

The Oil and Gas Industry In the Illinois Economy

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Table of Contents

| | |
|---|-----------|
| Executive Summary | i |
| 1. Introduction..... | 1 |
| 2. Overview of Oil and Gas Production in Illinois | 2 |
| 2.1 Current Oil Production and the Illinois Basin | 2 |
| 2.2 Historical Perspective | 3 |
| 2.3 Geographic Distribution..... | 4 |
| 2.4 Illinois Basin Oil Reserves..... | 6 |
| 2.5 Oil Wells..... | 7 |
| 2.6 The Industry in National Perspective | 9 |
| 3. Ownership and Employment | 11 |
| 3.1 Upstream Employment and Firm Ownership..... | 11 |
| 3.2 Downstream Employment and Firm Ownership..... | 20 |
| 3.3 Leaseholders and Illinois Residents Receiving Royalty Income..... | 21 |
| 4. Factors Affecting Revenues and Costs..... | 22 |
| 4.1 Influences on the Price Received for Oil in Illinois..... | 22 |
| 4.2 Taxes on Oil and Gas in Illinois..... | 25 |
| 4.3 Changes in Production Costs | 29 |
| 4.4 Implications of the Changing Quality Mix of Crude Oil in the United States | 29 |
| 5. Contribution of Oil and Gas Production to the Illinois Economy..... | 31 |
| 5.1 How Direct Economic Impacts Spread through a Region | 31 |
| 5.2 Economic Impacts on Employment, Income and Output | 33 |
| 5.3 Impacts of Additional Oil Drilling in Illinois, “What-If?” Analysis | 40 |
| 6. Prospective Developments in the Industry | 46 |
| 6.1 Enhanced Recovery Technologies | 46 |

| | |
|---|-----|
| 6.2 Environmental Issues..... | 47 |
| 6.3 Opportunities for Carbon Sequestration..... | 47 |
| 6.4 Development of New Albany Shale | 47 |
| | |
| 7. Summary and Conclusions..... | 49 |
| | |
| Appendix A: NAICS Industry Codes used in IMPLAN Model for Oil and Gas Extraction | 51 |
| | |
| Appendix B. Impacts by Counties and Legislative Districts..... | 53 |
| | |
| Appendix C. Maps of Impacts..... | 218 |

Executive Summary

Overview of Oil and Gas Production in Illinois

As the country's 15th largest oil-producing state, Illinois oil production provided over 9 million barrels of crude oil in 2008. Oil production in Illinois takes place in the southern half of the state in a geologic region stretching over Illinois, Indiana and Kentucky called the Illinois Basin. Illinois is a very small producer of natural gas, most of which is recovered with oil. Over 90% of the estimated 16,000 oil producing wells in Illinois are marginal wells, producing 1 to 2 barrels per day. Counties with the largest crude oil production are primarily located in the south-east section of the state. While Illinois production is considered mature, the state has significant reserves located at relatively shallow depths, making long-term production a possibility. Exploration and expanded production continue in Illinois as evidenced by the over 400 new wells drilled in 2008. However, a high percentage of new wells drilled searching for additional reserves are never completed as producing wells. Drilling for new production is a high risk and capital intensive endeavor.

Ownership and Employment

Due to declining Illinois production and prices, the major national oil companies had left the state by the end of the 1980s. Approximately 4,209 persons were employed in oil and gas production in Illinois in 2006. About 50% of employment is in one-person operations either as independent contractors, or independent owner/operators (companies reporting no hired employees such as a sole proprietor who hires outside support functions). The remaining 50% of employees are in firms reporting hired employees. Of these, over two-thirds are in firms with 4 employees or less. There are a few larger companies, some with operations outside of Illinois as well. Regardless of the size of firm, many occupations are active in the production of oil and gas. The industry offers a wide variety of employment opportunities from geologists and petroleum engineers, to oil field personnel, pumpers, drillers, truck drivers, and office functions, to name just a few. In addition to those employed in production, it is estimated that over 30,000 people in Illinois receive income from ownership interests and mineral rights.

As oil prices fell in the 1980's, employment opportunities for skilled labor declined, and many people were laid off. A generational gap developed that remains today, with a dearth of younger skilled people in the industry in Illinois.

Some two-thirds of oil produced in Illinois is refined at the CountryMark Refinery in Mt. Vernon, Indiana. Most of the remainder of Illinois production is refined in Michigan and Ohio. There are four other, much larger refineries in the state, with a total capacity of 915 thousand barrels per day, but none of them refine a significant amount of Illinois oil.

Factors Affecting Revenues and Costs

The price for oil received by Illinois producers is based primarily on the daily published NYMEX price for West Texas Intermediate (WTI) crude oil, minus a handling fee set by the petroleum marketers. Illinois crude oil is a desirable, high quality, light sweet crude which is attractive to refiners. However, due to its chemical properties, it does produce about 2% less gasoline per unit volume than WTI. Since the summer of 2008, the price of crude oil has fallen dramatically. This kind of volatility makes planning new investments and day-to-day operations difficult for producers and other businesses involved in the oil and gas production industry.

Illinois has two taxes on oil and gas production—a 0.1% gross revenue tax on production, and an ad valorem tax on based on mineral assessment. Proceeds from the gross revenue tax are used to fund the Illinois Petroleum Resources Board.

Illinois industry representatives have noted that production costs have increased significantly over the previous few years. By the end of 2008, the IHS-Cambridge Energy Research Associates (CERA) Upstream Operating Costs Index (UOCI) had risen 103% since 2000. Reasons cited were continued high project activity, high resource utilization, continued tightness in the supply markets, and distribution of raw materials. With declining prices and rising costs, it becomes more difficult to profitably explore for oil.

As more crude oil is imported into the U.S. to meet growing energy needs, a greater portion of the imported crude oil is coming from sources that produce heavier crude oils. As a result, higher quality, light sweet crude oil is becoming a smaller portion of the total crude oil refined in the U.S. Concern has been expressed that the higher cost of processing heavier crude oil will reduce the price paid for all oil including light sweet crude oil. However, the potential price implications of the changing quality mix are beyond the scope of the present study.

Prospective Developments in the Industry

Increased use of enhanced oil recovery (EOR) and new technologies may help increase production in Illinois. Primary recovery usually extracts 20% to 30% of the oil in a field, and secondary recovery, such as water flooding, can recover another 20%. The remaining 50% of the oil is more difficult and expensive to recover. To date, EOR techniques have not been widely used in Illinois. Carbon dioxide injection, popular in other parts of the country, has not been implemented to date in Illinois due to lack of availability of the gas and site logistics. Horizontal drilling is gaining popularity but is three to four times as expensive as vertical drilling.

Several studies are being conducted at the state and national level to further the use of carbon dioxide to perform EOR and eventually to store carbon dioxide in depleted oil fields as one method of potential carbon sequestration. One producer interviewed is

planning to use nitrogen gas as an alternative to carbon dioxide in EOR. Other EOR methods, such as alkaline surfactant polymer flooding (ASP), are being planned as well.

Research continues into the development of oil and gas production from shale resources. The New Albany Shale is estimated by the U.S. Geological Survey to represent over 50% of the undiscovered oil and gas reserves in the Illinois Basin. Development projects for natural gas in the New Albany Shale are beginning in Kentucky and Indiana, and if successful, projects may be evaluated in Illinois.

Contribution of Oil and Gas Production to the Illinois Economy

As noted above, oil and gas production in Illinois directly employs 4,209 workers as of 2006. Indirect and induced spending impacts create an additional 9,843 jobs throughout the state, for a total of 14,052 Illinois jobs.

The industry contributes \$769 million in income directly, and an additional \$518 million in income elsewhere in the state's economy.

The industry's total output in the state is \$3.04 billion, and ripple effects from the industry are responsible for an additional \$1.77 billion in output.

The full array of industries directly and indirectly affected by the oil and gas industry pays \$330 million in state taxes and \$383 million in federal taxes, for a total contribution of over \$713 million in tax revenues.