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Projecting the Economic Impact of the Fayetteville Shale Play for 2005-2008

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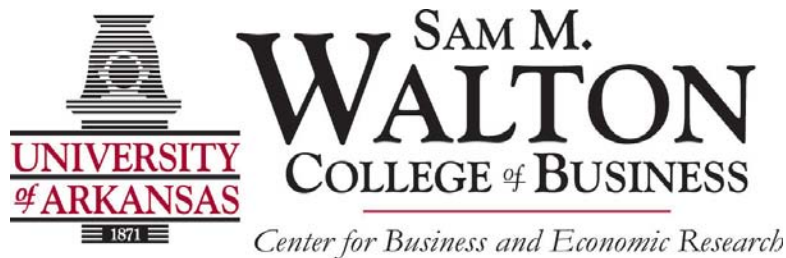
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Projecting the Economic Impact of the Fayetteville Shale Play for 2005-2008

*Sponsored by SEECO, Inc.
(a wholly-owned subsidiary of Southwestern Energy Company)*



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Executive Summary

This study projects the general economic impact from exploration and development activities related to the Fayetteville Shale. The Fayetteville Shale is an unconventional gas reservoir located on the Arkansas side of the Arkoma Basin, ranging in thickness from 50 to 325 feet and ranging in depth from 1,500 to 6,500 feet. The Fayetteville Shale is aerially extensive and may be present across numerous counties in central and eastern Arkansas, including the counties of Cleburne, Conway, Faulkner, Independence, Johnson, St. Francis, Prairie, Van Buren, White, and Woodruff.

While shale gas has been explored for and tested as a gas resource since the 1980s, it has only been in recent years that it has become an economic source of gas supply due to the advent of better oilfield service and drilling technologies and higher natural gas commodity prices. In August of 2004, Southwestern Energy Company announced that its wholly-owned subsidiary, SEECO, Inc., had successfully drilled test wells targeting the Fayetteville Shale and had commercially produced gas from the shale. Since that time, SEECO has pioneered much of the research and development of the play. Recently, the play area has experienced the entrance of many companies in the oil and gas industry that have committed or are expected to commit substantial resources to the play. In general, investments related to the development of the Fayetteville Shale Play will include, but not be limited to, capital invested in leasing land and mineral rights, drilling, completion and production activities, as well as the potential for the installation of major gas gathering and transportation systems. As such, the residents, businesses, and governments of the Fayetteville Shale Play counties and the State of Arkansas as a whole are and will be experiencing an unprecedented natural gas mineral leasing and drilling boon and the economic impact of a new set of industries in the area.

Using publicly available data and projections as well as certain survey data from operators in the oil and gas industry, researchers at the Center for Business and Economic Research (CBER) in the Sam M. Walton College of Business at the University of Arkansas estimated county-by-county economic impacts using the IMPLAN input-output model. The model results show the multiplier effects that are associated with the economic activity from the leasing of land and mineral rights, drilling, and other activities related to the involvement of energy and energy services and supply companies in the Fayetteville Shale Play.

SEECO, the first company to successfully drill test wells, has been at the forefront of the companies that have been making substantial investments in developing the Fayetteville Shale Play. Preliminary estimates, calculated by CBER researchers, of the economic impact of Fayetteville Shale Play investments made by SEECO on the six Arkansas counties from 2003 through 2005 showed economic multipliers of around 1.2. During that period, SEECO direct expenditures of over \$158 million in leasing land and mineral rights and drilling activities were responsible for total economic activity of over \$190 million in Cleburne, Conway, Faulkner, Johnson, Van Buren, and White counties.

From 2005 to 2008, it is estimated that operators will make direct expenditures of about \$3.8 billion in leasing land and mineral rights, drilling, and other activities and that these expenditures will be responsible for total economic activity of about \$5.5 billion in the state of Arkansas. Associated with the \$5.5 billion of economic output will be the creation of approximately 9,683 jobs in the aggregate by year 2008 and about \$357.7 million of state and local tax revenues. Based upon U.S. Department of Labor statistics, average wage and salary earnings in the oil and gas industry are generally higher than the average of all industries. The table below shows the projected total economic impacts of investments in the Fayetteville Shale Play from 2005 to 2008.

Projected Economic Impact of the Fayetteville Shale Play in the State of Arkansas

	2005	2006	2007	2008	Total 2005 - 2008
Output Impact	\$520.7 million	\$1.1 billion	\$1.6 billion	\$2.3 billion	\$5.52 billion
Employment Impact	2,160	4,394	6,661	9,683	9,683 FTE*
State and Local Tax Impact	\$28.1 million	\$69.5 million	\$105.9 million	\$154.1 million	\$357.7 million

*Total employment by 2008, full-time equivalent jobs

These impacts are substantial and represent a significant boon to the economies of individual counties and the state of Arkansas. From 2005 to 2008, the economic activity associated with the Fayetteville Shale Play is expected to more than quadruple. Furthermore, if initial investments of energy companies are successful and market conditions remain favorable, it is anticipated that there will be active Fayetteville Shale drilling programs in Arkansas for at least the next 10-15 years, sustaining an increased pace of economic activity in the state.

The results of the economic investigations of each county are summarized below.

Cleburne County

- The population of Cleburne County, Arkansas was 25,391 in 2005.
- In 2025, the population of Cleburne County is expected to increase to 33,462.
- Per capita income for Cleburne County was \$23,149 in 2003. This was 73.5 percent of the U.S. average.
- In 2004, the unemployment rate was 5.1 percent in Cleburne County.
- The major industries in Cleburne County are manufacturing (31 percent), retail trade (17 percent), and accommodations and food services (9 percent).
- Leasing land and mineral rights, drilling, and other activities of energy companies will be responsible for total economic activity of \$355.9 million in Cleburne County from 2005 to 2008.
- By 2008, 5.2 percent of Cleburne County employment or 600.9 jobs will be attributable to Fayetteville Shale Play activities.
- A total of \$24.3 million in local and state tax revenues will result from energy companies' investments from 2005 to 2008.

Conway County

- The population of Conway County, Arkansas was 20,739 in 2005.
- In 2025, the population of Conway County is expected to increase to 22,967.
- Per capita income for Conway County was \$22,749 in 2003. This was 72 percent of the U.S. average.
- In 2004, the unemployment rate was 5.7 percent.
- The major industries in Conway County are in the manufacturing (19 percent), retail trade (16 percent), and construction (9 percent) sectors.
- Leasing land and mineral rights, drilling, and other activities of energy companies will be responsible for total economic activity of \$1.4 billion in Conway County from 2005 to 2008.
- By 2008, 25.2 percent of Conway County employment or 2,464 jobs will be attributable to Fayetteville Shale Play activities.
- A total of \$93 million in local and state tax revenues will result from energy companies' investments from 2005 to 2008.

Faulkner County

- The population of Faulkner County, Arkansas was 97,147 in 2005.
- In 2025, the population of Faulkner County is expected to increase to 133,170.
- Per capita income for Faulkner County was \$24,370 in 2003. This was 77 percent of the U.S. average.
- In 2004, the unemployment rate was 4.9 percent.
- The major industries in Faulkner County are in the manufacturing (19 percent), retail trade (14 percent), and accommodation and food services (10 percent) sectors.
- Leasing land and mineral rights, drilling, and other activities of energy companies will be responsible for total economic activity of \$308.6 million in Faulkner County from 2005 to 2008.
- By 2008, 0.9 percent of Faulkner County employment or 484 jobs will be attributable to Fayetteville Shale Play activities.
- A total of \$21.5 million in local and state tax revenues will result from energy companies' investments from 2005 to 2008.

Independence County

- The population of Independence County, Arkansas was 34,737 in 2005.
- In 2025, the population of Independence County is expected to be 41,684.
- Per capita income for Independence County was \$22,212 in 2003. This was 70.5 percent of the U.S. average.
- In 2004, the unemployment rate was 6.4 percent.
- The major industries in Independence County are in the manufacturing (35 percent), retail trade (12 percent), and transportation and warehousing (4 percent) sectors.

- Leasing land and mineral rights, drilling, and other activities of energy companies will be responsible for total economic activity of \$103.2 million in Independence County from 2005 to 2008.
- By 2008, 1.1 percent of Independence County employment or 187.1 jobs will be attributable to Fayetteville Shale Play activities.
- A total of \$6.6 million in local and state tax revenues will result from energy companies' investments from 2005 to 2008.

Johnson County

- The population of Johnson County, Arkansas was 24,042 in 2005.
- In 2025, the population of Johnson County is expected to increase to 29,687.
- Per capita income for Johnson County was \$19,057 in 2003. This was 60.5 percent of the U.S. average.
- In 2004, the unemployment rate was 5.3 percent.
- The major industries in Johnson County are in the manufacturing (41 percent), retail trade (14 percent), and accommodation and food services (6 percent) sectors.
- Leasing land and mineral rights, drilling, and other activities of energy companies will be responsible for total economic activity of \$25.4 million in Johnson County from 2005 to 2008.
- By 2008, 0.4 percent of Johnson County employment or 42.9 jobs will be attributable to Fayetteville Shale Play activities.
- A total of \$1.7 million in local and state tax revenues will result from energy companies' investments from 2005 to 2008.

Prairie County

- The population of Prairie County, Arkansas was 9,113 in 2005.
- In 2025, the population of Prairie County is expected to decline to 8,531, despite the economic stimulus provided by the Fayetteville Shale Play.
- Per capita income for Prairie County was \$21,205 in 2003. This was 67 percent of the U.S. average.
- In 2004, the unemployment rate was 5.3 percent.
- The major industries in Prairie County are in the retail trade (18 percent), manufacturing (14 percent), and transportation and warehousing (10 percent) sectors.
- Leasing land and mineral rights, drilling, and other activities of energy companies will be responsible for total economic activity of \$37.2 million in Prairie County from 2005 to 2008.
- By 2008, 1.5 percent of Prairie County employment or 67.4 jobs will be attributable to Fayetteville Shale Play activities.
- A total of \$2.2 million in local and state tax revenues will result from energy companies' investments from 2005 to 2008.

St. Francis County

- The population of St. Francis County, Arkansas was 27,902 in 2005.
- In 2025, the population of St. Francis County is expected to decline to 26,134 despite the economic stimulus provided by the Fayetteville Shale Play.
- Per capita income for St. Francis County was \$18,546 in 2003. This was 59 percent of the U.S. average.
- In 2004, the unemployment rate was 9.4 percent.
- The major industries in St. Francis County are in the manufacturing (52 percent), retail trade (12 percent), and wholesale trade (4 percent) sectors.
- Leasing land and mineral rights, drilling, and other activities of energy companies will be responsible for total economic activity of \$100 million in St. Francis County from 2005 to 2008.
- By 2008, 1.7 percent of St. Francis County employment or 181.3 jobs will be attributable to Fayetteville Shale Play activities.
- A total of \$6.2 million in local and state tax revenues will result from energy companies' investments from 2005 to 2008.

Van Buren County

- The population of Van Buren County, Arkansas was 16,529 in 2005.
- In 2025, the population of Van Buren County is expected to increase to 21,289.
- Per capita income for Van Buren County was \$18,714 in 2003. This was 59 percent of the U.S. average.
- In 2004, the unemployment rate was 6.8 percent.
- The major industries in Van Buren County are in the retail trade (20 percent), manufacturing (19 percent), and accommodation and food services (10 percent) sectors.
- Leasing land and mineral rights, drilling, and other activities of energy companies will be responsible for total economic activity of \$719.1 million in Van Buren County from 2005 to 2008.
- By 2008, 17.4 percent of Van Buren County employment or 1,213.3 jobs will be attributable to Fayetteville Shale Play activities.
- A total of \$45.5 million in local and state tax revenues will result from energy companies' investments from 2005 to 2008.

White County

- The population of White County, Arkansas was 71,332 in 2005.
- In 2025, the population of White County is expected to increase to 91,640.
- Per capita income for White County was \$21,128 in 2003. This was 67 percent of the U.S. average.
- In 2004, the unemployment rate was 6.3 percent.
- The major industries in White County are in the manufacturing (21 percent), retail trade (16 percent), and transportation and warehousing (11 percent) sectors.

- Leasing land and mineral rights, drilling, and other activities of energy companies will be responsible for total economic activity of \$892.2 million in White County from 2005 to 2008.
- By 2008, 4.8 percent of White County employment or 1,597.8 jobs will be attributable to Fayetteville Shale Play activities.
- A total of \$55.6 million in local and state tax revenues will result from energy companies' investments from 2005 to 2008.

Woodruff County

- The population of Woodruff County, Arkansas was 8,098 in 2005.
- In 2025, the population of Woodruff County is expected to decline to 5,862 despite the economic stimulus provided by the Fayetteville Shale Play.
- Per capita income for Woodruff County was \$21,064 in 2003. This was 67 percent of the U.S. average.
- In 2004, the unemployment rate was 10.2 percent.
- The major industries in Woodruff County are in the manufacturing (24 percent), retail trade (14 percent), and wholesale trade (11 percent) sectors.
- Leasing land and mineral rights, drilling, and other activities of energy companies will be responsible for total economic activity of \$570.4 million in Woodruff County from 2005 to 2008.
- By 2008, 31.7 percent of Woodruff County employment or 1,029.5 jobs will be attributable to Fayetteville Shale Play activities.
- A total of \$28.4 million in local and state tax revenues will result from energy companies' investments from 2005 to 2008.

Table of Contents

Executive Summary	ii
Cleburne County	iii
Conway County	iv
Faulkner County.....	iv
Independence County.....	iv
Johnson County.....	v
Prairie County	v
St. Francis County.....	vi
Van Buren County	vi
White County	vi
Woodruff County	vii
Table of Contents	viii
List of Figures	viii
List of Tables	ix
Introduction.....	1
County Economic Profiles	4
Population	4
Employment.....	5
Per Capita Personal Income	8
County Business Patterns.....	9
Fayetteville Shale Play Economic Impacts.....	14
Total Impacts in Perspective.....	18
Conclusion	19
Appendix: List of Sources	20

List of Figures

Figure 1: Arkansas Counties Involved in the Fayetteville Shale Play.....	3
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List of Tables

Table 1: Population and Population Change by County	4
Table 2: Population Projections by County	5
Table 3: Employment by County 1990-2004.....	5
Table 4: Cleburne County Labor Force Information	6
Table 5: Conway County Labor Force Information	6
Table 6: Faulkner County Labor Force Information.....	6
Table 7: Independence County Labor Force Information.....	6
Table 8: Johnson County Labor Force Information.....	7
Table 9: Prairie County Labor Force Information	7
Table 10: St. Francis County Labor Force Information.....	7
Table 11: Van Buren County Labor Force Information	7
Table 12: White County Labor Force Information	8
Table 13: Woodruff County Labor Force Information	8
Table 14: Per Capita Personal Income by County	9
Table 15: Cleburne County Business Patterns (2003)	9
Table 16: Conway County Business Patterns (2003)	10
Table 17: Faulkner County Business Patterns (2003).....	10
Table 18: Independence County Business Patterns (2003).....	11
Table 19: Johnson County Business Patterns (2003).....	11
Table 20: Prairie County Business Patterns (2003)	12
Table 21: St. Francis County Business Patterns (2003).....	12
Table 22: Van Buren County Business Patterns (2003)	13
Table 23: White County Business Patterns (2003)	13
Table 24: Woodruff County Business Patterns (2003).....	14
Table 25: Fayetteville Shale Play Economic Output Impacts	16
Table 26: Fayetteville Shale Play Economic Output Multipliers	16
Table 27: Fayetteville Shale Play Employment Impacts	17
Table 28: Fayetteville Shale Play State and Local Tax Impacts.....	17
Table 29: Total Projected Economic Impacts of the Fayetteville Shale Play (2005-2008).....	18
Table 30: Percentage of Total Employment from Projected Fayetteville Shale Play Activity	18

Introduction

Because the management of Southwestern Energy Company (and its wholly-owned subsidiary, SEECO, Inc.) realize the enormous amount of potential investment and economic activity that will be associated with the Fayetteville Shale, they commissioned the staff at the Center for Business and Economic Research (CBER) in the Sam M. Walton College of Business at the University of Arkansas to produce this report projecting the general economic impact from exploration and development activities related to the Fayetteville Shale. The Fayetteville Shale is an unconventional gas reservoir located on the Arkansas side of the Arkoma Basin, ranging in thickness from 50 to 325 feet and ranging in depth from 1,500 to 6,500 feet. The shale is a Mississippian-age shale that is the geologic equivalent of the Caney Shale found on the Oklahoma side of the Arkoma Basin and the Barnett Shale found in north Texas. The Fayetteville Shale is aerially extensive and may be present across numerous counties in central and eastern Arkansas, including the counties of Cleburne, Conway, Faulkner, Independence, Johnson, St. Francis, Prairie, Van Buren, White, and Woodruff.

While shale gas has been explored for and tested as a gas resource since the 1980s, it has only been in recent years that it has become an economic source of gas supply due to the advent of better oilfield service and drilling technologies and higher natural gas commodity prices. Shale is a tight, fine-grained rock and requires hydraulic fracture stimulation to produce gas in economic quantities. In August of 2004, Southwestern Energy Company announced that SEECO had successfully drilled test wells targeting the Fayetteville Shale and had commercially produced gas from the shale. Since that time, SEECO has pioneered much of the research and development of the play. Recently, the play area has experienced the entrance of many companies in the oil and gas industry which have committed or are expecting to commit substantial resources to the play, if successful. In general, investments from the development of the Fayetteville Shale Play will include, but not be limited to, capital invested into leasing land and mineral rights, drilling, completion and production activities, as well as the potential for the installation of major gas gathering and transportation systems. As such, the residents, businesses, and governments of the Fayetteville Shale Play counties are and will be experiencing an unprecedented natural gas mineral leasing and drilling boon and the economic impact of a new set of industries in the area.

SEECO began making substantial investments in the Fayetteville Shale Play in 2003 by leasing land and mineral rights in central Arkansas counties. In 2004, SEECO began expending considerable sums on drilling activities to begin the process of extracting the gas from the shale. Through May 1, 2006, SEECO has spud a total of 148 wells in 18 separate pilot areas in 7 separate counties. SEECO currently estimates that the wells it has drilled through this time have demonstrated that the Fayetteville Shale is gas productive over an area in the State of Arkansas that is approximately 100 miles from west-to-east by 20 miles north-to-south. Additionally, SEECO has recently announced that it has established production from two other gas-bearing shales which lie geologically beneath the Fayetteville, called the Moorefield and Chattanooga Shales, the

impact of which are not included in this study but also have the potential to make a significant contribution to natural gas exploration and development activity in the state.

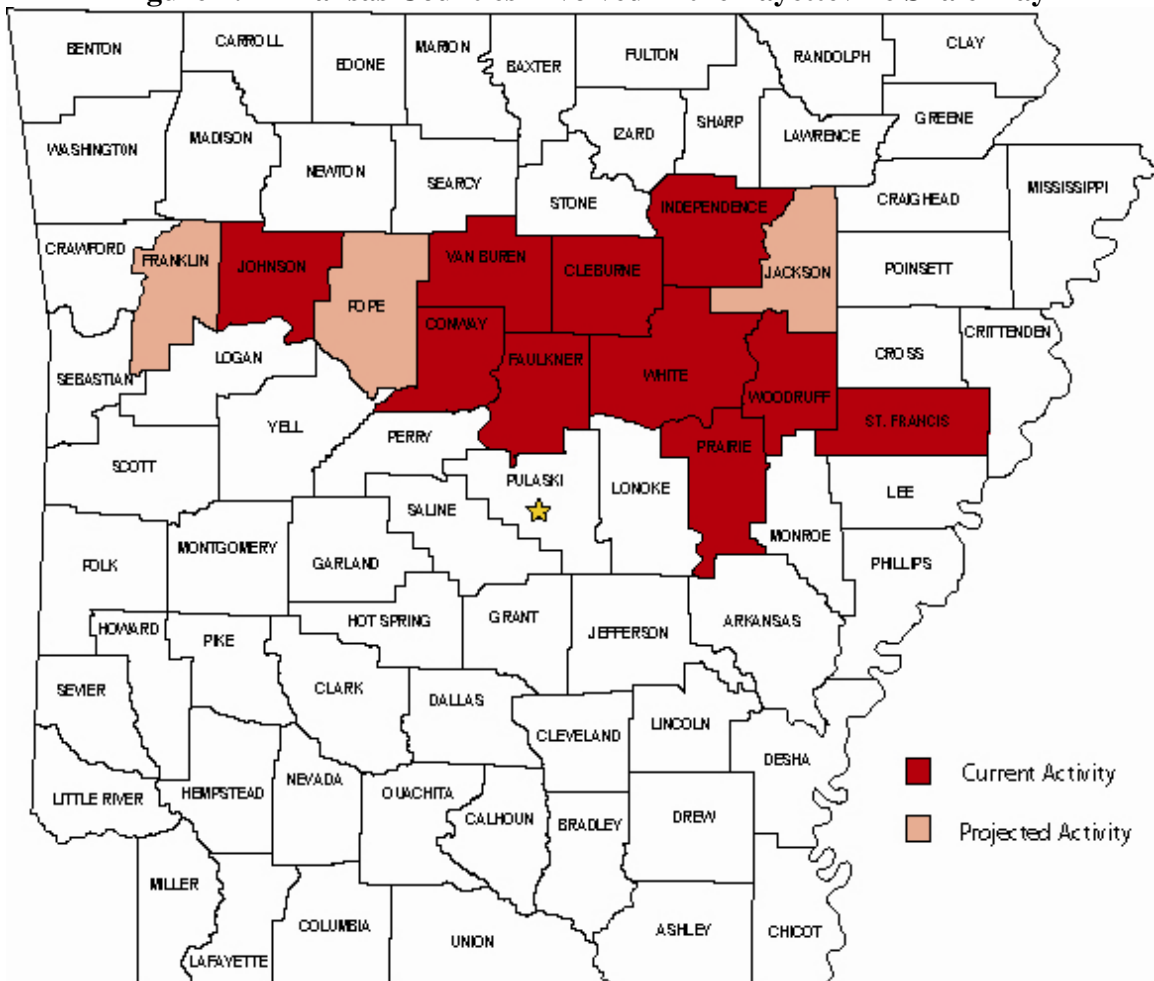
The results contained herein measure and forecast the economic impact of the capital investments of SEECO and the other operators and energy services and supply companies on six Arkansas counties for the time period of 2003 through 2005. Preliminary estimates, calculated by researchers at the Center for Business and Economic Research (CBER) in the Sam M. Walton College of Business at the University of Arkansas, about the economic impact of these investments showed economic multipliers of around 1.2. During that period, SEECO direct expenditures of over \$158 million in leasing land and mineral rights and drilling activities were responsible for total economic activity of over \$190 million in Cleburne, Conway, Faulkner, Johnson, Van Buren, and White counties.

Following the lead of SEECO, a number of other companies have started to invest in the potential of the Fayetteville Shale Play as well. These include energy companies such as Chesapeake, XTO Energy, Maverick Oil and Gas, Touchstone Energy, Shell, Contango, Onetec, Stephens Production, Storm Cat Energy, CDX Gas, Edge Petroleum, Aspect, Antero Resources, Hallwood, Dan Hughes, and Noble Energy as well as leading energy service companies such as Schlumberger, Ltd., which opened a multi-million dollar facility in Conway, Arkansas, specifically to service wells drilled by oil and natural gas operators targeting the development of the Fayetteville Shale Play.

Until Southwestern Energy Company's announcement that it had successfully tested and produced natural gas from the Fayetteville Shale in August of 2004, no oil and natural gas related industries have been a significant part of the local economies in many of the counties in the region. Within the counties that contain the Fayetteville Shale Play, existing employment is heavily concentrated in the manufacturing and retail trade sectors. Diversifying the industrial employment base of a community is a goal that all economic developers profess. As energy companies lease land and mineral rights and engage in drilling and production activities, the direct employment and output will generate additional employment and output (indirect and induced effects) using an economic multiplier. The activity will impact employment, labor and property income, and state and local tax revenues.

This report estimates the total output, employment, and state and local tax impacts of the leasing of land and mineral rights, drilling, and other activities of energy and energy related companies in the state of Arkansas and each of the Fayetteville Shale Play counties from 2005 through 2008 based on currently available data and projections. Specifically, CBER researchers examined the ten counties in which energy and service companies have made investments and plan future investment: Cleburne, Conway, Faulkner, Independence, Johnson, Prairie, St. Francis, Van Buren, White, and Woodruff County. Finally, spillover economic effects into the rest of the state of Arkansas are calculated. The counties that are involved in the Fayetteville Shale Play and studied in this project are located in eastern Arkansas as shown in Figure 1. In addition, the counties where energy and/or service companies are likely to invest in the future are highlighted in the picture as well: Franklin, Jackson, and Pope County.

Figure 1: Arkansas Counties Involved in the Fayetteville Shale Play



This report is structured as follows. First, each of the ten Fayetteville Shale Play counties is profiled. Recent population, employment, personal income, and business pattern statistics are presented. Next, the estimates from the IMPLAN input/output model of the total output, employment, and tax impacts of economic activities in the Fayetteville Shale Play are discussed. Finally, the results are aggregated and put into perspective using current and expected future economic activity. The list of sources that contain the projected estimates of energy companies' expenditures in Arkansas is presented in the attached Appendix.

County Economic Profiles

Population

Among the Fayetteville Shale Play counties, the most rapid population growth was in Faulkner County during the period of 1990-2005 as Table 1 indicates. Faulkner County experienced 43 percent population growth over the period of 1990-2000 and 13 percent growth from 2000 to 2005, while Cleburne, Johnson, Van Buren, and White counties grew rapidly as well. By contrast, Prairie, St. Francis, and Woodruff counties demonstrated negative growth. The population of these counties decreased from 1990 to 2005, as economic opportunities in the region remained limited.

Table 1: Population and Population Change by County

<i>County</i>	<i>1990 Population</i>	<i>2000 Population</i>	<i>2005 Population</i>	<i>% Change 1990-2000</i>	<i>% Change 2000-2005</i>
Cleburne	19,411	24,046	25,391	24%	6%
Conway	19,151	20,336	20,739	6%	2%
Faulkner	60,006	86,014	97,147	43%	13%
Independence	31,192	34,233	34,737	10%	1%
Johnson	18,221	22,781	24,042	25%	6%
Prairie	9,518	9,539	9,113	0%	-4%
St. Francis	28,497	29,329	27,902	3%	-5%
Van Buren	14,008	16,192	16,529	16%	2%
White	54,676	67,165	71,332	23%	6%
Woodruff	9,520	8,741	8,098	-8%	-7%

Source: U.S. Census Bureau, Population Division

According to the CBER population projections shown in Table 2, the population of Faulkner County will increase by 34 percent by 2025, demonstrating the largest growth among the counties that are involved in the Fayetteville Shale Play. The county's population is projected to be 133,170 in 2025. If the baseline projections are realized, Faulkner County will be the 5th most populous county in Arkansas in 2010 and the 4th most populous county in the state in 2025. Similarly, Cleburne, Johnson, Van Buren, and White counties are expected to continue growing rapidly as well. On the other hand, the population of Prairie, St. Francis, and Woodruff counties will decrease by 7, 6, and 26 percent respectively by year 2025. These population losses are driven by the expected continued decline of employment opportunities (even after taking the Fayetteville Shale Play into consideration) and the continued outmigration of the labor force to other areas of the state and country.

Table 2: Population Projections by County

<i>County</i>	<i>2006</i>	<i>2010</i>	<i>2015</i>	<i>2020</i>	<i>2025</i>	<i>% Change 2006-2025</i>
Cleburne	25,750	27,302	29,337	31,397	33,462	30%
Conway	20,787	21,241	21,816	22,391	22,967	10%
Faulkner	99,160	106,558	115,470	124,324	133,170	34%
Independence	35,193	36,518	38,237	39,960	41,684	18%
Johnson	24,264	25,403	26,831	28,259	29,687	22%
Prairie	9,131	9,005	8,847	8,689	8,531	-7%
St. Francis	27,947	27,555	27,081	26,608	26,134	-6%
Van Buren	16,955	17,838	18,985	20,137	21,289	26%
White	72,464	76,339	81,374	86,491	91,640	26%
Woodruff	7,908	7,477	6,939	6,401	5,862	-26%

Sources: U.S. Census Bureau, Population Division, Intercensal Population Estimates; CBER Estimates

Employment

Recent employment gains for Cleburne, Conway, Faulkner, Independence, Johnson, Prairie, St. Francis, Van Buren, White, and Woodruff counties are shown in Table 3. Among the counties involved in the Fayetteville Shale Play, Faulkner County recorded the biggest job growth of 48 percent from 1990 to 2000 and an additional 7 percent from 2000 to 2004. Employment also increased significantly in Cleburne, Johnson, Van Buren, and White counties by 26, 30, 24, and 24 percent, respectively, during the 1990-2000 decade. By contrast, job growth was negative in Woodruff County during the period of 1990-2000. Prairie, St. Francis, and Woodruff counties were losing jobs from 2000 to 2004 while other counties continued to post net job growth even during the economic downturn of 2001 to 2003.

Table 3: Employment by County 1990-2004

<i>County</i>	<i>1990 Employment</i>	<i>2000 Employment</i>	<i>2004 Employment</i>	<i>Percent Change 1990-2000</i>	<i>Percent Change 2000-2004</i>
Cleburne	8,107	10,222	10,612	26%	4%
Conway	8,368	8,756	8,949	5%	2%
Faulkner	29,618	43,704	46,615	48%	7%
Independence	14,514	15,915	16,195	10%	2%
Johnson	7,514	9,746	10,319	30%	6%
Prairie	4,081	4,214	4,192	3%	-1%
St. Francis	10,137	10,166	9,865	0%	-3%
Van Buren	5,067	6,258	6,480	24%	4%
White	23,772	29,436	30,006	24%	2%
Woodruff	3,623	3,543	3,159	-2%	-11%

Source: U.S. Bureau of Labor Statistics

Unemployment increased in Faulkner, Cleburne, Independence, Johnson, Prairie, St. Francis, Van Buren, White, and Woodruff counties during the period of 2000-2004 (see Tables 4, 6-13). The unemployment rate in Conway County has decreased since 2000 (Table 5). Nevertheless, looking at trends since 1990, we can see that the unemployment rate declined in all the counties involved in the Fayetteville Shale Play by 2004.

Table 4: Cleburne County Labor Force Information

	<i>1990</i>	<i>2000</i>	<i>2004</i>	<i>Percent Change 1990-2000</i>	<i>Percent Change 2000-2004</i>
Civilian Labor Force	8,710	10,701	11,188	23%	5%
Employment	8,107	10,222	10,612	26%	4%
Unemployment	603	479	546	-21%	20%
Unemployment Rate	6.9%	4.5%	5.1%	-2.4%	0.6%

Source: U.S. Bureau of Labor Statistics

Table 5: Conway County Labor Force Information

	<i>1990</i>	<i>2000</i>	<i>2004</i>	<i>Percent Change 1990-2000</i>	<i>Percent Change 2000-2004</i>
Civilian Labor Force	8,917	9,322	9,494	5%	2%
Employment	8,368	8,756	8,949	5%	2%
Unemployment	549	566	545	3%	-4%
Unemployment Rate	6.2%	6.1%	5.7%	-0.1%	-0.4%

Source: U.S. Bureau of Labor Statistics

Table 6: Faulkner County Labor Force Information

	<i>1990</i>	<i>2000</i>	<i>2004</i>	<i>Percent Change 1990-2000</i>	<i>Percent Change 2000-2004</i>
Civilian Labor Force	31,913	45,335	49,014	42%	8%
Employment	29,618	43,704	46,615	48%	7%
Unemployment	2,295	1,631	2,399	-29%	47%
Unemployment Rate	7.2%	3.6%	4.9%	-3.6%	1.3%

Source: U.S. Bureau of Labor Statistics

Table 7: Independence County Labor Force Information

	<i>1990</i>	<i>2000</i>	<i>2004</i>	<i>Percent Change 1990-2000</i>	<i>Percent Change 2000-2004</i>
Civilian Labor Force	15631	16717	17300	7%	3%
Employment	14514	15915	16195	10%	2%
Unemployment	1117	802	1105	-28%	38%
Unemployment Rate	7.1	4.8	6.4	-32%	33%

Source: U.S. Bureau of Labor Statistics

Table 8: Johnson County Labor Force Information

	<i>1990</i>	<i>2000</i>	<i>2004</i>	<i>Percent Change 1990-2000</i>	<i>Percent Change 2000-2004</i>
Civilian Labor Force	8,181	10,168	10,901	24%	7%
Employment	7,514	9,746	10,319	30%	6%
Unemployment	667	422	582	-37%	38%
Unemployment Rate	8.2%	4.2%	5.3%	-4.0%	1.1%

Source: U.S. Bureau of Labor Statistics

Table 9: Prairie County Labor Force Information

	<i>1990</i>	<i>2000</i>	<i>2004</i>	<i>Percent Change 1990-2000</i>	<i>Percent Change 2000-2004</i>
Civilian Labor Force	4359	4405	4428	1%	1%
Employment	4081	4214	4192	3%	-1%
Unemployment	278	191	236	-31%	24%
Unemployment Rate	6.4	4.3	5.3	-33%	23%

Source: U.S. Bureau of Labor Statistics

Table 10: St. Francis County Labor Force Information

	<i>1990</i>	<i>2000</i>	<i>2004</i>	<i>Percent Change 1990-2000</i>	<i>Percent Change 2000-2004</i>
Civilian Labor Force	11462	10919	10888	-5%	0%
Employment	10137	10166	9865	0%	-3%
Unemployment	1325	753	1023	-43%	36%
Unemployment Rate	11.6	6.9	9.4	-41%	36%

Source: U.S. Bureau of Labor Statistics

Table 11: Van Buren County Labor Force Information

	<i>1990</i>	<i>2000</i>	<i>2004</i>	<i>Percent Change 1990-2000</i>	<i>Percent Change 2000-2004</i>
Civilian Labor Force	5,564	6,606	6,951	19%	5%
Employment	5,067	6,258	6,480	24%	4%
Unemployment	497	348	471	-30%	35%
Unemployment Rate	8.9%	5.3%	6.8%	-3.6%	1.5%

Source: U.S. Bureau of Labor Statistics

Table 12: White County Labor Force Information

	<i>1990</i>	<i>2000</i>	<i>2004</i>	<i>Percent Change 1990-2000</i>	<i>Percent Change 2000-2004</i>
Civilian Labor Force	26,310	30,893	32,008	17%	4%
Employment	23,772	29,436	30,006	24%	2%
Unemployment	2,538	1,457	2,002	-43%	37%
Unemployment Rate	9.6%	4.7%	6.3%	-4.9%	1.6%

Source: U.S. Bureau of Labor Statistics

Table 13: Woodruff County Labor Force Information

	<i>1990</i>	<i>2000</i>	<i>2004</i>	<i>Percent Change 1990-2000</i>	<i>Percent Change 2000-2004</i>
Civilian Labor Force	4041	3777	3516	-7%	-7%
Employment	3623	3543	3159	-2%	-11%
Unemployment	418	234	357	-44%	53%
Unemployment Rate	10.3	6.2	10.2	-40%	65%

Source: U.S. Bureau of Labor Statistics

Per Capita Personal Income

In addition to population and employment growth in the Fayetteville Shale Play region, per capita personal income also increased in recent years (Table 14). Per capita personal income is a good proxy for standard of living. From 2001 to 2003 (the most recent year for which data are available), per capita personal income grew by 5.5 percent in the whole United States, from \$29,845 to \$31,487. Each of the counties involved in the Fayetteville Shale Play have substantially lower per capita personal incomes than the national average. In 2003, per capita personal income was highest in Faulkner County at 77 percent of the national average and lowest in St. Francis and Van Buren counties at 59 percent of the national average. From 2000 to 2003, per capita personal income grew faster in Cleburne, Faulkner, Independence, Johnson, Prairie, St. Francis, White, and Woodruff counties than the national average, meaning that ground was gained. However, in Conway and Van Buren counties, there were additional losses in the standard of living relative to the national average.

Per capita personal income should improve in the Fayetteville Shale Counties from 2005 through 2008 as the average wage and salary earnings in the oil and gas industry are generally higher than the average of all industries, based upon U.S. Department of Labor statistics.

Table 14: Per Capita Personal Income by County

<i>County</i>	<i>2000 Per Capita Personal Income</i>	<i>2003 Per Capita Personal Income</i>	<i>Percent Change 2000-2003</i>
Cleburne	\$21,746	\$23,149	6%
Conway	\$21,606	\$22,749	5%
Faulkner	\$22,472	\$24,370	8%
Independence	\$20,409	\$22,212	9%
Johnson	\$17,836	\$19,057	7%
Prairie	\$17,799	\$21,205	19%
St. Francis	\$16,103	\$18,546	15%
Van Buren	\$17,766	\$18,714	5%
White	\$18,807	\$21,128	12%
Woodruff	\$17,124	\$21,064	23%

Source: U.S. Bureau of Economic Analysis

County Business Patterns

The industry mixes in Cleburne, Conway, Faulkner, Independence, Johnson, Prairie, St. Francis, White, and Woodruff counties are given in Tables 15 through 24. Total number of establishments in 2003 was highest in Faulkner County (1,944), followed by White (1,484), and Independence County (865). The manufacturing sector has the largest percentage of employment followed by retail trade, in each county except Prairie and Van Buren counties, where the two sectors are reversed. Such heavy reliance on manufacturing industries puts the economic health of the Fayetteville Shale Play counties at risk, as manufacturing employment is particularly susceptible to globalization forces.

Table 15: Cleburne County Business Patterns (2003)

<i>Sector</i>	<i>Number of Employees</i>	<i>Percent of Employees</i>	<i>Annual Payroll (\$1,000)</i>	<i>Total Establishments</i>
Forestry, Fishing, Hunting & Agriculture Support	12	0%	\$159	5
Construction	301	5%	\$5,528	63
Manufacturing	1,743	31%	\$49,204	44
Wholesale Trade	140	2%	\$3,832	25
Retail Trade	966	17%	\$16,415	126
Transportation and Warehousing	295	5%	\$7,392	26
Finance and Insurance	192	3%	\$5,367	42
Accommodation & Food Services	532	9%	\$5,643	52
Other Services	312	6%	\$4,586	73
Other	1,133	20%	\$26,432	152
Total	5,626	100%	\$124,558	608

Source: U.S. Census Bureau

Table 16: Conway County Business Patterns (2003)

<i>Sector</i>	<i>Number of Employees</i>	<i>Percent of Employees</i>	<i>Annual Payroll (\$1,000)</i>	<i>Total Establishments</i>
Forestry, Fishing, Hunting & Agriculture Support	—	—	—	—
Construction	539	9%	\$20,239	47
Manufacturing	1,147	19%	\$37,907	29
Wholesale Trade	304	5%	\$8,410	20
Retail Trade	934	16%	\$16,023	84
Transportation and Warehousing	357	6%	\$10,902	18
Finance and Insurance	139	2%	\$3,374	22
Accommodation & Food Services	383	6%	\$3,318	29
Other Services	165	3%	\$2,894	31
Other	1,961	33%	\$38,858	120
Total	5,929	100%	\$141,925	400

Source: U.S. Census Bureau

Table 17: Faulkner County Business Patterns (2003)

<i>Sector</i>	<i>Number of Employees</i>	<i>Percent of Employees</i>	<i>Annual Payroll (\$1,000)</i>	<i>Total Establishments</i>
Forestry, Fishing, Hunting & Agriculture Support	—	—	—	—
Construction	2,475	8%	\$58,299	277
Manufacturing	5,830	19%	\$182,283	86
Wholesale Trade	658	2%	\$19,323	73
Retail Trade	4,386	14%	\$72,247	347
Transportation and Warehousing	375	1%	\$10,809	50
Finance and Insurance	1,014	3%	\$30,155	133
Accommodation & Food Services	2,981	10%	\$24,929	129
Other Services	1,296	4%	\$17,449	193
Other	11,703	38%	\$370,380	656
Total	30,718	100%	\$785,874	1,944

Source: U.S. Census Bureau

Table 18: Independence County Business Patterns (2003)

<i>Sector</i>	<i>Number of Employees</i>	<i>Percent of Employees</i>	<i>Annual Payroll (\$1,000)</i>	<i>Total Establishments</i>
Forestry, Fishing, Hunting and Agriculture Support	51	0%	\$518	5
Construction	421	3%	\$9,414	62
Manufacturing	5,096	35%	\$155,724	57
Wholesale Trade	446	3%	\$9,040	41
Retail Trade	1,786	12%	\$29,283	180
Transportation and Warehousing	573	4%	\$16,094	57
Finance and Insurance	339	2%	\$9,537	55
Other Services	480	3%	\$6,615	94
Unclassified Establishments	4	0%	\$96	4
Other	5,214	36%	\$119,894	310
Total	14,410	100%	\$356,215	865

Source: U.S. Census Bureau

Table 19: Johnson County Business Patterns (2003)

<i>Sector</i>	<i>Number of Employees</i>	<i>Percent of Employees</i>	<i>Annual Payroll (\$1,000)</i>	<i>Total Establishments</i>
Forestry, Fishing, Hunting & Agriculture Support	23	0%	\$503	4
Construction	98	1%	\$2,214	23
Manufacturing	2,824	41%	\$66,477	35
Wholesale Trade	18	0%	\$404	5
Retail Trade	985	14%	\$17,683	92
Transportation and Warehousing	—	—	—	—
Finance and Insurance	155	2%	\$4,221	28
Accommodation & Food Services	421	6%	\$3,912	34
Other Services	228	3%	\$3,429	50
Other	2,174	31%	\$47,970	121
Total	6,926	100%	\$146,813	392

Source: U.S. Census Bureau

Table 20: Prairie County Business Patterns (2003)

<i>Sector</i>	<i>Number of Employees</i>	<i>Percent of Employees</i>	<i>Annual Payroll (\$1,000)</i>	<i>Total Establishments</i>
Forestry, Fishing, Hunting and Agriculture				
Support	36	3%	\$511	6
Construction	—	—	—	—
Manufacturing	174	14%	\$0	4
Wholesale Trade	101	8%	\$2,986	8
Retail Trade	214	18%	\$2,704	35
Transportation and Warehousing	127	10%	\$2,964	21
Finance and Insurance	28	2%	\$800	7
Other Services	75	6%	\$715	22
Other	456	38%	\$12,965	54
Total	1,211	100%	\$23,645	157

Source: U.S. Census Bureau

Table 21: St. Francis County Business Patterns (2003)

<i>Sector</i>	<i>Number of Employees</i>	<i>Percent of Employees</i>	<i>Annual Payroll (\$1,000)</i>	<i>Total Establishments</i>
Forestry, Fishing, Hunting and Agriculture				
Support	61	1%	\$1,988	8
Construction	255	2%	\$6,977	43
Manufacturing	5,619	52%	\$111,013	17
Wholesale Trade	414	4%	\$12,527	29
Retail Trade	1,332	12%	\$24,305	138
Transportation and Warehousing	196	2%	\$5,379	29
Finance and Insurance	211	2%	\$6,008	31
Other Services	175	2%	\$2,477	52
Other	2,483	23%	\$47,731	182
Total	10,746	100%	\$218,405	529

Source: U.S. Census Bureau

Table 22: Van Buren County Business Patterns (2003)

<i>Sector</i>	<i>Number of Employees</i>	<i>Percent of Employees</i>	<i>Annual Payroll (\$1,000)</i>	<i>Total Establishments</i>
Forestry, Fishing, Hunting & Agriculture Support	—	—	—	—
Construction	173	6%	\$3,212	34
Manufacturing	598	19%	\$11,548	10
Wholesale Trade	99	3%	\$2,216	17
Retail Trade	635	20%	\$10,103	67
Transportation and Warehousing	90	3%	\$1,752	22
Finance and Insurance	98	3%	\$2,772	23
Accommodation & Food Services	321	10%	\$2,592	21
Other Services	205	7%	\$3,039	42
Other	916	29%	\$19,293	82
Total	3,135	100%	\$56,527	318

Source: U.S. Census Bureau

Table 23: White County Business Patterns (2003)

<i>Sector</i>	<i>Number of Employees</i>	<i>Percent of Employees</i>	<i>Annual Payroll (\$1,000)</i>	<i>Total Establishments</i>
Forestry, Fishing, Hunting & Agriculture Support	—	—	—	—
Construction	1,132	5%	\$31,004	172
Manufacturing	4,332	21%	\$136,900	79
Wholesale Trade	479	2%	\$13,541	80
Retail Trade	3,243	16%	\$53,498	312
Transportation and Warehousing	2,330	11%	\$73,321	86
Finance and Insurance	599	3%	\$16,920	93
Accommodation & Food Services	1,785	9%	\$15,846	101
Other Services	1,015	5%	\$16,498	169
Other	5,750	28%	\$163,465	392
Total	20,665	100%	\$520,993	1,484

Source: U.S. Census Bureau

Table 24: Woodruff County Business Patterns (2003)

<i>Sector</i>	<i>Number of Employees</i>	<i>Percent of Employees</i>	<i>Annual Payroll (\$1,000)</i>	<i>Total Establishments</i>
Forestry, Fishing, Hunting and Agriculture				
Support	28	2%	\$1,126	5
Construction	—	—	—	—
Manufacturing	400	24%	\$9,546	7
Wholesale Trade	183	11%	\$6,473	13
Retail Trade	243	14%	\$3,262	33
Transportation and Warehousing	83	5%	\$2,086	16
Finance and Insurance	56	3%	\$1,665	6
Other Services	71	4%	\$743	21
Other	618	37%	\$9,420	46
Total	1,682	100%	\$34,321	151

Source: U.S. Census Bureau

Fayetteville Shale Play Economic Impacts

CBER researchers sought to obtain, either from publicly available data or on a confidential basis, extensive information about the amount and kinds of actual 2005 expenditures and planned 2006 expenditures in the Fayetteville Shale Play counties by energy and service companies as well as those companies' preliminary projected investments in 2007 and 2008. Where not publicly disclosed or confidentially provided, data about the amounts and types of companies' expenditures in Arkansas counties were estimated based on public filings, announcements, and best guesses. The companies that had announced activities in the Fayetteville Shale Play area are: SEECO, Chesapeake, XTO Energy, Maverick Oil and Gas, Touchstone Energy, Shell, Contango, Onetec, Stephens Production, Storm Cat Energy, Schlumberger, CDX Gas, Edge Petroleum, Aspect, Antero Resources, Hallwood, Dan Hughes, and Noble Energy. Data for all energy and energy service companies were estimated for the ten following counties: Cleburne, Conway, Faulkner, Independence, Johnson, St. Francis, Prairie, Van Buren, White, and Woodruff. These data were then classified on an industry by industry basis and used as inputs to the IMPLAN input-output model. The results from these models are presented in this section.

IMPLAN is a regional impact model that enables the evaluation of the economic impact of specific activities such as construction or operation of public works projects, as well as retail, wholesale, manufacturing, and service sales within an economy. IMPLAN was originally developed by the U.S. Department of Agriculture, the Forest Service in cooperation with the Federal Emergency Management Agency (FEMA), the U.S. Department of Interior Bureau of Land Management, and the University of Minnesota to assist the Forest Service in land and resource management planning.

The basic data sources for the current edition of the IMPLAN database and the models used in this study are the Input-Output Accounts of the United States, developed by the U.S. Department of Commerce, Bureau of Economic Analysis (BEA), and county income and employment data published by BEA and the Bureau of Labor Statistics (BLS). The model will reflect 2003 industrial structure and technology, and 2003 prices, with adjustments made for the introduction of the natural gas industry. Trade flows and the results of this analysis were adjusted to reflect prices of the respective years from 2005 to 2008.

IMPLAN uses a 525-sector input-output model to measure the effects of three types of impacts: direct, indirect, and induced. Direct impacts consist of employment and purchases of goods and services in the region resulting from the activity being evaluated, in this case, leasing land and mineral rights, natural gas drilling activities, and the construction of new support facilities. Indirect (inter-industry) impacts consist of goods and services purchased by the firms, which supply inputs consumed in the direct activity. Induced impacts consist of increased household purchases of goods and services in the region by employees of direct and indirect employers. The model generates multipliers, which summarize the magnitude of the indirect and induced effects generated by a given direct change, to estimate changes in output, income, and employment. In other words, the multiplier is the ratio of total impact to direct impact.

In the IMPLAN model, inter-industry relationships (use and make coefficients) are quantified based on data on the production functions of the different industries in the region. The IMPLAN model was used to estimate multipliers based on those coefficients in specific counties. Direct spending, total economic activity, total labor income, total employment, total property income, and total state and local taxes were generated by this model.

Table 25 summarizes the projected output impacts generated by the economic activities of companies in the Fayetteville Shale Play counties from 2005 through 2008. Using the county income distributions from the 2000 Census to allot lease bonuses of gas rights, the expenditures resulted in total economic output within the counties of about \$5.5 billion over the four years. The highest total economic output was in Conway County (\$1.4 billion), followed by White County (\$892 million), and Van Buren County (\$719 million).

Table 25: Fayetteville Shale Play Economic Output Impacts

<i>County</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>Total</i>
Cleburne	\$21,641,414	\$76,228,940	\$113,186,567	\$144,842,078	\$355,899,000
Conway	\$123,321,693	\$283,840,661	\$425,288,387	\$593,902,599	\$1,426,353,339
Faulkner	\$16,573,271	\$72,158,846	\$103,184,698	\$116,652,605	\$308,569,420
Independence	\$15,183,189	\$16,881,093	\$26,009,914	\$45,104,469	\$103,178,665
Johnson	\$1,543,136	\$5,442,993	\$8,086,204	\$10,343,690	\$25,416,023
Prairie	\$5,466,067	\$6,097,848	\$9,384,746	\$16,253,984	\$37,202,646
St. Francis	\$14,711,782	\$16,342,742	\$25,196,857	\$43,705,940	\$99,957,321
Van Buren	\$43,990,592	\$153,999,650	\$228,682,601	\$292,445,952	\$719,118,794
White	\$114,387,179	\$155,262,444	\$237,478,086	\$385,122,934	\$892,250,642
Woodruff	\$85,180,683	\$93,515,181	\$143,585,436	\$248,139,011	\$570,420,312
Other Counties	\$78,726,203	\$179,309,367	\$285,359,323	\$437,339,938	\$980,734,831
State of Arkansas	\$520,725,208	\$1,059,079,765	\$1,605,442,818	\$2,333,853,201	\$5,519,100,992

The ratios of total output impact to direct impact are presented in Table 26. The multiplier effects of the direct expenditures by energy and service companies on the output impact averaged 1.2 within individual counties. These multipliers are of the same magnitude as those estimated in a study that examined the economic impact of the Barnett Shale on North Texas counties. For the entire state, the multipliers were higher, averaging 1.5. As the market area under consideration gets larger, multiplier effects also increase because “leakages” in economic activity decline.

Table 26: Fayetteville Shale Play Economic Output Multipliers

<i>County</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>Average</i>
Cleburne	1.2	1.2	1.2	1.2	1.2
Conway	1.2	1.2	1.2	1.2	1.2
Faulkner	1.3	1.3	1.3	1.3	1.3
Independence	1.2	1.3	1.3	1.3	1.3
Johnson	1.2	1.2	1.2	1.2	1.2
Prairie	1.1	1.1	1.1	1.2	1.1
St. Francis	1.2	1.2	1.2	1.2	1.2
Van Buren	1.2	1.2	1.2	1.2	1.2
White	1.2	1.3	1.3	1.3	1.3
Woodruff	1.1	1.1	1.1	1.1	1.1
State of Arkansas	1.4	1.5	1.5	1.5	1.5

The employment effects of energy companies’ expenditures in the Fayetteville Shale Play are shown in Table 27. These impacts were estimated taking into account the newness of natural gas related industries for the local economies. To project the employment effects CBER researchers relied on existing estimates of output-employment relationships from counties where natural gas activities have occurred in the past. The total of \$520.7 million of economic activity generated an estimated 2,160.4 jobs in 2005. The projected employment impact is 4,393.9 in 2006 and 6,660.7 in 2007. By 2008, Fayetteville Shale Play-related economic activity of \$2.3 billion will generate 9,682.8 full-time equivalent jobs. The biggest employment impact is estimated to be in Conway County (2,464 jobs

in 2008), followed by White (1,597.8 jobs in 2008), and Van Buren County (1,213.3 jobs in 2008). The average within county multiplier effects were all in roughly the same range from 1.1 to 1.3, while the effect when the whole state is considered was 1.5.

Table 27: Fayetteville Shale Play Employment Impacts

<i>County</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>Multiplier</i>
Cleburne	89.8	316.3	469.6	600.9	1.2
Conway	511.6	1,177.6	1,764.5	2,464.0	1.2
Faulkner	68.8	299.4	428.1	484.0	1.3
Independence	63.0	70.0	107.9	187.1	1.3
Johnson	6.4	22.6	33.5	42.9	1.2
Prairie	22.7	25.3	38.9	67.4	1.2
St. Francis	61.0	67.8	104.5	181.3	1.2
Van Buren	182.5	638.9	948.8	1,213.3	1.2
White	474.6	644.2	985.3	1,597.8	1.3
Woodruff	353.4	388.0	595.7	1,029.5	1.1
Other Counties	326.6	743.9	1,183.9	1,814.5	N/A
State of Arkansas	2,160.4	4,393.9	6,660.7	9,682.8	1.5

The total economic activity associated with the activities of energy and service companies leads to federal, state, and local tax revenues in the Fayetteville Shale counties. These revenues are the results of sales taxes, excise taxes, property taxes, fees, and licenses. Table 28 details the state and local tax impacts. More than \$28.1 million in state and local taxes resulted from the direct, indirect, and induced expenditures from the Fayetteville Shale Play economic activities of energy and service companies in 2005. These taxes were primarily sales taxes, personal income taxes, and corporate profits and dividends. The state and local taxes resulting from energy and service companies' Fayetteville Shale Play activities are projected to be about \$69.5 million in 2006, \$105.9 million in 2007, and \$154.1 million in 2008. Overall, state and local taxes will total about \$357.7 million during the period of 2005 through 2008.

Table 28: Fayetteville Shale Play State and Local Tax Impacts

<i>County</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>Total</i>
Cleburne	\$1,345,874	\$5,324,201	\$7,798,967	\$9,840,651	\$24,309,693
Conway	\$6,295,928	\$18,856,381	\$28,294,443	\$39,536,208	\$92,982,960
Faulkner	\$1,076,213	\$5,024,322	\$7,115,699	\$8,293,038	\$21,509,272
Independence	\$686,427	\$1,042,985	\$1,719,476	\$3,112,708	\$6,561,596
Johnson	\$95,630	\$379,200	\$555,189	\$699,958	\$1,729,977
Prairie	\$188,684	\$344,309	\$582,193	\$1,071,138	\$2,186,324
St. Francis	\$638,994	\$981,871	\$1,622,158	\$2,940,515	\$6,183,538
Van Buren	\$2,502,270	\$9,954,903	\$14,598,708	\$18,430,004	\$45,485,885
White	\$5,117,061	\$9,600,808	\$15,327,198	\$25,519,327	\$55,564,394
Woodruff	\$2,225,621	\$4,444,568	\$7,630,128	\$14,149,939	\$28,450,256
Other Counties	\$7,968,024	\$13,529,883	\$20,690,427	\$30,506,663	\$72,694,997
State of Arkansas	\$28,140,726	\$69,483,431	\$105,934,586	\$154,100,149	\$357,658,892

Total Impacts in Perspective

The introduction of the natural gas and associated industries into the local economies is a boon to communities that have depended on heavy concentrations of manufacturing and retail trade employment for their economic success. Table 29 summarizes the total projected economic impacts of the development of the Fayetteville Shale Play from 2005 through 2008.

Table 29: Total Projected Economic Impacts of the Fayetteville Shale Play (2005-2008)

	2005	2006	2007	2008
Output Impact	\$520.7 million	\$1.1 billion	\$1.6 billion	\$2.3 billion
Employment Impact	2,160	4,394	6,661	9,683
State and Local Tax Impact	\$28.1 million	\$69.5 million	\$105.9 million	\$154.1 million

The development of a new multi-billion dollar industry within Arkansas provides a much needed economic stimulus and an opportunity to diversify an employment base that relies heavily on manufacturing. Table 30 presents projections of the percentage of employment that will be attributable to Fayetteville Shale Play direct, indirect, and induced activities. These estimates were made by combining the IMPLAN model results with U.S. Bureau of Labor Statistics county level employment data for December 2005 and estimating a 1.5 percent annual growth rate. Woodruff County, with its tiny employment base of 3,108, is predicted to enjoy the largest percentage effects, followed by Conway and Van Buren Counties. For the state of Arkansas, by 2008, economic activity related to the Fayetteville Shale Play will account for 0.7 percent of all employment.

Table 30: Percentage of Total Employment from Projected Fayetteville Shale Play Activity

	2005	2006	2007	2008
Cleburne	0.8%	2.8%	4.1%	5.2%
Conway	5.5%	12.4%	18.3%	25.2%
Faulkner	0.1%	0.6%	0.8%	0.9%
Independence	0.4%	0.4%	0.6%	1.1%
Johnson	0.1%	0.2%	0.3%	0.4%
Prairie	0.5%	0.6%	0.9%	1.5%
St. Francis	0.6%	0.6%	1.0%	1.7%
Van Buren	2.7%	9.4%	13.8%	17.4%
White	1.5%	2.0%	3.0%	4.8%
Woodruff	11.4%	12.3%	18.6%	31.7%
State of Arkansas	0.2%	0.3%	0.5%	0.7%

Conclusion

In this report, the economic impact of natural gas exploration and production from the Fayetteville Shale Play for the period of 2005 through 2008 was estimated. Because development of the Fayetteville Shale Play is still in its early stages, the industry has not yet had time to fully integrate with the surrounding community economies. As the presence of correlative service businesses like Schlumberger increases to serve the demands of a more mature exploration and production process, the economic impacts associated with the activities of energy companies in the Fayetteville Shale Play region are likely to increase. The expectations of increased employment opportunities in the oil and gas industry has already led the University of Arkansas Community College at Morrilton to announce plans to develop a new Associate of Applied Science degree in Petroleum Technology. The effects of the Fayetteville Shale Play on local employment, wages, property values, and corporate profits will significantly influence available funding for local taxing jurisdictions and the state. The estimates that have been presented show that the economic impact of the Fayetteville Shale Play was substantial in 2005 at almost a half billion dollars and that by 2008, the impact will more than quadruple to represent a \$2.3 billion economic engine. Additionally, SEECO has recently announced that it has established production from two other gas-bearing shales which lie geologically beneath the Fayetteville, called the Moorefield and Chattanooga Shales, the impact of which are not included in this study but also have the potential to make a significant contribution to natural gas exploration and development activity in the state.

If energy companies' investments remain profitable, the firms will be actively drilling in the area for at least the next 10-15 years, sustaining an increased pace of economic activity in Arkansas. The potential significance of this long-term economic impact has already been recognized by members of the Arkansas House of Representatives. In March 2006, Speaker of the House, Bill H. Stovall III and Representative Betty Pickett filed an Interim Study Proposal for a comprehensive study to determine the economic impact from shale gas fields in Arkansas. Under the Interim Study Proposal, the Senate Interim Committee on Revenue and Taxation and the House Interim Committee on Revenue and Taxation will undertake a study to review the economic impact resulting from the Fayetteville Shale gas fields that will include, among other things, a study of the creation of new jobs in Arkansas and a review of all taxes and other revenues that will be collected on the mineral rights, royalties, drilling, and production of gas from these fields. The Senate Interim Committee on Revenue and Taxation and the House Interim Committee on Revenue and Taxation are expected to report their findings to the Eighty-Fifth General Assembly by early 2007. These findings, once available, will facilitate more precise estimates of the actual and potential economic impact of the Fayetteville Shale Play in the years to come.

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