	0	0	0	0	0.0%	0
Kay	10	1	2	13	56,494	4,346	84.6%	20	2	3	25	82,428	3,297	88.0%	12
Kingfisher	16	9	4	29	235,795	8,131	86.2%	2	9	0	11	111,156	10,105	100.0%	-18
Kiowa	2	0	0	2	904	452	100.0%	0	4	1	5	54,520	10,904	80.0%	3
Latimer	0	36	2	38	288,486	7,592	94.7%	0	69	2	71	734,700	10,348	97.2%	33
LeFlore	0	18	5	23	158,473	6,890	78.3%	0	75	3	78	418,155	5,361	96.2%	55
Lincoln	12	5	3	20	89,407	4,470	85.0%	8	9	5	22	126,010	5,728	77.3%	2
Logan	22	4	5	31	189,103	6,100	83.9%	6	9	5	20	124,019	6,201	75.0%	-11
Love	1	1	1	3	24,700	8,233	66.7%	3	1	0	4	29,761	7,440	100.0%	1
Major	13	1	1	15	171,064	11,404	93.3%	7	4	5	16	149,707	9,357	68.8%	1
Marshall	0	0	0	0	0	0	0.0%	0	0	0	0	0	0	0.0%	0
Mayes	0	6	1	7	14,438	2,063	85.7%	0	27	4	31	124,835	4,027	87.1%	24
McClain	28	57	0	85	723,182	8,508	100.0%	2	50	1	53	427,837	8,072	98.1%	-32
McCurtain	3	3	0	6	31,632	5,272	100.0%	0	1	0	1	5,815	5,815	100.0%	-5
McIntosh	0	0	0	0	0	0	0.0%	0	0	0	0	0	0	0.0%	0
Murray	3	1	5	9	31,283	3,476	44.4%	2	0	2	4	15,356	3,839	50.0%	-5
Muskogee	0	0	1	1	2,180	2,180	0.0%	1	0	0	1	1,315	1,315	100.0%	0
Noble	8	4	4	16	68,674	4,292	75.0%	11	15	5	31	79,265	2,557	83.9%	15

Continued

Table 3. (Continued) Well Completions by County (1995 and 2005)

	1995							2005							Period Change in Total Wells
County	Oil	Gas	Dry	Total Wells	Total Depth (feet)	Avg. Depth	Success Ratio	Oil	Gas	Dry	Total Wells	Total Depth (feet)	Avg. Depth	Success Ratio	
Nowata	2	6	0	8	10,004	1,251	100.0%	5	39		44	56,602	1,286	100.0%	36
Okfuskee	10	3	5	18	57,613	3,201	72.2%	5	4	3	12	33,752	2,813	75.0%	-6
Oklahoma	14	2	4	20	132,980	6,649	80.0%	4	8	3	15	91,024	6,068	80.0%	-5
Okmulgee	4	5	3	12	36,254	3,021	75.0%	7	5	2	14	26,429	1,888	85.7%	2
Osage	0	1	0	1	3,551	3,551	100.0%	0	0	0	0	0	0	0.0%	-1
Ottawa	0	0	0	0	0	0	0.0%	0	0	0	0	0	0	0.0%	0
Pawnee	0	0	2	2	6,874	3,437	0.0%	0	1	0	1	3,340	3,340	100.0%	-1
Payne	18	2	7	27	101,958	3,776	74.1%	5	7	5	17	71,700	4,218	70.6%	-10
Pittsburg	0	45	2	47	254,799	5,421	95.7%	0	179	4	183	1,101,672	6,020	97.8%	136
Pontotoc	10	0	7	17	57,577	3,387	58.8%	20	5	2	27	93,906	3,478	92.6%	10
Pottawatomie	12	1	5	18	78,325	4,351	72.2%	4	13	1	18	120,104	6,672	94.4%	0
Pushmataha	0	0	0	0	0	0	0.0%	0	3	1	4	29,713	7,428	75.0%	4
Roger Mills	2	51	4	57	764,781	13,417	93.0%	0	187	6	193	2,623,148	13,591	96.9%	136
Rogers	0	0	0	0	0	0	0.0%	2	21	1	24	29,981	1,249	95.8%	24
Seminole	13	1	5	19	115,115	6,059	73.7%	17	13	1	31	166,697	5,377	96.8%	12
Sequoyah	0	2	0	2	8,104	4,052	100.0%	0	3	2	5	22,839	4,568	60.0%	3
Stephens	34	19	4	57	362,466	6,359	93.0%	74	35	4	113	586,768	5,193	96.5%	56
Texas	9	12	32	53	303,850	5,733	39.6%	26	47	24	97	559,167	5,765	75.3%	44
Tillman	0	0	0	0	0	0	0.0%	1	0	4	5	18,724	3,745	20.0%	5
Tulsa	2	1	0	3	5,722	1,907	100.0%	0	2	1	3	4,848	1,616	66.7%	0
Wagoner	3	0	1	4	5,192	1,298	75.0%	1	1	0	2	2,350	1,175	100.0%	-2
Washington	2	11	0	13	16,037	1,234	100.0%	6	86	1	93	129,461	1,392	98.9%	80
Washita	0	28	1	29	398,150	13,729	96.6%	4	36	5	45	574,309	12,762	88.9%	16
Woods	8	11	1	20	128,004	6,400	95.0%	3	58	4	65	432,843	6,659	93.8%	45
Woodward	2	21	3	26	187,837	7,225	88.5%	3	162	10	175	1,249,030	7,137	94.3%	149
Statewide	505	709	213	1,427	10,315,447	7,229	85.1%	419	1,713	245	2,377	17,510,150	7,366	89.7%	950

Source: Oklahoma Corporation Commission

Table 4. Total Well Completions by County (1995 to 2005)

County	Total Well Completions											County	Annual Change in Well Completions									
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005		1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005
Adair	0	0	0	0	0	0	0	0	0	0	0	**Adair**	0	0	0	0	0	0	0	0	0	0
Alfalfa	22	16	10	5	3	12	11	13	6	8	11	**Alfalfa**	-6	-6	-5	-2	9	-1	2	-7	2	3
Atoka	2	4	4	2	0	2	5	0	0	3	3	**Atoka**	2	0	-2	-2	2	3	-5	0	3	0
Beaver	74	79	56	59	89	123	193	126	79	76	69	**Beaver**	5	-23	3	30	34	70	-67	-47	-3	-7
Beckham	21	32	27	21	21	41	48	43	56	51	70	**Beckham**	11	-5	-6	0	20	7	-5	13	-5	19
Blaine	33	42	45	42	52	54	72	53	43	40	46	**Blaine**	9	3	-3	10	2	18	-19	-10	-3	6
Bryan	1	2	0	3	0	0	7	2	2	6	1	**Bryan**	1	-2	3	-3	0	7	-5	0	4	-5
Caddo	23	39	61	54	27	43	56	49	64	68	60	**Caddo**	16	22	-7	-27	16	13	-7	15	4	-8
Canadian	24	26	20	51	33	44	73	66	43	57	37	**Canadian**	2	-6	31	-18	11	29	-7	-23	14	-20
Carter	87	88	81	54	36	51	80	54	27	36	42	**Carter**	1	-7	-27	-18	15	29	-26	-27	9	6
Cherokee	0	0	0	0	0	0	0	0	0	0	0	**Cherokee**	0	0	0	0	0	0	0	0	0	0
Choctaw	0	0	0	0	0	0	0	0	0	0	0	**Choctaw**	0	0	0	0	0	0	0	0	0	0
Cimarron	3	5	4	5	10	11	7	5	4	8	16	**Cimarron**	2	-1	1	5	1	-4	-2	-1	4	8
Cleveland	6	2	9	1	2	2	6	3	1	6	3	**Cleveland**	-4	7	-8	1	0	4	-3	-2	5	-3
Coal	7	3	4	10	4	13	13	25	21	10	17	**Coal**	-4	1	6	-6	9	0	12	-4	-11	7
Comanche	7	8	10	4	6	5	6	8	5	3	3	**Comanche**	1	2	-6	2	-1	1	2	-3	-2	0
Cotton	2	0	0	2	0	1	0	1	0	2	1	**Cotton**	-2	0	2	-2	1	-1	1	-1	2	-1
Craig	0	0	0	3	2	2	21	25	11	6	2	**Craig**	0	0	3	-1	0	19	4	-14	-5	-4
Creek	29	30	26	20	8	15	12	11	9	8	13	**Creek**	1	-4	-6	-12	7	-3	-1	-2	-1	5
Custer	18	29	42	64	44	55	42	61	60	48	41	**Custer**	11	13	22	-20	11	-13	19	-1	-12	-7
Delaware	0	0	0	0	0	0	0	0	0	0	0	**Delaware**	0	0	0	0	0	0	0	0	0	0
Dewey	22	21	30	47	50	56	59	45	52	33	41	**Dewey**	-1	9	17	3	6	3	-14	7	-19	8
Ellis	31	28	49	45	35	56	65	48	63	43	47	**Ellis**	-3	21	-4	-10	21	9	-17	15	-20	4
Garfield	15	20	19	26	10	30	40	15	13	9	4	**Garfield**	5	-1	7	-16	20	10	-25	-2	-4	-5
Garvin	86	56	49	64	24	60	85	39	57	41	32	**Garvin**	-30	-7	15	-40	36	25	-46	18	-16	-9
Grady	75	60	60	89	65	91	124	82	54	49	65	**Grady**	-15	0	29	-24	26	33	-42	-28	-5	16
Grant	7	6	13	19	10	12	20	30	42	24	34	**Grant**	-1	7	6	-9	2	8	10	12	-18	10
Greer	0	0	3	0	0	0	0	0	0	0	0	**Greer**	0	3	-3	0	0	0	0	0	0	0
Harmon	0	0	0	0	0	0	0	0	0	0	0	**Harmon**	0	0	0	0	0	0	0	0	0	0
Harper	27	43	35	26	32	52	55	38	38	27	30	**Harper**	16	-8	-9	6	20	3	-17	0	-11	3
Haskell	34	15	27	23	72	87	109	82	124	91	76	**Haskell**	-19	12	-4	49	15	22	-27	42	-33	-15
Hughes	17	19	15	19	18	21	32	29	30	19	37	**Hughes**	2	-4	4	-1	3	11	-3	1	-11	18
Jackson	3	3	1	2	1	0	1	0	2	1	2	**Jackson**	0	-2	1	-1	-1	1	-1	2	-1	1
Jefferson	0	0	2	1	0	0	0	5	8	11	15	**Jefferson**	0	2	-1	-1	0	0	5	3	3	4
Johnston	0	0	0	1	0	1	0	1	0	0	0	**Johnston**	0	0	1	-1	1	-1	1	-1	0	0
Kay	13	5	13	18	13	16	12	10	6	10	25	**Kay**	-8	8	5	-5	3	-4	-2	-4	4	15
Kingfisher	29	25	32	20	16	19	17	14	21	21	11	**Kingfisher**	-4	7	-12	-4	3	-2	-3	7	0	-10
Kiowa	2	6	9	9	13	5	1	1	0	3	5	**Kiowa**	4	3	0	4	-8	-4	0	-1	3	2
Latimer	38	56	45	63	47	88	97	55	61	59	71	**Latimer**	18	-11	18	-16	41	9	-42	6	-2	12
LeFlore	23	19	17	18	18	34	76	50	71	36	78	**LeFlore**	-4	-2	1	0	16	42	-26	21	-35	42
Lincoln	20	31	17	35	62	97	76	38	25	21	22	**Lincoln**	11	-14	18	27	35	-21	-38	-13	-4	1
Logan	31	28	32	23	33	51	71	46	41	36	20	**Logan**	-3	4	-9	10	18	20	-25	-5	-5	-16
Love	3	5	8	5	6	10	7	10	4	2	4	**Love**	2	3	-3	1	4	-3	3	-6	-2	2
Major	15	10	9	29	6	23	20	18	13	15	16	**Major**	-5	-1	20	-23	17	-3	-2	-5	2	1
Marshall	0	0	0	0	0	0	0	0	0	0	0	**Marshall**	0	0	0	0	0	0	0	0	0	0
Mayes	7	11	15	21	32	32	38	43	34	29	31	**Mayes**	4	4	6	11	0	6	5	-9	-5	2
McClain	85	73	91	78	62	95	123	84	42	61	53	**McClain**	-12	18	-13	-16	33	28	-39	-42	19	-8
McCurtain	6	0	0	2	1	2	5	4	7	3	1	**McCurtain**	-6	0	2	-1	1	3	-1	3	-4	-2
McIntosh	0	0	0	0	0	0	0	0	0	0	0	**McIntosh**	0	0	0	0	0	0	0	0	0	0
Murray	9	6	1	2	3	3	1	4	2	1	4	**Murray**	-3	-5	1	1	0	-2	3	-2	-1	3
Muskogee	1	1	0	0	1	1	3	3	5	2	1	**Muskogee**	0	-1	0	1	0	2	0	2	-3	-1
Noble	16	33	57	49	32	55	62	46	41	38	31	**Noble**	17	24	-8	-17	23	7	-16	-5	-3	-7
Nowata	8	10	14	38	45	61	53	50	68	41	44	**Nowata**	2	4	24	7	16	-8	-3	18	-27	3

Continued

Table 4. (Continued) Total Well Completions by County (1995 to 2005)

County	Total Well Completions										
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Okfuskee	18	13	28	14	18	18	36	16	10	9	12
Oklahoma	20	26	25	18	10	20	21	25	15	9	15
Okmulgee	12	3	9	7	3	15	15	20	22	8	14
Osage	1	0	0	0	0	0	0	0	0	0	0
Ottawa	0	0	0	0	0	0	0	0	0	0	0
Pawnee	2	11	0	0	0	3	2	0	4	2	1
Payne	27	22	25	21	6	17	15	19	19	15	17
Pittsburg	47	47	55	74	87	126	176	118	156	161	183
Pontotoc	17	18	8	19	13	9	12	21	46	34	27
Pottawatomie	18	17	11	11	5	11	14	16	15	29	18
Pushmataha	0	0	0	0	1	7	11	1	0	0	4
Roger Mills	57	46	59	64	40	54	86	87	101	107	193
Rogers	0	1	7	10	4	8	23	13	18	19	24
Seminole	19	23	27	20	25	48	62	16	22	32	31
Sequoyah	2	7	8	12	9	6	10	7	3	1	5
Stephens	57	79	49	54	35	65	121	115	55	113	113
Texas	53	40	102	132	105	141	172	188	137	149	97
Tillman	0	0	0	0	0	0	0	5	1	4	5
Tulsa	3	1	5	57	32	4	7	4	4	9	3
Wagoner	4	3	1	6	1	1	1	0	1	0	2
Washington	13	19	23	18	11	6	35	24	59	47	93
Washita	29	34	33	30	40	48	63	38	43	56	45
Woods	20	27	37	36	54	46	69	81	55	76	65
Woodward	26	27	54	44	58	82	124	92	102	116	175
Statewide	1,427	1,459	1,628	1,819	1,601	2,267	2,979	2,341	2,243	2,158	2,377

County	Annual Change in Well Completions									
	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005
Okfuskee	-5	15	-14	4	0	18	-20	-6	-1	3
Oklahoma	6	-1	-7	-8	10	1	4	-10	-6	6
Okmulgee	-9	6	-2	-4	12	0	5	2	-14	6
Osage	-1	0	0	0	0	0	0	0	0	0
Ottawa	0	0	0	0	0	0	0	0	0	0
Pawnee	9	-11	0	0	3	-1	-2	4	-2	-1
Payne	-5	3	-4	-15	11	-2	4	0	-4	2
Pittsburg	0	8	19	13	39	50	-58	38	5	22
Pontotoc	1	-10	11	-6	-4	3	9	25	-12	-7
Pottawatomie	-1	-6	0	-6	6	3	2	-1	14	-11
Pushmataha	0	0	0	1	6	4	-10	-1	0	4
Roger Mills	-11	13	5	-24	14	32	1	14	6	86
Rogers	1	6	3	-6	4	15	-10	5	1	5
Seminole	4	4	-7	5	23	14	-46	6	10	-1
Sequoyah	5	1	4	-3	-3	4	-3	-4	-2	4
Stephens	22	-30	5	-19	30	56	-6	-60	58	0
Texas	-13	62	30	-27	36	31	16	-51	12	-52
Tillman	0	0	0	0	0	0	5	-4	3	1
Tulsa	-2	4	52	-25	-28	3	-3	0	5	-6
Wagoner	-1	-2	5	-5	0	0	-1	1	-1	2
Washington	6	4	-5	-7	-5	29	-11	35	-12	46
Washita	5	-1	-3	10	8	15	-25	5	13	-11
Woods	7	10	-1	18	-8	23	12	-26	21	-11
Woodward	1	27	-10	14	24	42	-32	10	14	59
Statewide	**32**	**169**	**191**	**-218**	**666**	**712**	**-638**	**-98**	**-85**	**219**

Source: Oklahoma Corporation Commission

Table 4 illustrates the year-to-year fluctuations in well completions in the 1995 to 2005 period. Increases in gas well completions are most prevalent after the surge in natural gas prices in 2000. The change from year to year, however, varies widely with some of the top twelve natural gas producing counties rising and others declining. Yearly well completions were heavy in five of the top six crude oil producing counties, the exception being Osage County. Even within these counties, the change from year to year shows more declining than rising well completions.

EMPLOYMENT AND EARNINGS

County-level employment and income generated by the oil and gas industry in 2005 is detailed in Table 5. The greatest share of the state's oil and gas-related employment and income is concentrated in Oklahoma County (ranked first) and Tulsa County (ranked second). Oklahoma County currently has nearly double the employment and income from oil and gas relative to Tulsa County, reflecting both the diminished role of the energy industry in Tulsa and the expanding presence of independent energy companies headquartered in Oklahoma City. Washington, Kay, and Stephens counties rank third, fourth, and fifth, respectively. Oil and gas industry corporate headquarters and regional offices are heavily concentrated in Oklahoma County and Tulsa County. Corporate offices are located in the other three counties along with a refinery in Kay County. Administrative, professional, and technical staff is housed at the corporate facilities and refinery, which accounts for these five counties having a high share of the state's oil and gas industry employment and income.

This observation is illustrated further in Table 6 where the top five ranking counties in employment and income are compared to the top two in crude oil production (Carter and Stephens), and top three in natural gas production (Roger Mills, Latimer, and Beckham). From the cross comparisons, only Stephens County ranks in the top ten on all four factors of comparison (i.e., employment, income, crude oil production, and natural gas production), implying large numbers of professional and technical employees as well as production and drilling employees. The data for Tulsa County indicates mostly professional employees in the corporate sector. On the other hand, employment and income are attributed to production and drilling activities in Beckham, Carter, Latimer, and Roger Mills Counties. By employment, the

Table 5. Mining Industry Employment and Labor Income (2005)

County	Employment	Labor Income	Ranked by Employment: County	Rank	Employment	Labor Income	Ranked by Income: County	Rank	Employment	Labor Income
Adair	138	4,335,627	Oklahoma	1	13,726	2,220,732,232	Oklahoma	1	13,726	2,220,732,232
Alfalfa	48	1,482,052	Tulsa	2	8,333	1,255,897,319	Tulsa	2	8,333	1,255,897,319
Atoka	104	3,011,893	Washington	3	3,993	628,413,284	Washington	3	3,993	628,413,284
Beaver	313	12,326,439	Kay	4	2,561	365,976,204	Kay	4	2,561	365,976,204
Beckham	1,267	110,930,544	Stephens	5	2,532	262,340,824	Stephens	5	2,532	262,340,824
Blaine	322	11,075,098	Carter	6	1,731	99,527,802	Beckham	6	1,267	110,930,544
Bryan	59	775,609	Garfield	7	1,640	87,273,556	Latimer	7	1,244	105,584,583
Caddo	254	9,647,905	Cleveland	8	1,552	39,150,651	Carter	8	1,731	99,527,802
Canadian	1,313	55,647,604	Canadian	9	1,313	55,647,604	Garfield	9	1,640	87,273,556
Carter	1,731	99,527,802	Beckham	10	1,267	110,930,544	Osage	10	1,122	80,339,355
Cherokee	109	4,294,540	Latimer	11	1,244	105,584,583	Garvin	11	1,067	69,678,902
Choctaw	127	6,393,666	Osage	12	1,122	80,339,355	Payne	12	1,024	68,547,883
Cimarron	12	187,503	Woodward	13	1,094	67,637,145	Woodward	13	1,094	67,637,145
Cleveland	1,552	39,150,651	Garvin	14	1,067	69,678,902	Canadian	14	1,313	55,647,604
Coal	28	416,497	Kingfisher	15	1,056	53,831,681	Kingfisher	15	1,056	53,831,681
Comanche	233	9,117,430	Payne	16	1,024	68,547,883	Seminole	16	863	45,768,314
Cotton	47	1,529,507	Logan	17	1,008	18,790,461	Pottawatomie	17	785	40,459,374
Craig	153	9,279,340	Creek	18	980	34,796,876	Cleveland	18	1,552	39,150,651
Creek	980	34,796,876	Seminole	19	863	45,768,314	Creek	19	980	34,796,876
Custer	579	26,520,632	Pottawatomie	20	785	40,459,374	Pittsburg	20	585	33,647,346
Delaware	313	12,583,314	Grady	21	653	31,507,481	Grady	21	653	31,507,481
Dewey	151	4,740,653	Pittsburg	22	585	33,647,346	LeFlore	22	437	27,055,598
Ellis	37	1,090,921	Custer	23	579	26,520,632	Custer	23	579	26,520,632
Garfield	1,640	87,273,556	Hughes	24	575	13,451,904	Pontotoc	24	575	22,649,994
Garvin	1,067	69,678,902	Pontotoc	25	575	22,649,994	Rogers	25	443	22,594,460
Grady	653	31,507,481	Murray	26	445	20,532,342	McClain	26	349	21,596,719
Grant	165	7,656,128	Okmulgee	27	443	15,365,936	Murray	27	445	20,532,342
Greer	27	686,756	Rogers	28	443	22,594,460	McCurtain	28	377	19,939,725
Harmon	6	4,222	LeFlore	29	437	27,055,598	Logan	29	1,008	18,790,461
Harper	100	4,577,757	McCurtain	30	377	19,939,725	Pawnee	30	314	16,502,508
Haskell	224	10,075,509	McClain	31	349	21,596,719	Okmulgee	31	443	15,365,936
Hughes	575	13,451,904	Blaine	32	322	11,075,098	Johnston	32	206	15,256,722
Jackson	166	4,770,101	Pawnee	33	314	16,502,508	Texas	33	256	15,143,805
Jefferson	142	7,469,167	Beaver	34	313	12,326,439	Hughes	34	575	13,451,904
Johnston	206	15,256,722	Delaware	35	313	12,583,314	Delaware	35	313	12,583,314
Kay	2,561	365,976,204	Woods	36	306	7,237,780	Beaver	36	313	12,326,439
Kingfisher	1,056	53,831,681	Texas	37	256	15,143,805	Blaine	37	322	11,075,098
Kiowa	139	7,298,865	Caddo	38	254	9,647,905	Haskell	38	224	10,075,509
Latimer	1,244	105,584,583	Comanche	39	233	9,117,430	Caddo	39	254	9,647,905
LeFlore	437	27,055,598	Lincoln	40	225	7,167,426	Craig	40	153	9,279,340
Lincoln	225	7,167,426	Haskell	41	224	10,075,509	Comanche	41	233	9,117,430
Logan	1,008	18,790,461	Muskogee	42	222	4,394,499	Okfuskee	42	143	7,770,896
Love	61	1,634,516	Johnston	43	206	15,256,722	Grant	43	165	7,656,128
Major	116	7,596,905	Jackson	44	166	4,770,101	Major	44	116	7,596,905
Marshall	141	5,647,690	Grant	45	165	7,656,128	Mayes	45	162	7,503,275
Mayes	162	7,503,275	Mayes	46	162	7,503,275	Jefferson	46	142	7,469,167
McClain	349	21,596,719	Craig	47	153	9,279,340	Kiowa	47	139	7,298,865
McCurtain	377	19,939,725	Dewey	48	151	4,740,653	Woods	48	306	7,237,780
McIntosh	66	1,455,556	Nowata	49	146	2,039,906	Lincoln	49	225	7,167,426
Murray	445	20,532,342	Okfuskee	50	143	7,770,896	Choctaw	50	127	6,393,666
Muskogee	222	4,394,499	Jefferson	51	142	7,469,167	Ottawa	51	61	6,191,912
Noble	114	5,866,072	Marshall	52	141	5,647,690	Noble	52	114	5,866,072
Nowata	146	2,039,906	Kiowa	53	139	7,298,865	Marshall	53	141	5,647,690
Okfuskee	143	7,770,896	Adair	54	138	4,335,627	Jackson	54	166	4,770,101

Continued

Table 5. (Continued) Mining Industry Employment and Labor Income (2005)

			Ranked by Employment				Ranked by Income			
County	Employment	Labor Income	County	Rank	Employment	Labor Income	County	Rank	Employment	Labor Income
Oklahoma	13,726	2,220,732,232	**Choctaw**	**55**	127	6,393,666	**Dewey**	**55**	151	4,740,653
Okmulgee	443	15,365,936	**Major**	**56**	116	7,596,905	**Harper**	**56**	100	4,577,757
Osage	1,122	80,339,355	**Noble**	**57**	114	5,866,072	**Muskogee**	**57**	222	4,394,499
Ottawa	61	6,191,912	**Cherokee**	**58**	109	4,294,540	**Washita**	**58**	108	4,355,025
Pawnee	314	16,502,508	**Washita**	**59**	108	4,355,025	**Adair**	**59**	138	4,335,627
Payne	1,024	68,547,883	**Atoka**	**60**	104	3,011,893	**Cherokee**	**60**	109	4,294,540
Pittsburg	585	33,647,346	**Harper**	**61**	100	4,577,757	**Atoka**	**61**	104	3,011,893
Pontotoc	575	22,649,994	**Wagoner**	**62**	68	2,054,715	**Wagoner**	**62**	68	2,054,715
Pottawatomie	785	40,459,374	**McIntosh**	**63**	66	1,455,556	**Nowata**	**63**	146	2,039,906
Pushmataha	4	4,015	**Love**	**64**	61	1,634,516	**Tillman**	**64**	55	1,747,127
Roger Mills	18	698,735	**Ottawa**	**65**	61	6,191,912	**Love**	**65**	61	1,634,516
Rogers	443	22,594,460	**Bryan**	**66**	59	775,609	**Cotton**	**66**	47	1,529,507
Seminole	863	45,768,314	**Sequoyah**	**67**	59	844,099	**Alfalfa**	**67**	48	1,482,052
Sequoyah	59	844,099	**Tillman**	**68**	55	1,747,127	**McIntosh**	**68**	66	1,455,556
Stephens	2,532	262,340,824	**Alfalfa**	**69**	48	1,482,052	**Ellis**	**69**	37	1,090,921
Texas	256	15,143,805	**Cotton**	**70**	47	1,529,507	**Sequoyah**	**70**	59	844,099
Tillman	55	1,747,127	**Ellis**	**71**	37	1,090,921	**Bryan**	**71**	59	775,609
Tulsa	8,333	1,255,897,319	**Coal**	**72**	28	416,497	**Roger Mills**	**72**	18	698,735
Wagoner	68	2,054,715	**Greer**	**73**	27	686,756	**Greer**	**73**	27	686,756
Washington	3,993	628,413,284	**Roger Mills**	**74**	18	698,735	**Coal**	**74**	28	416,497
Washita	108	4,355,025	**Cimarron**	**75**	12	187,503	**Cimarron**	**75**	12	187,503
Woods	306	7,237,780	**Harmon**	**76**	6	4,222	**Harmon**	**76**	6	4,222
Woodward	1,094	67,637,145	**Pushmataha**	**77**	4	4,015	**Pushmataha**	**77**	4	4,015
Statewide	60,616	6,222,126,411								

Source: Bureau of Economic Analysis, Oklahoma State Econometric Model, IMPLAN Input-Output Model

remaining top ten counties are as follows: Carter (6th), Garfield (7th), Cleveland (8th), and Canadian (9th), and Beckham (10th).

Table 6. Comparison of Employment and Income to Production by Selected Counties (2005)

	Rank and Percent Share of State Total							
County	Employment		Labor Income		Crude Oil Production		Natural Gas Production	
Oklahoma County	1st	22.6%	1st	35.7%	10th	3.2%	29th	0.8%
Tulsa County	2nd	13.8%	2nd	20.2%	43rd	0.5%	59th	0.1%
Washington County	3rd	6.6%	3rd	10.1%	44th	0.4%	39th	0.3%
Kay County	4th	4.2%	4th	5.9%	21st	1.3%	57th	0.1%
Stephens County	5th	4.2%	5th	4.2%	2nd	9.9%	10th	3.8%
Carter County	6th	2.9%	8th	1.6%	1st	10.4%	27th	0.8%
Roger Mills County	74th	0.1%	72nd	0.1%	20th	1.3%	1st	9.2%
Latimer County	11th	2.1%	7th	1.7%	--	--	2nd	8.6%
Beckham County	10th	2.1%	6th	1.8%	32nd	0.8%	3rd	8.5%

Source: Oklahoma Corporation Commission, Bureau of Economic Analysis, Oklahoma State Econometric Model

Production, Employment, and Income by Corporation Commission District

The local economic impacts of oil and gas activities are evaluated for each of the four Oklahoma Corporation Commission Districts. The counties within each District's boundaries are identified in Map 4, and summary statistics by District are in Tables 7 through 10. As shown in Tables 7 and 8, oil and gas industry employment and income is predominantly found in Districts 1 and 2, while production occurs largely in Districts 2, 3, and 4.

District 1 encompasses the northeastern portion of the state and includes Tulsa and Washington Counties, which accounts for its large share of employment and income. District 1 is second in 2005 employment and income from oil and gas activities, third in crude oil production, and fourth in natural gas production. District 2 encompasses the northwestern portion of the state and is first in income and employment, second in crude oil production, and first in natural gas production. Oklahoma County, the top ranked county in oil and gas employment and wage and salary income, is in its boundaries. Texas County (5th in crude oil production, 7th in natural gas production) is also in District 2. Among the other top ten natural gas producing counties in District 2 are Roger Mills (1st) and Custer (8th).

District 3 covers the southwestern portion of the state and ranks third in 2005 employment and wage and salary income. However, it ranks first in crude oil and second in natural gas production. Carter County and Stephens County, first and second ranked, respectively, in crude

oil production are located in District 3. Among the other top ten crude oil producing counties in District 3 are Grady (4th), Garvin (6th), and Caddo (9th). Top ten ranking natural gas producing counties in District 3 are Beckham (3rd), Grady (4th), Caddo (6th), Washita (9th), and Stephens (10th). District 4 covers the southeastern portion of the state and is fourth in oil and gas employment and income, fourth in crude oil production, and third in natural gas production. Latimer County, the second largest producer of natural gas, is located in District 4.

Table 7. Employment and Income by OCC District (2005)

OCC District	Oil and Gas Employment	Labor Income
1	20,236	$2,430,940,152
2	28,505	2,776,917,109
3	7,733	709,086,108
4	4,142	305,183,042
Statewide	60,616	$6,222,126,411

Source: Oklahoma Corporation Commission (OCC), Bureau of Economic Analysis, Oklahoma State Econometric Model, IMPLAN Input-Output Model

Table 8. Oil and Gas Production by OCC District (2005)

OCC District	Crude Oil and Condensate (bbls)	Natural and Casinghead Gas (mcf)
1	12,417,338	55,064,810
2	16,625,451	712,954,706
3	25,367,928	493,272,083
4	6,528,655	344,362,877
Statewide	60,939,372	1,605,654,476

Source: Oklahoma Corporation Commission (OCC)

Table 9 summarizes well completions in 2005 within each Oklahoma Corporation Commission District while Table 10 provides historical data on total well completions by District. District 1 (northeast) is fourth in well completions both in 2005 and historically and shows a ratio of three natural gas wells completed for every crude oil well. District 2 (northwest) historically is the most active in total well completions but has the lowest success ratio in 2005

among the four districts. In District 2, 7 natural gas wells were completed for every crude oil well. District 3 (southwest) ranks second in well completions historically, but fell to third in the 2005 rankings. There is a relative balance among the number of crude oil and gas wells completed in 2005 in District 3.

District 4 (southeast) is second in well completions and shows more than 10 natural gas wells completed for every crude oil well in 2005. The 2005 success ratio in District 4 is highest at 93.5 percent.

Table 9. Well Completions by OCC District (2005)

OCC District	Completions				Total Footage	Avg. Depth (feet)	Success Ratio
	Oil	Gas	Dry	Total			
1	76	226	31	333	814,684	2,446	90.7%
2	106	731	133	970	8,627,704	8,895	86.3%
3	196	281	45	522	4,729,433	9,060	91.4%
4	41	475	36	552	3,338,329	6,048	93.5%
Total	419	1,713	245	2,377	17,510,150	7,366	89.7%

Source: Oklahoma Corporation Commission (OCC)

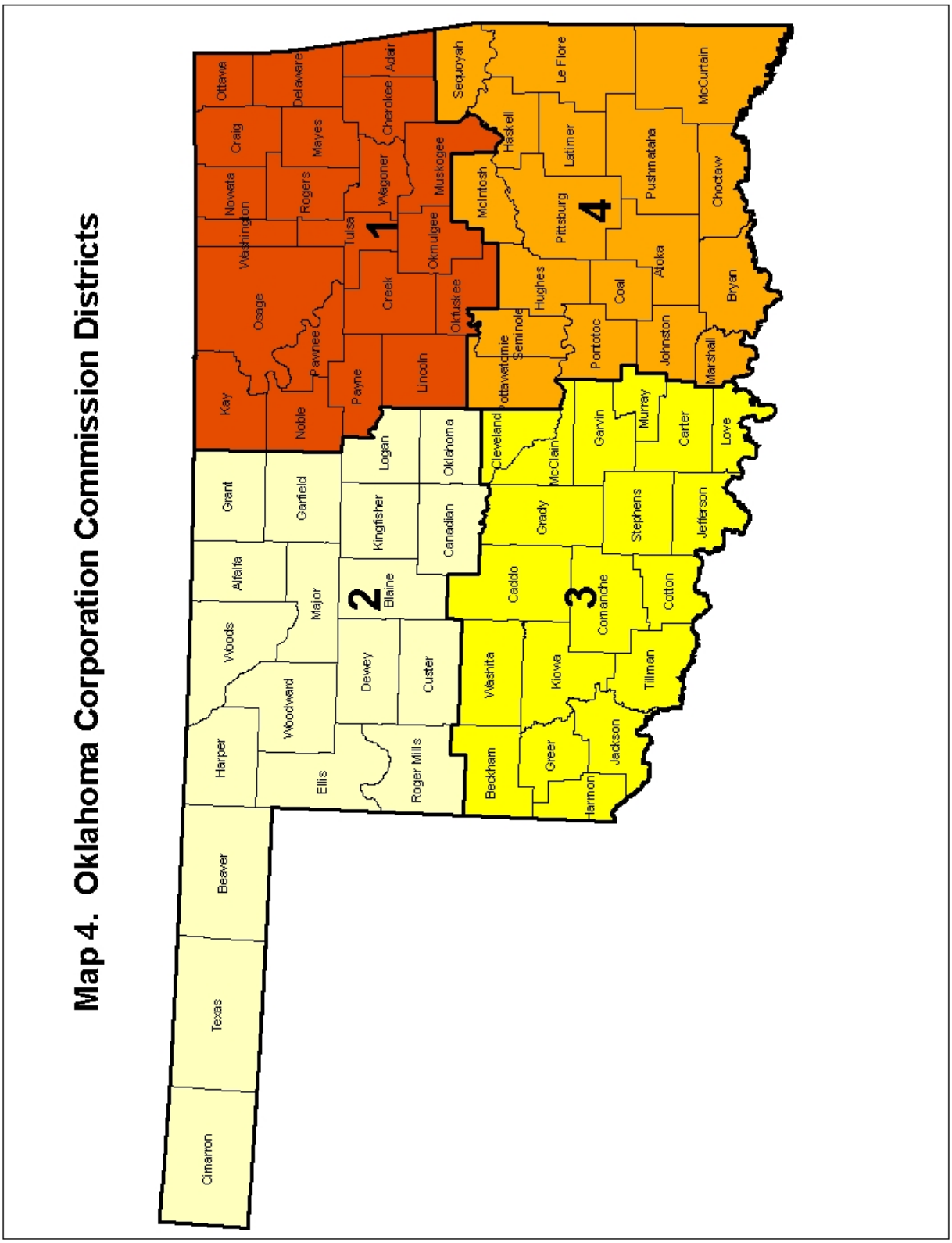
Table 10. Annual Well Completions by OCC District

OCC District	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1	174	194	240	314	268	349	390	297	325	258	333
2	527	544	673	758	692	943	1,238	1,076	939	908	970
3	495	491	494	470	341	520	722	541	421	508	522
4	231	230	221	277	300	455	629	427	558	484	552
Total	1,427	1,459	1,628	1,819	1,601	2,267	2,979	2,341	2,243	2,158	2,377

Source: Oklahoma Corporation Commission (OCC)

LOCAL ECONOMIC IMPACT

Input-output models were constructed for each of the four Oklahoma Corporation Commission districts in order to estimate the economic impact of the oil and gas industry within broad regions of the state.[10] The economic impact is measured in terms of employment and income rather than production level due to the disparity between location of production and


Map 4. Oklahoma Corporation Commission Districts
1
2
3
4
Cimarron
Texas
Beaver
Harper
Woods
Alfalfa
Grant
Kay
Noble
Garfield
Major
Ellis
Woodward
Dewey
Roger Mills
Custer
Blaine
Kingfisher
Logan
Canadian
Oklahoma
Payne
Lincoln
Pawnee
Osage
Washington
Nowata
Craig
Ottawa
Delaware
Rogers
Mayes
Tulsa
Creek
Okmulgee
Muskogee
Wagoner
Cherokee
Adair
Okfuskee
Pottawatomie
Seminole
Hughes
McIntosh
Haskell
Sequoyah
Le Flore
Latimer
Pittsburg
Pushmataha
McCurtain
Choctaw
Atoka
Coal
Johnston
Bryan
Marshall
Love
Carter
Murray
Garvin
McClain
Cleveland
Grady
Stephens
Jefferson
Caddo
Comanche
Cotton
Tillman
Jackson
Harmon
Greer
Kiowa
Washita
Beckham

employment; that is, oil and gas industry employees may not reside in the same county in which they work. The economic impacts are described by the following three measures from economic impact analysis:[11]

- direct effect – the employment and income generated directly within the Oklahoma oil and gas industry;
- indirect effect – the employment and income generated as a result of state oil and gas firms doing business with firms in other industries within the state;
- induced effect – the economic activity generated by new household spending resulting from compensation generated from the direct and indirect effects.

The three effects provide a convenient way to describe the multiplier, or ripple, effects that occur as the oil and gas industry engages in drilling and production (direct effect), then impacts those firms that support and supply the oil and gas sector (indirect effect), and then finally affects the broader regional economy as worker's incomes and spending patterns are affected (induced effect).

The estimated impact of the oil and gas industry on employment and labor income (i.e., employee compensation and self employment income) within each District is summarized in Table 11. The estimated direct, indirect, and induced effects are shown separately for both production and drilling activities. Production employment is made up of primarily administrative and clerical workers, while drilling employment is mainly field workers.

The direct economic impact in District 1 (northeast, including Tulsa) is measured as 19,721 production workers and 515 drilling workers earning $2.39 billion and $39.0 million, respectively. The indirect and induced effects support an estimated 54,567 jobs (i.e., 53,448 jobs from production activities and 1,119 from drilling) with a combined payroll of $2.43 billion (i.e., $2.56 billion production related and $35.7 million drilling). Direct production jobs combined with jobs created through the indirect and induced effects make up 9.5 percent of employment and 17.0 percent of income in District 1. Jobs related to drilling activities made up 0.2 percent of District 1 employment and 0.3 percent of income. District 1 showed the second largest total economic impact among the four Districts in terms of earnings generated from oil and gas production at $5.03 billion.

District 2, which covers the northwestern portion of the state, including Oklahoma County, showed the greatest impact in terms of jobs. Direct production jobs along with indirect and

induced employment comprise 12.6 percent of total employment and 24.9 percent of income within the district. Drilling activities as a percent of total district employment and income were 0.7 percent and 1.2 percent, respectively. The direct economic impact in District 2 is measured as 26,745 production workers earning $2.64 billion dollars and 1,760 drilling workers earning $141.5 million. The indirect and induced effects support an additional 59,709 jobs (i.e., 56,814 from production activities and 2,895 from drilling) statewide with a combined payroll of $4.15 billion ($3.95 billion production related and $193.8 million drilling).

Table 11. Regional Economic Impact of Oil and Gas Production and Drilling (2005)

Total (Production + Drilling)

Employment						Labor Income ($million)					
OCC District	Direct	Indirect	Induced	Total Impact	% of District Earnings	OCC District	Direct	Indirect	Induced	Total Impact	% of District Earnings
1	20,236	19,563	35,003	74,803	9.7%	1	2,430.9	1,308.3	1,288.5	5,027.8	17.2%
2	28,505	27,415	32,294	88,214	12.6%	2	2,776.9	2,343.4	1,803.3	6,923.6	24.9%
3	7,733	6,423	5,887	20,044	5.9%	3	709.1	408.0	253.0	1,370.0	13.8%
4	4,142	3,264	2,634	10,039	4.7%	4	305.2	177.0	111.1	593.3	11.2%
Total	**60,616**	**56,666**	**75,818**	**193,100**	**9.5%**	**Total**	**$6,222.1**	**$4,236.7**	**$3,455.9**	**$13,914.7**	**19.3%**

Production

Employment						Labor Income ($million)					
OCC District	Direct	Indirect	Induced	Total Impact	% of District Earnings	OCC District	Direct	Indirect	Induced	Total Impact	% of District Earnings
1	19,721	19,139	34,309	73,169	9.5%	1	2,391.9	1,291.8	1,269.4	4,953.0	17.0%
2	26,745	26,043	30,771	83,559	11.9%	2	2,635.4	2,237.0	1,716.0	6,588.4	23.7%
3	6,226	5,393	4,724	16,343	4.8%	3	579.5	368.7	214.7	1,162.9	11.7%
4	3,450	2,858	2,296	8,604	4.0%	4	257.9	158.3	95.9	512.1	9.7%
Total	**56,142**	**53,433**	**72,099**	**181,675**	**9.0%**	**Total**	**$5,864.7**	**$4,055.7**	**$3,295.9**	**$13,216.4**	**18.3%**

Drilling

Employment						Labor Income ($million)					
OCC District	Direct	Indirect	Induced	Total Impact	% of District Earnings	OCC District	Direct	Indirect	Induced	Total Impact	% of District Earnings
1	515	424	695	1,634	0.2%	1	39.0	16.5	19.2	74.7	0.3%
2	1,760	1,372	1,523	4,655	0.7%	2	141.5	106.4	87.3	335.3	1.2%
3	1,507	1,031	1,163	3,701	1.1%	3	129.6	39.3	38.3	207.2	2.1%
4	692	405	338	1,435	0.7%	4	47.2	18.7	15.2	81.2	1.5%
Total	**4,474**	**3,232**	**3,719**	**11,425**	**0.6%**	**Total**	**$357.4**	**$181.0**	**$159.9**	**$698.4**	**1.0%**

Source: Bureau of Economic Analysis, IMPLAN Input-Output Model, Oklahoma State Econometric Model, Oklahoma Corporation Commission (OCC)

District 3 ranks third in overall impact from oil and gas activity with 20,044 direct, indirect, and induced jobs generating annual labor income of $1.16 billion from production and $207.2 million from drilling. District 3 is in the southwestern portion of the state and includes the top oil producing Carter County and Stephens County. Oil and gas production activities make up 4.8 percent of overall employment and 11.7 percent of income. Drilling activities contributed 1.1 percent of overall employment and 3.1 percent of income.

Production and drilling activities had the smallest economic impact in District 4, the southeastern portion of the state. The direct, indirect, and induced effects account for 10,039 total jobs with annual pay of $593.3 million. Production related employment contributes 4.0 percent of the District's overall jobs and drilling at 0.7 percent.

Across all districts, production related activities have a much larger impact than drilling. Production jobs contribute through multiplier effects approximately 9.0 percent of all jobs across the regions and 18.3 percent of income, while drilling jobs contribute 0.6 percent of jobs and 1.0 percent of labor income. The state's oil and gas firms directly hire an estimated 60,616 workers (56,142 in production and 4,474 in drilling) earning $6.22 billion in labor income ($5.86 billion in production and $357 million in drilling). These jobs support an estimated 132,484 additional jobs paying labor income of $7.69 billion. Across the four regions, production and drilling activities support an estimated 193,100 jobs and $13.9 billion in labor income statewide.

SUMMARY OF THE LOCAL ECONOMIC IMPACT

Oklahoma oil and gas production occurs statewide, but production remains concentrated in a small number of counties. For crude oil, 78.4 percent of production occurs in 20 counties with the highest county among the group producing over 6 million barrels and the lowest at around 800,000 barrels in 2005. Six counties account for 43.4 percent of total state production. Two counties (Carter and Stephens) in the southwestern portion of the state produce 20.3 percent of total state crude oil.

For natural gas, three counties produce 26.4 percent of the state total; one county is in the northwest (Roger Mills), one in the southwest (Beckham), and the other in the southeast (Latimer). Natural gas production overall is concentrated in the western half of the state and a few counties in the southeast. Twelve counties in total produce 64.0 percent of the state's total

natural gas, with the highest producing over 148.5 billion cubic feet and the lowest at 46.2 billion cubic feet.

Most Oklahoma counties experienced a steady decline in total oil and gas production over the decade 1995 to 2005. More counties showed an increase in natural gas production than in crude oil production. The statewide decline in crude oil production on a relative basis was more than twice the decline for natural gas. Drilling activity across Oklahoma also reflects the increased emphasis on natural gas production. Gas wells represented more than two-thirds of total well completions in 2005, outnumbering oil well completions by 4 to 1 statewide. Drilling activity was highest in District 2 (northwest), with natural gas wells outnumbering crude oil wells by 7 to 1.

Despite production occurring across most areas of the state, both employment and income are highly concentrated in Oklahoma and Tulsa Counties. Together, they accounted for 36 percent of state oil and gas industry employment and 56 percent of labor income in 2005. In these counties, oil and gas employment and income is heavily weighted by professional and technical workers employed within the headquarters and regional offices of oil and gas firms rather than production and technical workers in the field.

The economic impact of oil and gas drilling and production differs greatly among the four Oklahoma Corporation Commission Districts. District 1 and District 2 showed a larger economic impact than Districts 3 and 4. District 1 encompasses the northeast quadrant of the state, which includes Tulsa County, and has the smallest combined production of crude oil and natural gas. However, it showed the second largest economic impact from employment (74,803 jobs) and earnings ($5.03 billion) among the four Districts. District 2 covers the northwest quadrant of the state, including Oklahoma County, and has the largest employment impact (88,214 jobs) and the largest total income impact ($6.9 billion). The greatest amount of drilling activity is in District 2, along with the second largest crude oil production level and largest natural gas production level.

District 3, the southwest quadrant of the state, is the largest crude oil producer and second largest natural gas producer. The economic impacts, measured through employment and income related to oil and gas production, trail behind Districts 1 and 2. However oil and gas production and drilling in the District supports 20,044 jobs paying $1.4 billion in 2005. District 4 encompasses the southeast quadrant of the state and showed the lowest crude oil production and

the third highest natural gas production. The smallest total employment (10,039 jobs) and income ($593.3 million) impacts are shown in this District.

Through direct, indirect, and induced impacts, production and drilling activities support an estimated 193,100 jobs and $13.9 billion in labor income statewide, or 9.5 percent of total employment and 19.3 percent of state labor income. Production jobs contribute approximately 9.0 percent of all jobs statewide and 18.3 percent of labor income through multiplier effects, while drilling jobs contribute 0.6 percent of jobs and 1.0 percent of income.

Footnotes

[1] For an analysis of the economic impact of the oil and gas industry at the local level, see "The Local Impact of Oil and Gas Production and Drilling In Oklahoma." Dolores A. Willett and Mark C. Snead. December 2006. Center for Applied Economic Research. Oklahoma State University.

[2] Bureau of Economic Analysis (BEA) estimates of earnings for both wage and salary and self employed workers in the Mining sector in Oklahoma increased substantially in 2004 and 2005. The largest gains are for self-employed workers and raise the average earnings of these workers to more than $126,000 in 2005. The increase may be due in part to distributions to oil and gas partnerships. The estimates are subject to future revisions which may push average earnings below the estimates reported here. For a description of BEA's method for estimating proprietor income, see: http://www.bea.gov/bea/regional/definitions/nextpage.cfm?key=Nonfarm%20proprietors'%20income.

[3] Snead, Mark C. "The Economics of Deep Drilling in Oklahoma." Center for Applied Economic Research, Spears School of Business, Oklahoma State University, February 2005.

[4] Caution must be exercised when using input-output multipliers to estimate the total economic activity "supported" by an existing industry or firm. Input-output multipliers are intended to predict the change in region-wide economic activity that results from an incremental change in a given industry within a regional economy.

[5] The Oklahoma State Econometric Model is developed and maintained by the Center for Applied Economic Research in the Spears School of Business at Oklahoma State University. The Model is in its 26th year of development and provides information on the probable performance of the Oklahoma economy in the upcoming year.

[6] Global Insight, Inc., Waltham, MA provides forecasts of national and international economic conditions that serve as inputs into the Oklahoma State Econometric Model.

[7] For an analysis of the economic impact of the oil and gas industry at the state level, see "The Economic Impact of Oil and Gas Production and Drilling on the Oklahoma Economy." Mark C. Snead and Dolores Willett. December 2006. Center for Applied Economic Research. Oklahoma State University.

[8] Throughout the report, the production of both crude oil and condensate will be referred to simply as crude oil; the production of both natural and casinghead gas will be referred to simply as natural gas. Condensate refers to the hydrocarbon liquid recovered from natural gas wells, while casinghead gas is the natural gas extracted along with crude oil from oil wells.

[9] Preliminary 2005 data developed by the U.S. Department of Energy (DOE) shows Oklahoma ranking 2nd in natural gas production among the states with onshore production. However, Oklahoma Tax Commission production data shows 2005 state gas production 4.35% lower (1.6057 TCF) than the reported DOE figure (1.6787 TCF).

[10] The reported economic impacts are generated from four county-level IMPLAN input-output models that are aggregated to correspond to the four Oklahoma Corporation Commission Districts shown in Map 4. Because the state is divided into four regions, the sum of the estimated impacts across the four regions will be less than the total multiplier impacts expected for a state model comprising all four regions. For details, refer to IMPLAN Professional: User's guide, analysis guide, data guide. Minnesota IMPLAN Group, 1998. Stillwater, MN.

[11] Caution must be exercised when using input-output multipliers to estimate the total economic activity "supported" by an existing industry or firm. Input-output multipliers are intended to predict the change in region-wide economic activity that results from an incremental change in a given industry within a regional economy.