



# **State of Oklahoma**

# **Incentive Evaluation Commission**

## **Production Enhancement Rebate Evaluation**

**November 13, 2017**

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# Executive Summary



## Overview

Many states have provided tax incentives to stimulate oil and gas production, revenue and job creation. Over the years, the State of Oklahoma has enacted a series of rebates that effectively lower the tax rate for various forms of production, including increased production resulting from approved production enhancement projects. Oklahoma's Production Enhancement Rebate, effective July 1, 1994, exempts from gross production tax (GPT) for 28 months the production resulting from the re-establishment of an inactive well. The goal of the program is to encourage the undertaking of enhancement projects to increase well production.

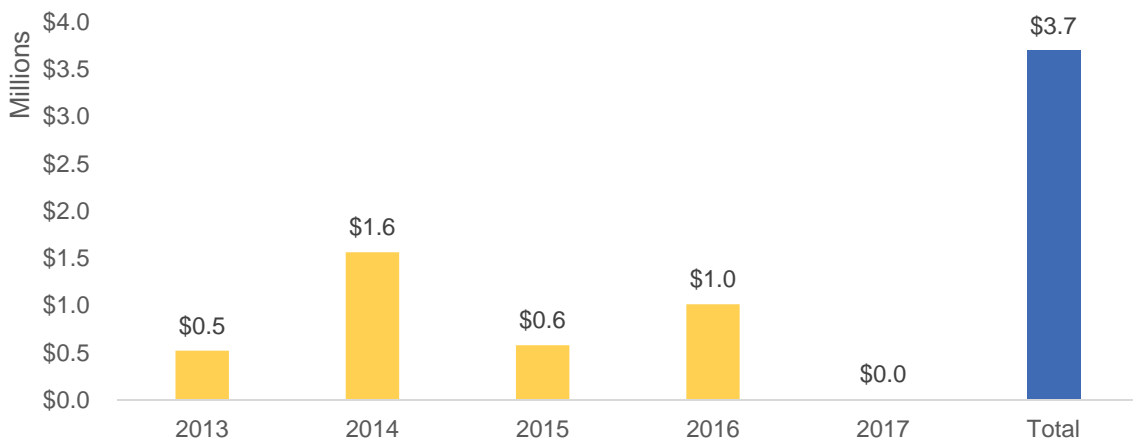
During the 2017 legislative session, HB2377 was enacted, which provided a sunset of eight GPT incentives on July 1, 2017 (instead of July 1, 2020 as previously existed in State statute). This incentive is among those included for the July 1, 2017 sunset. While it could be argued that the evaluation of the incentive is no longer necessary, examining the impact of incentives for the critically important oil and gas industry is useful from a public policy perspective. It is also possible that the State might revisit these incentives in the future.

**Recommendation: Based on the lack of essential data and the analysis of available information, the project team concurs with the repeal of the program.**

### Key Findings

- **The return on investment (ROI) for this program was positive.** Based on the economic and fiscal impact analysis, it appears the tax revenue generated exceeds the annual incentives offered under this program. The net benefit to the State is estimated to be \$3.7 million between 2013 and 2017.

**Figure 1: Net Fiscal Impact<sup>1</sup>**



- **The State is not currently at risk of significant increases in tax expenditures associated with the program.** One of the statutory requirements is that each evaluation should determine “whether adequate protections are in place to ensure the fiscal impact of the incentive does not increase substantially beyond the State’s expectations in future years.” Given the decision to sunset the program for all production effective July 1, 2017, the State is not at risk of significant increases in expenditures related to this incentive.

<sup>1</sup> Net fiscal impact is defined as the total tax revenue generated minus the annual rebates paid.



- **Data to evaluate the program based on approved criteria was not available.** Data that would enable the project team to analyze this incentive based on the following Incentive Evaluation Commission (IEC)-adopted criteria is not captured in a format that allows for timely analysis:
  - Change in capital investment versus non-qualified within the industry;
  - Change in oil/gas production versus non-qualified within the industry;
  - Change in jobs versus non-qualified within the industry;
  - Change in revenue associated with leases.
  
- **Relative to other states, Oklahoma’s program was competitive, yet less comprehensive.** While Oklahoma’s program is considered competitive among its peers, it falls short of much of the competition in terms of program duration, length of rebate/exemption, and basis of taxation (full production versus incremental production). However, while many states limit incentives based on commodity prices, Oklahoma has no such restriction.

*Changes to Improve Future Evaluations (if the Program were Resumed)*

- **Recommendation 1: Explore the Oklahoma Tax Commission’s new electronic filing system as a method for improving reporting and data collection.** The Oklahoma Tax Commission (OTC) recently rolled out an electronic filing system for the filing of Forms 320-A (Request for Assignment of OTC Production Unit Number) and 320-C (Gross Production Request for Change), the latter of which is required to apply to the Re-Established Production Rebate. The system allows users to register new wells, request assignment of the lease production unit number (PUN), make changes to existing lease record information, and make all other changes currently found on the forms. While this system is currently not planned for use in administering the Production Enhancement Rebate, the State should assess whether it has an opportunity to automate the data collection process. The system may be able to act as a database/repository for the information currently collected, as well as data necessary for effective administration (see Recommendation 2).
  
- **Recommendation 2: Improve the data collection process.** Should the State seek to reinstate this (or a similar) rebate in the future, it should require additional data from those who qualify for the rebate in order to ensure a full cost-benefit analysis can be completed. Data required includes gross volume and base production totals, as well as the production year associated with each claim. If jobs and/or payroll associated with the production enhancement rebate are goals of the program, that information should also be collected.



# **Key Findings and Recommendations**



**Overall Recommendation: Based on the lack of essential data and its analysis of available information, the project team concurs with the State's decision to repeal the program.**

#### *Key Findings*

**According to the OTC, information that would enable the project team to analyze the incentive based on the Incentive Evaluation Commission (IEC)-adopted criteria is not captured in a format that allows for timely analysis.**

Below is a summary of the project team's additional findings, based on the established criteria for evaluation.

#### *Other Findings*

- **The return on investment (ROI) for this program was positive.** Based on the economic and fiscal impact analysis, it appears the tax revenue generated exceeds the annual incentives offered under this program. The net benefit to the State is estimated to be \$3.7 million between 2013 and 2017.
- **The State is not currently at risk of significant increases in tax expenditures associated with the program.** One of the requirements of HB2182 is that each evaluation should determine "whether adequate protections are in place to ensure the fiscal impact of the incentive does not increase substantially beyond the State's expectations in future years." Given the program sunset for all production effective July 1, 2017, the State is not at risk of significant increases in expenditures related to this incentive.
- **A lack of data creates challenges in assessing the impact of the program.** Very high level information related to this incentive (estimated total rebates of gross production tax paid) is reported in the State's Tax Expenditures Report; the source of this information is gross production tax reports. However, there is a general lack of detailed data associated with this incentive. According to the OTC, data detailing claims by production year (instead of claim year), gross volume and volume of base production are not captured in a format that allows for timely analysis. Instead, staff were able to provide total incentive rebates claimed per year, along with the number of companies paid. Finally, there is no data required associated with jobs or payroll for the enhanced production.
- **Relative to other states, Oklahoma's program was competitive, yet less comprehensive.** While Oklahoma's program is considered competitive among its peers, it falls short of much of the competition in terms of program duration, length of rebate/exemption, and basis of taxation (full production versus incremental production). However, while many states limit incentives based on commodity prices, Oklahoma has no such restriction.

#### **Recommendations**

The project team concurs with the State's decision to end the program. Key in this determination was a lack of essential data that could illustrate the impact of the program in accordance with the Commission's evaluation criteria.

The project team provides the following recommendations for consideration in the event that the program is revisited/reinstated in the future.



- **Recommendation 1: Explore the new electronic filing system as a method for improving reporting and data collection.** The OTC recently rolled out an electronic filing system for the filing of Forms 320-A (Request for Assignment of OTC Production Unit Number) and 320-C (Gross Production Request for Change), the latter of which is required to apply to the Re-Established Production Rebate. The system allows users to register new wells, request assignment of the lease production unit number (PUN), make changes to existing lease record information, and make all other changes currently found on the forms. While this system is currently not planned for use in administering the Production Enhancement Rebate, the State should assess whether it has an opportunity to automate the data collection process. The system may be able to act as a database/repository for the information currently collected, as well as data necessary for effective administration (see Recommendation 2).
- **Recommendation 2: Improve the data collection process.** Should the State seek to reinstate this (or a similar) rebate in the future, it should require additional data from those who qualify for the rebate in order to ensure a full cost-benefit analysis can be completed. Data required includes gross volume and base production totals, as well as the production year associate with each claim. If jobs and payroll associated with enhanced production are program goals, then that information should also be collected from those seeking the rebate.



# Introduction



## Overview

In 2015, HB2182 established the Oklahoma Incentive Evaluation Commission (the Commission). It requires the Commission to conduct evaluations of all qualified state incentives over a four-year timeframe. The law also provides that criteria specific to each incentive be used for the evaluation. The first set of 11 evaluations was conducted in 2016.

The Production Enhancement Rebate is one of 12 incentives scheduled for review by the Commission in 2017. Based on this evaluation and their collective judgement, the Commission will make recommendations to the Governor and the State Legislature related to this incentive.

During the 2017 legislative session, HB2377 was enacted, which provided a sunset of eight gross production tax (GPT) incentives on July 1, 2017 (instead of July 1, 2020 as previously existed in State statute). This incentive is among those with a July 1, 2017 sunset. While it could be argued that the evaluation of the incentive is no longer necessary, examining the impact of incentives for such an important state industry is useful from a public policy perspective. It is also possible that the State may wish to revisit these incentives in the future.

## Incentive Background

Many states have provided tax incentives to stimulate oil and gas production, revenue and job creation. Over the years, the State of Oklahoma has enacted a series of rebates that effectively lower the tax rate for various forms of production, including production resulting from enhancement projects.

Oklahoma's Production Enhancement Rebate, effective July 1, 1994, reduced the gross production tax for 28 months on the incremental production<sup>2</sup> resulting from production enhancement projects.

## Criteria for Evaluation

A key factor in evaluating the effectiveness of incentive programs is to determine whether they are meeting the stated goals as established in state statute or legislation. In the case of this incentive, the specific goals were not included in the legislation that established them. However, it is reasonable to assume that the goals of the program would include increased Oklahoma oil and gas production and, through it, increased employment within the State.

There are other criteria that may be used to evaluate this incentive program. To assist in a determination of program effectiveness, the Incentive Evaluation Commission has adopted the following criteria:

- Change in capital investment versus non-qualified within the industry;
- Change in oil/gas production versus non-qualified within the industry;
- Change in jobs versus non-qualified within the industry;
- Change in revenue associated with leases.

The criteria focus on what are generally considered goals of incentive programs, such as creating jobs and capital investment in the state. Ultimately, incentive programs have to weigh both the benefits (outcomes related to achieving policy goals and objectives) and the costs, and that is also a criterion for evaluation (State return on investment). These will be discussed throughout the balance of the evaluation.

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<sup>2</sup> Incremental production means the amount of crude oil, natural gas or other hydrocarbons which are produced as a result of the production enhancement project in excess of the base production.



# Industry Background

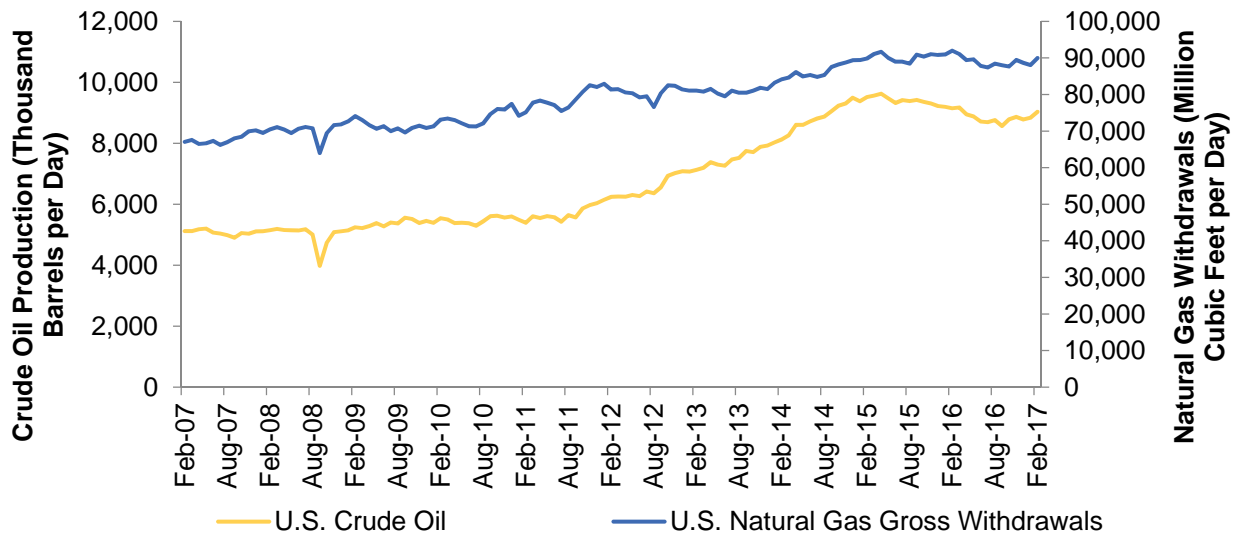


## U.S. Oil and Gas Industry Background

Nationally, oil and gas production have both increased over the last 10 years. Crude oil production grew by 76 percent between February 2007 and February 2017, and natural gas withdrawals increased by 34 percent during the same time period. Nationally, U.S. crude oil production peaked in April 2015 at an average of 9.6 million barrels per day, and natural gas withdrawals peaked in February 2016 at an average of 92 billion cubic feet per day.

The following chart tracks oil and gas production during this timeframe.

**Figure 2: U.S. Crude Oil and Natural Gas Production, 2007-2017**



Source: U.S. Energy Information Administration Monthly Crude Oil and Natural Gas Production

### Industry Outlook

Nationally, the outlook for the oil and gas industry is positive. According to the April 2017 Oklahoma Economic Indicators Report produced by the Oklahoma Employment Security Commission, U.S. crude oil production is forecast to average 9.2 million barrels per day in 2017 and 9.9 million barrels per day in 2018, an increase from 8.9 million barrels per day in 2016. Additionally, the report estimates that U.S. natural gas production in 2017 will increase by 0.8 billion cubic feet per day (Bcf/d) over 2016 levels, and 2018 production is forecast to be 4.0 Bcf/d over the 2017 projection.



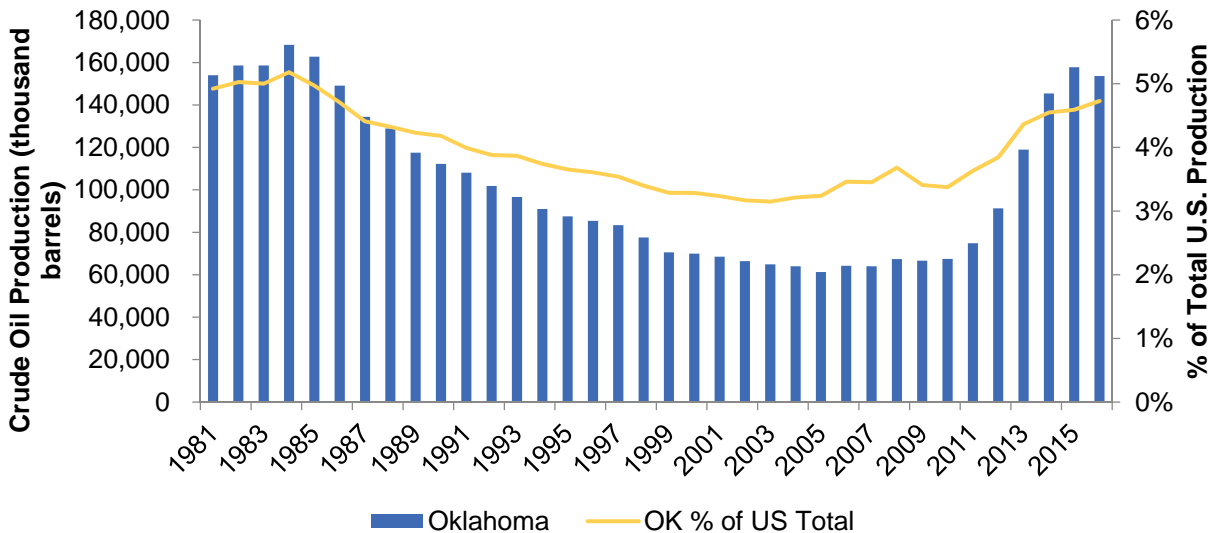
## Oklahoma Oil and Gas Industry Background

### Oil and Gas Production

The oil and gas industry plays a major role in Oklahoma’s economy. The State produces a substantial amount of oil and natural gas, ranking fifth in crude oil production and third in dry natural gas production among all states in 2015.<sup>3</sup>

Including Oklahoma, the Midwestern states<sup>4</sup> accounted for 614 million barrels of crude oil, or 19 percent of all U.S. field production, in 2016. Total Oklahoma production declined steadily between 1984 and 2005 before increasing to levels seen prior to the start of the decline, with most of the significant increases occurring in the years since 2012. Simultaneously, Oklahoma’s share of total Midwestern crude oil production has decreased from 43 percent in 1981 to 25 percent in 2016, primarily as a result of increased production in North Dakota. North Dakota’s production has grown exponentially, from 45 million barrels in 1981 (13 percent of the Midwestern total) to 378 million barrels in 2016 (62 percent of the Midwestern total). Nationally, Oklahoma’s production of crude oil has consistently accounted for approximately three to five percent of total production. The figure below illustrates Oklahoma’s performance among all states.

**Figure 3: Oklahoma Field Production of Crude Oil, 1981-2016**



Source: U.S. Energy Information Administration Annual Crude Oil Production

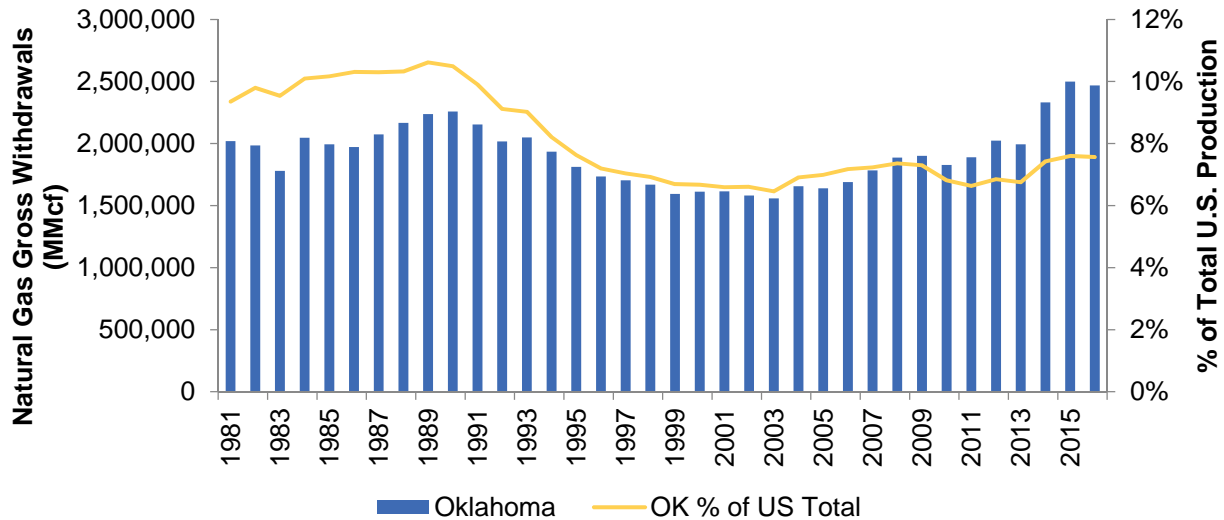
Oklahoma natural gas withdrawals declined between 1990 and the early 2000s but have increased modestly since, peaking at 2.5 million cubic feet (Mcf) in 2015. Despite this increase in total production, Oklahoma’s share as a percentage of total U.S. production, which peaked at more than 10 percent in the late 1980s, has declined since and now hovers around seven percent. The following figure illustrates Oklahoma’s natural gas withdrawal performance.

<sup>3</sup> U.S. Energy Information Administration Monthly Crude Oil and Natural Gas Production.

<sup>4</sup> According to the U.S. EIA, the Midwestern Petroleum Administration for Defense District (PADD) includes Illinois, Indiana, Kansas, Kentucky, Michigan, Missouri, Nebraska, North Dakota, Ohio, Oklahoma, South Dakota and Tennessee.



Figure 4: Oklahoma Natural Gas Withdrawals, 1981-2016



Source: U.S. Energy Information Administration Annual Natural Gas Withdrawals

### Oil and Gas Economic Impact

The oil and gas industry plays a significant role in Oklahoma's regional economy. A 2016 study by the State Chamber of Oklahoma Research Foundation identified the following as a few of the industry's economic contributions:<sup>5</sup>

- Household earnings (\$15.6 billion) from the oil and gas sector total 13.2 percent of total state earnings;
- Oil and gas activity accounts for more than half the fixed investment (\$20.3 billion) in Oklahoma;
- The State exported crude oil and natural gas valued at \$7.1 billion in 2015;
- An estimated \$1.7 billion in oil and gas royalties were paid to Oklahomans in 2015;
- Activity in the industry supports an estimated \$28.6 billion in additional output of goods and services in other industry sectors statewide.

The oil and gas industry also directly generates many high paying jobs throughout the State. **While the oil and gas industry accounts for fewer than two percent of all private industry jobs within Oklahoma, oil and gas wages account for nearly six percent of total private industry wages.** Additionally, the average annual pay (nearly \$140,000 in 2015) is significantly higher than the statewide average annual pay for all private industries (\$44,504).

<sup>5</sup> State Chamber of Oklahoma Research Foundation. Economic Impact of the Oil and Gas Industry on Oklahoma (September 2016).



**Table 1: Oklahoma Oil and Gas Employment, 2006-2015<sup>6</sup>**

Year	Oil and Gas Employment		Oil and Gas Wages		Avg Annual Pay	
	Total Employees	% of All Private Industry Total	Total Wages (in thousands)	% of All Private Industry Total Wages	Oil and Gas	All Private Industries
2006	16,192	1.4%	\$2,148,554	5.3%	\$132,694	\$34,136
2007	17,985	1.5%	\$1,856,701	4.3%	\$103,234	\$35,469
2008	19,808	1.6%	\$2,258,918	4.9%	\$114,041	\$37,137
2009	19,410	1.7%	\$1,939,932	4.5%	\$99,943	\$36,934
2010	18,677	1.6%	\$1,907,912	4.3%	\$102,152	\$38,011
2011	21,078	1.8%	\$2,486,725	5.2%	\$117,979	\$40,157
2012	23,986	2.0%	\$2,860,984	5.6%	\$119,279	\$41,863
2013	24,328	2.0%	\$3,057,485	5.8%	\$125,677	\$42,734
2014	24,140	1.9%	\$3,089,106	5.6%	\$127,965	\$44,089
2015	23,868	1.9%	\$3,324,490	5.9%	\$139,288	\$44,504

Source: U.S. Department of Labor BLS - Quarterly Census of Employment and Wages

Note: data represents only direct employment.

In addition, Oklahoma's oil and gas industry is a vital part of the regional and national economy. The benchmark price for a blend of U.S. crude oils known as West Texas Intermediate (WTI) is set at Cushing, Oklahoma.<sup>7</sup> Additionally, the State ranks as the third most attractive oil and gas market among 126 markets worldwide due to its abundant natural energy reserves and strong prospects for growth.<sup>8</sup> According to a 2015 report released by the U.S. Department of Labor's Bureau of Labor Statistics (BLS), in June 2014, Washington County, Oklahoma had the highest concentration of employment in the oil and gas extraction industry in the country (with a location quotient of 139.8). Woods County, Oklahoma had the third highest concentration (98.4).<sup>9</sup>

### *Oklahoma Oil and Gas Taxes*

In addition to employment opportunities, the oil and gas industry provides significant revenue to states through the payment of various taxes. Nationally, taxes levied on the oil and gas industry can be grouped into three broad categories: production, property and income. For this evaluation, production taxes, which are imposed on the value or volume of the oil and gas as it is extracted from the ground or at the point of first sale, are the focus of this incentive.

Oklahoma's GPT is a severance tax on the dollar value of production of oil and gas taken from land or water in the State. Under current law, traditional vertical wells are taxed at 7.0 percent.<sup>10</sup> Horizontal wells drilled before

<sup>6</sup> BLS Data for all jobs categorized under NAICS 211, Oil and Gas Extraction.

<sup>7</sup> EIA State Profile and Energy Estimates: Oklahoma. Available at <https://www.eia.gov/state/index.php?sid=OK>

<sup>8</sup> State Chamber of Oklahoma Research Foundation. Economic Impact of the Oil and Gas Industry on Oklahoma (September 2016).

<sup>9</sup> U.S. Department of Labor Bureau of Labor Statistics. Counties with Highest Concentration of Employment in Oil and Gas Extraction, June 2014. Available at: <https://www.bls.gov/opub/ted/2015/counties-with-highest-concentration-of-employment-in-oil-and-gas-extraction-june-2014.htm>.

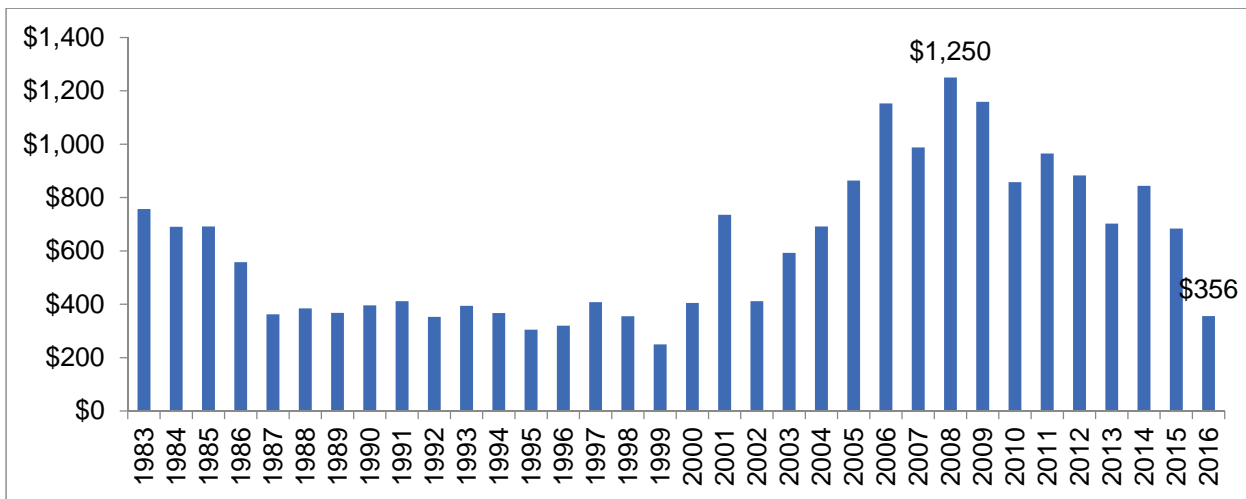
<sup>10</sup> A vertical well, considered to be the conventional well type, is a well that is not turned horizontally at depth, allowing access to oil and gas reserves located directly beneath the surface access point. Historically, natural gas and exploration involved the use of vertical wells because directional drilling technology was expensive and complicated. While less expensive to develop they are typically less productive because of their limited range.



July 1, 2015 are taxed at 1.0 percent for four years and 7.0 percent thereafter.<sup>11</sup> Newly drilled wells are taxed at 2.0 percent for the first 36 months of production; they are then taxed at 7.0 percent for the rest of the life of the well.

These taxes are a significant source of overall Oklahoma revenues, totaling \$355.9 million in FY2016.<sup>12</sup> Because GPT revenue depends both on the amount of mineral extracted and its price, it can vary greatly from year to year. Since peaking in 2008 at \$1,250 million, total collections have decreased substantially, as shown in the figure below. This decrease is likely due to demand-related impacts of the Great Recession and changes in oil and gas prices, as well as reductions in tax rates put in place by the State to encourage additional production.

**Figure 5: Oklahoma Gross Production Tax Collections, 1983-2016 (in millions)**



Source: Oklahoma Tax Commission Annual Report, 2016

<sup>11</sup> Horizontal wells, the less traditional well type, allows operators to extract oil and gas from unconventional sources that may run horizontally. A horizontal well typically originates from a vertical well, as this allows engineers to examine rock fragments at different layers in order to determine where reserves can be found.

<sup>12</sup> Oklahoma Tax Commission Annual Report (2016).



# Incentive Usage and Administration



## Incentive Characteristics

At the state level, many governments have granted tax exemptions to stimulate production, revenue and job creation. Over the years, the State of Oklahoma has enacted a series of rebates that effectively lower the tax rate for various forms of production, including production resulting from enhanced recovery projects.

Oklahoma's Production Enhancement Rebate, effective July 1, 1994, reduces the gross production tax for 28 months on the incremental production<sup>13</sup> resulting from production enhancement projects.

For purposes of calculating incremental production resulting from each project, "base production" is defined as:

- The average monthly production of the well in the 12 months prior to the enhancement project commencement; or
- The average monthly production of the well in the 12 months prior to the enhancement project commencement, less the monthly rate of decline in production for each month beginning 180 days prior to the enhancement project commencement; or
- If the well has been producing for less than 12 months, the average monthly production during the months it was in production prior to the commencement of the enhancement project.

A "production enhancement project" is defined as any workover (definition to follow), recompletion (definition to follow), reentry of plugged and abandoned wellbores, or addition of a well or field compression.<sup>14</sup>

A "workover" is any downhole operation in an existing oil or gas well that is designed to sustain, restore or increase the production rate or ultimate recovery in a geologic interval currently completed or producing in the existing oil or gas well.<sup>15</sup>

"Recompletion" means any downhole operation in an existing oil or gas well that is conducted to establish production of oil or gas from any geologic interval not currently completed or producing in such existing oil or gas well within the same or a different geologic formation.

For all eligible production under these definitions, the State issues a refund against gross production taxes. The Production Enhancement Rebate is applicable toward projects with a beginning date on or after July 1, 1994 and prior to July 1, 2017.

## Historic Use of the Incentive

According to data provided by the OTC, the amount of rebates paid and the number of companies claiming rebates have fluctuated in recent years, peaking at \$24.1 million in 2014 but averaging \$12.6 million between 2013 and 2016. It is likely that the spike in 2014 was due to an administrative change effective July 1, 2014 that prohibited the refund of gross production taxes for production occurring prior to July 1, 2003 and limited the

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<sup>13</sup> Incremental production means the amount of crude oil, natural gas or other hydrocarbons which are produced as a result of the production enhancement project in excess of the base production.

<sup>14</sup> Compressors are deployed to boost the gas pressure high enough to push it through pipelines.

<sup>15</sup> For production enhancement projects having a project beginning date on or after July 1, 1997, and prior to July 1, 2017, "workover" includes, but is not limited to: acidizing; reperforating; fracture treating; sand/paraffin/scale removal or other wellbore cleanouts; casing repair; squeeze cementing; installation of compression on a well or group of wells or initial installation of artificial lifts on gas wells, including plunger lifts, rod pumps, submersible pumps and coiled tubing velocity strings; downsizing existing tubing to reduce well loading; downhole commingling; bacteria treatments; upgrading the size of pumping unit equipment; setting bridge plugs to isolate water production zones; or any combination thereof. Routine maintenance, routine repair, or like for like replacement of downhole equipment such as rods, pumps, tubing, packers, or other mechanical devices does not qualify as a workover.



claim window to 18 months after the first day of the fiscal year in which the refund is initially available. This change had the effect of increasing claims in 2014 resulting from production occurring prior to July 1, 2003 that otherwise would have become ineligible for the rebate.

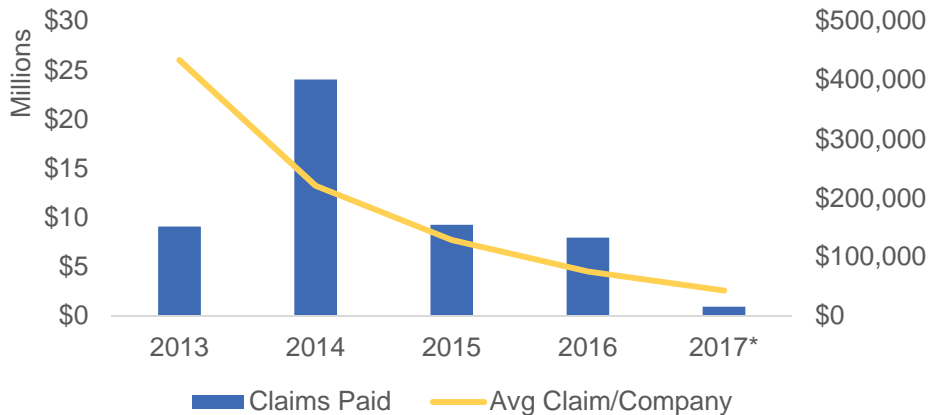
**Table 2: Production Enhancement Rebate Claims Data, 2013-2017**

Claim Year	Total Claims Paid	Total Companies
2013	\$9,103,474	21
2014	\$24,050,859	109
2015	\$9,268,950	72
2016	\$7,978,526	106
2017	\$949,295	22

Source: OTC data  
\* Preliminary

There does not appear to be a strong correlation between production increases and rebates associated with this incentive. While production has generally increased from year to year, rebate claims have fluctuated significantly, and the average claim per company has decreased from \$433,000 in 2013 to \$75,000 in 2016. It is possible that this is due to the relatively stronger market enabling operators to prioritize top-producing wells instead of turning to smaller projects focused on incremental increases.

**Figure 6: Production Enhancement Rebate - Average Claim/Company, 2013-2017**



Source: OTC data  
\* Preliminary

### Incentive Administration

There are three components to overall program administration, which are jointly managed by the OTC and the Oklahoma Corporation Commission (OCC):

1. **Eligibility.** In order to be eligible for the Production Enhancement Rebate, well operators must undertake projects that qualify under the definition of “production enhancement projects” which means



any workover, recompletion, reentry of plugged and abandoned wellbores, or addition of a well or field compression.

2. **Application.** To apply for qualification of a production enhancement project and incremental production, OCC Form 1534 (Application for Tax Rebate) is completed by the well operator and submitted, along with supporting documents, to the Technical Services Department of the Conservation Division of the OCC for review. If the application is approved, a copy is forwarded to the well operator. If the application is denied or refused, or if approval is delayed beyond 60 days, the operator can seek review by application, notice and hearing.
3. **Refunding.** If the OCC approves the application, the operator requests a refund by letter to the Audit Division of the OTC. The letter states the reason for the refund and the amount claimed and is submitted along with a copy of the application approved by the OCC certifying the well as a production enhancement project. The applicant also provides a completed OTC Form 328 (Gross Production 841/495 Refund Report); and if the request is filed by anyone other than the person named in the OCC application, a notarized affidavit. The OTC reviews the application and supporting documentation and if no problems exist, processes the refund.

The amount refunded is based on the incremental production resulting from the production enhancement project. To calculate this, the OCC uses a decline forecast model it developed internally. The tool uses historical production data to calculate a decline rate and baseline production level from which increased production is measured. These measures are passed along to the operator at the time of approval so that they can be used to calculate each refund request based on actual production post-enhancement project.

### *Industry Education*

According to the OTC, lack of industry education is the primary reason for oil and gas incentive-related denials – most often, applicants are confused about the level at which the incentives are administered (i.e. lease or well level). In addition to educational opportunities provided by the OTC, State agency Sustaining Oklahoma's Energy Resources (SOER) provides a variety of workshops for industry professionals around the state on a variety of industry-related topics. One workshop, Navigating State Forms: A Panel Discussion with the OCC and OTC, provides information about where to find, how to complete and when to submit some of the most common forms associated with operating an oil or gas well in the state.<sup>16</sup>

### *Reporting and Data Issues*

Very high level information related to this incentive (estimated total rebates of gross production tax paid) is reported in the State's Tax Expenditures Report; the source of this information is gross production tax reports.

However, there is a general lack of detailed data associated with this incentive. According to the OTC, data detailing claims by production year (instead of claim year) and gross volume and volume of base production are not captured in a format that allows for timely analysis. Instead, staff were able to provide total incentive rebates claimed per year, along with the number of companies paid.

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<sup>16</sup> Sustaining Oklahoma's Energy Resources (SOER) was created on July 1, 2013 when the Marginal Well Commission (MWC) with the Oklahoma Energy Resources Board (CERB) under Senate Bill 767.



# **Economic and Fiscal Impact**



## Economic Impact Methodology

Economists use a number of statistics to describe regional economic activity. Four common measures are **Output**, which describes total economic activity and is generally equivalent to a firm's gross sales; **Value Added**, which equals gross output of an industry or a sector less its intermediate inputs; **Labor Income**, which corresponds to wages and benefits; and **Employment**, which refers to jobs that have been created in the local economy.

In an input-output analysis of new economic activity, it is useful to distinguish three types of effects: **direct**, **indirect**, and **induced**.

**Direct effects** are production changes associated with the immediate effects or final demand changes. The payment made by an out-of-town visitor to a hotel operator or the taxi fare paid for transportation while in town are examples of direct effects.

**Indirect effects** are production changes in backward-linked industries caused by the changing input needs of directly affected industries – typically, additional purchases to produce additional output. Satisfying the demand for an overnight stay will require the hotel operator to purchase additional cleaning supplies and services. The taxi driver will have to replace the gasoline consumed during the trip from the airport. These downstream purchases affect the economic output of other local merchants.

**Induced effects** are the changes in regional household spending patterns caused by changes in household income generated from the direct and indirect effects. Both the hotel operator and taxi driver experience increased income from the visitor's stay, as do the cleaning supplies outlet and the gas station proprietor. Induced effects capture the way in which increased income is spent in the local economy.

A multiplier reflects the interaction between different sectors of the economy. An output multiplier of 1.4, for example, means that for every \$1,000 injected into the economy, all other sectors produce an additional \$400 in output. The larger the multiplier, the greater the impact will be in the regional economy.

**Figure 7: The Flow of Economic Impacts**



For this analysis, the project team used the IMPLAN online economic impact model with the dataset for the State of Oklahoma (2014 Model).

## Fiscal Impact Methodology

To provide an “order of magnitude” estimate for state tax revenue attributable to the incentive being evaluated, the project team focused on the ratio of state government tax collections to Oklahoma Gross Domestic Product (GDP).<sup>17</sup> Two datasets were used to derive the ratio: 1) U.S. Department of Commerce Bureau of Economic

<sup>17</sup> Gross State Product (GSP) is the state counterpart of Gross Domestic Product (GDP) for the nation. To assist the reader, the project team has decided to use GDP throughout this section of the report instead of mixing the two terms. This decision was made because more people are familiar with the term GDP.



Analysis GDP estimates by state;<sup>18</sup> and 2) the OTC's *Annual Report of the Oklahoma Tax Commission*.<sup>19</sup> Over the past 10 years, the state tax revenue as a percent of state GDP was 5.4 percent, as shown in the following table:

**Table 3: State of Oklahoma Tax Revenue as a Percent of State GDP**

Year	Oklahoma Tax Revenue <sup>20</sup>	Oklahoma GDP	Ratio
2006-07	\$8,685,842,682	\$144,171,000,000	6.0%
2007-08	\$9,008,981,280	\$155,015,000,000	5.8%
2008-09	\$8,783,165,581	\$143,380,000,000	6.1%
2009-10	\$7,774,910,000	\$151,318,000,000	5.1%
2010-11	\$8,367,871,162	\$165,278,000,000	5.1%
2011-12	\$8,998,362,975	\$173,911,000,000	5.2%
2012-13	\$9,175,334,979	\$182,447,000,000	5.0%
2013-14	\$9,550,183,790	\$190,171,000,000	5.0%
2014-15	\$9,778,654,182	\$180,425,000,000	5.4%
2015-16	\$8,963,894,053	\$182,937,000,000	4.9%
<b>Average</b>	<b>\$8,908,720,068</b>	<b>\$166,905,300,000</b>	<b>5.4%</b>

Source: U.S. Department of Commerce Bureau of Economic Analysis and Oklahoma Tax Commission

The value added of an industry, also referred to as gross domestic product (GDP)-by-industry, is the contribution of a private industry or government sector to overall GDP. The components of value added consist of compensation of employees, taxes on production and imports less subsidies, and gross operating surplus. Changes in value added components such as employee compensation have a direct impact on taxes such as income and sales tax. Other tax revenues such as alcoholic beverage and cigarette taxes are also positively correlated to changes in income.

Because of the highly correlated relationship between changes in the GDP by industry and most taxes collected by the state, the ratio of government tax collections to Oklahoma GDP forms the evaluation basis of the fiscal implications of different incentive programs offered by the State. The broader the basis of taxation (i.e., income and sales taxes) the stronger the correlation; with certain taxes on specific activity, such as the gross production (severance) tax, there may be some variation in the ratio year-to-year, although these fluctuations tend to smooth out over a period of several years. This ratio approach is somewhat standard practice, and is consistent with what IMPLAN and other economic modeling software programs use to estimate changes in tax revenue.

To estimate State of Oklahoma tax revenue generated in a given year, the project team multiplied the total value added figure produced by the IMPLAN model by the corresponding annual ratio (about 5.4 percent). For example, if the total value added was \$1,000,000, then the estimated State of Oklahoma tax revenue was \$54,000 (\$1,000,000 x 5.4 percent).

### **Impact of Production Enhancement Rebate Incentives**

The Production Enhancement Rebate was designed to increase and expand oil and gas production in Oklahoma. A full or partial refund of gross production taxes paid for production in the previous calendar year

<sup>18</sup> U.S. Department of Commerce Bureau of Economic Analysis. Available at <http://www.bea.gov/regional/>.

<sup>19</sup> Oklahoma Tax Commission. Available at [https://www.ok.gov/tax/Forms\\_&\\_Publications/Publications/Annual\\_Reports/index.html](https://www.ok.gov/tax/Forms_&_Publications/Publications/Annual_Reports/index.html).

<sup>20</sup> Gross collections from state-levied taxes, licenses and fees, exclusive of city/county sales and use taxes and county lodging taxes.



was issued to the well operator. Because GPT rates vary based on the well classification, total annual production or output was derived using a blended production tax rate of 5.5 percent. Based on data availability, it was necessary to convert the incentive amount to annual economic activity prior to utilizing the economic impact model. IMPLAN Sector 20 Extraction of Natural Gas and Crude Petroleum was used to model the economic impact.

**Table 4: Impact of Production Enhancement Rebate Incentives**

Year		Output	Value Added	Labor Income	Employment	Estimated Oklahoma Tax Revenue
<b>2013</b>	Direct Effect	\$165,517,703	\$117,291,017	\$90,191,059	685	
	Indirect Effect	\$37,984,606	\$23,290,529	\$17,823,489	205	
	Induced Effect	\$81,462,837	\$44,580,136	\$25,170,842	626	
	<b>Total Effect</b>	<b>\$284,965,146</b>	<b>\$185,161,682</b>	<b>\$133,185,390</b>	<b>1,515</b>	<b>\$9,628,407</b>
<b>2014</b>	Direct Effect	\$437,288,338	\$324,540,308	\$249,555,634	1,862	
	Indirect Effect	\$103,696,093	\$64,444,111	\$49,316,996	557	
	Induced Effect	\$225,806,829	\$123,351,741	\$69,646,875	1,700	
	<b>Total Effect</b>	<b>\$766,791,260</b>	<b>\$512,336,160</b>	<b>\$368,519,505</b>	<b>4,119</b>	<b>\$25,616,808</b>
<b>2015</b>	Direct Effect	\$168,526,364	\$124,092,455	\$95,421,033	704	
	Indirect Effect	\$39,809,706	\$24,641,093	\$18,857,033	211	
	Induced Effect	\$85,915,950	\$47,165,237	\$26,630,442	643	
	<b>Total Effect</b>	<b>\$294,252,020</b>	<b>\$195,898,785</b>	<b>\$140,908,508</b>	<b>1,558</b>	<b>\$9,851,831</b>
<b>2016</b>	Direct Effect	\$145,064,114	\$105,506,836	\$81,129,600	595	
	Indirect Effect	\$34,137,004	\$20,950,539	\$16,032,770	178	
	Induced Effect	\$73,014,578	\$40,101,188	\$22,641,938	544	
	<b>Total Effect</b>	<b>\$252,215,696</b>	<b>\$166,558,563</b>	<b>\$119,804,308</b>	<b>1,317</b>	<b>\$8,994,162</b>
<b>2017</b>	Direct Effect	\$17,259,908	\$12,399,443	\$9,534,565	70	
	Indirect Effect	\$4,046,372	\$2,462,163	\$1,884,214	21	
	Induced Effect	\$8,577,062	\$4,712,798	\$2,660,940	63	
	<b>Total Effect</b>	<b>\$29,883,342</b>	<b>\$19,574,404</b>	<b>\$14,079,719</b>	<b>154</b>	<b>\$959,146</b>

Source: TXP, Inc. IMPLAN analysis output, September 2017

**Table 5: Annual Tax Revenue Generated, 2011-2015**

Year	Rebates Paid During Current Tax Year	Estimated Oklahoma Tax Revenue	Net Impact
2013	\$9,103,474	\$9,628,407	\$524,933
2014	\$24,050,859	\$25,616,808	\$1,565,949
2015	\$9,268,950	\$9,851,831	\$582,881
2016	\$7,978,526	\$8,994,162	\$1,015,636
2017	\$949,295	\$959,146	\$9,851
<b>Total</b>	<b>\$51,351,104</b>	<b>\$55,050,354</b>	<b>\$3,699,250</b>

Source: TXP, Inc. IMPLAN analysis output, September 2017



As depicted in the preceding table, the Production Enhancement Rebate program results in increased statewide oil and gas production sector activity. The level of economic activity varies each year and is directly linked to the amount of oil and gas production. It is likely that the spike in 2014 was due to an administrative change effective July 1, 2014 that prohibited the refund of gross production taxes for production occurring prior to July 1, 2003. Multiplying the total value added figure produced by the IMPLAN model by the corresponding annual tax ratio provides an estimate for total annual State tax revenue. Over the past 5 years, the Production Enhancement Rebate program (through direct, indirect and induced economic effects) has generated approximately \$55.1 million in state tax revenue. Over this same period, the State has provided \$51.4 million amount in rebates, resulting in a return on investment of \$3.7 million between 2013 and 2017.

It should be noted that it is difficult to evaluate the importance of the Production Enhancement Rebate program on the long-term outlook for the overall oil and gas sector (but-for test). It is reasonable to assume that some of the oil and gas producers would have continued to invest in these wells at some level or shifted capital expenditures to another location within the state. If this occurred, there would have been positive economic activity without the incentive. A more important variable that drives activity in this sector is the market price for crude oil and natural gas. The importance of this incentive and the risk producers are willing to take is directly linked to the market price of oil and natural gas.



# Incentive Benchmarking



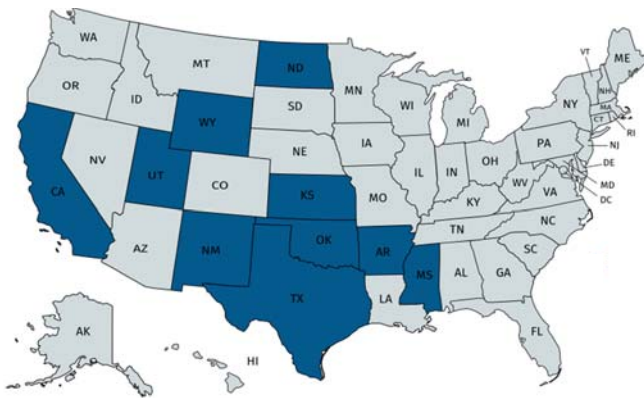
## Benchmarking

A detailed description of comparable state programs can be found in **Appendix A**.

For evaluation purposes, benchmarking provides information related to how peer states use and evaluate similar incentives. At the outset, it should be understood that no states are ‘perfect peers’ – there will be multiple differences in economic, demographic and political factors that will have to be considered in any analysis; likewise, it is exceedingly rare that any two state incentive programs will be exactly the same.<sup>21</sup> These benchmarking realities must be taken into consideration when making comparisons – and, for the sake of brevity, the report will not continually re-make this point throughout the discussion.

The process of creating a comparison group for incentives typically begins with bordering states. This is generally the starting point, because proximity often leads states to compete for the same regional businesses or business/industry investments. Second, neighboring states often (but not always) have similar economic, demographic or political structures that lend themselves to comparison.

**Figure 8: States Offering Production Enhancement Incentives**



However, the comparison group for certain incentives will be broader than just the neighboring states. In this case (as with most energy-related incentives), the industry the rebate seeks to impact is natural resource-driven, and the states Oklahoma competes with are those with similar available resources and infrastructure to support the industry.

In total, nine states were found to currently have (or previously have had) tax incentives comparable to those offered by the State of Oklahoma. Those states are displayed in Figure 8.

Oklahoma, along with other states offering similar production enhancement incentives, accounted for 54 percent of total U.S. dry natural gas production and 70 percent of total U.S. crude oil production in 2015. Several top-producing states were not found to have similar incentives (Pennsylvania, number two for natural gas; Louisiana, number five for natural gas and number nine for crude oil; Colorado, number six for natural gas and number seven for crude oil; West Virginia, number seven for natural gas; Ohio, number ten for natural gas; and Alaska, number four for crude oil).

**Table 6: Production of States Offering Production Enhancement Incentives, 2015**

State	Dry Natural Gas			Crude Oil		
	Production (Mcf)	% of U.S. Total	Rank	Production (thousand barrels)	% of U.S. Total	Rank
Texas	7,071,203	26.1%	1	1,263,585	36.8%	1
<b>Oklahoma</b>	<b>2,336,234</b>	<b>8.6%</b>	<b>3</b>	<b>157,770</b>	<b>4.6%</b>	<b>5</b>

<sup>21</sup> The primary instances of exactly alike state incentive programs occur when states choose to ‘piggyback’ onto federal programs.



State	Dry Natural Gas			Crude Oil		
	Production (Mcf)	% of U.S. Total	Rank	Production (thousand barrels)	% of U.S. Total	Rank
Wyoming	1,745,165	6.4%	4	86,499	2.5%	8
New Mexico	1,151,159	4.3%	8	146,746	4.3%	6
Arkansas	1,009,723	3.7%	9	6,165	0.2%	23
Utah	408,002	1.5%	11	36,987	1.1%	11
North Dakota	381,653	1.4%	12	429,447	12.5%	2
Kansas	270,180	1.0%	14	45,481	1.3%	10
California	218,590	0.8%	15	201,284	5.9%	3
Mississippi	57,859	0.2%	20	24,918	0.7%	14
<b>U.S.</b>	<b>27,059,503</b>	<b>54.1%</b>		<b>3,436,515</b>	<b>69.8%</b>	

Source: U.S. Energy Information Administration

A review of the nine comparable incentive programs reveals that Oklahoma is one of three with sunset dates. While Oklahoma's Production Enhancement Rebate is currently applicable toward projects with a beginning date on or after July 1, 1994 and prior to July 1, 2017, Texas' program sunset in September 2013, and Wyoming's program expired in March 2008.

Like Oklahoma, Kansas and North Dakota offer full production tax exemptions on incremental production, with no restrictions related to the price of oil or gas. While all three programs are time limited, Kansas and North Dakota offer more generous terms related to the length of the incentive (7 years and 5-10 years, respectively).

Four states (Arkansas, New Mexico, Utah and Wyoming) offer a reduction in tax rate on incremental production, as opposed to a full tax exemption. While New Mexico and Wyoming time-limit their incentives and limit them based on commodity prices, Arkansas and Utah impose no such restrictions.

Finally, three states (California, Mississippi and Texas) reduce the tax rate on total well production, as opposed to the incremental increase in production resulting from the enhancement project. Only Texas imposes a duration limitation, and only California restricts the incentive based on oil and gas prices.

While Oklahoma's program is considered competitive among its peers, it provides less benefit than many of the benchmark states in terms of program duration, length of rebate/exemption, and basis of taxation (full production versus incremental production). However, many states limit incentives based on commodity prices, and Oklahoma does not.

The differing oil and gas tax rates in Oklahoma can make a comparison of tax rates among the states more difficult. One report, by the State of Idaho's Department of Lands, sought to make a comparison possible among states, even with varying rates. The Department determined that in order to make an "apples to apples" comparison among states, it was necessary to calculate the "effective rate," which factors in each state's production and various taxes.<sup>22</sup> To arrive at each state's effective rate, the Department divided taxes collected by the valuation of the production.

Based on this calculation, Oklahoma's FY2016 effective tax rate (3.2 percent) based on severance, production and property taxes paid in ratio to taxable value of production, was the lowest among oil and gas producing

<sup>22</sup> An effective tax rate is the average percentage that companies pay in taxes on taxable income.



states used in the study.<sup>23</sup> Idaho's effective rate was similar at 4.0 percent, while all other states imposed taxes at an effective rate between 6.1 percent (Utah) and 13.4 percent (Wyoming).<sup>24</sup>

## Benchmarking Program Evaluations

Among the states with active incentive programs, one useful study was found. In December 2000, the University of Wyoming (UW) produced a study on Mineral Tax Incentives, Mineral Production and the Wyoming Economy.

The study sought to answer two questions:

- To what extent do mineral taxes, tax incentives and environmental regulations increase or decrease tax collections to Wyoming entities as compared with amounts that would be collected in their absence?
- To what extent do taxes, tax incentives and environmental regulations alter employment and other economic activity in Wyoming as compared with what would occur in the absence?

Using Pindyck's 1979 model of exhaustible resource supply<sup>25</sup> as a basis, the UW team developed an empirical framework that was used to show how changes in taxes, tax incentives and environmental regulations alter the timing of exploration and production by firms in the oil industry. The model was used to assess the impact on drilling and production of a change in any tax or tax incentive.

### *Study Limitations*<sup>26</sup>

- Data used to implement the model are imperfect.
- The model does not envision interactions between states that arise from changes in tax or regulatory policy.
- The model used does not take into consideration investment decision factors beyond profit maximization.

### *Key Findings*

The study projected that a permanent severance tax reduction of four percent on incremental production resulting from qualified workovers and recompletions would result in an increase in real disposable taxable personal income of more than \$1.0 million, with the annual total decreasing to \$0.7 million by 2035. The report also projected an increase in total employment of approximately 40 jobs, with this number decreasing to fewer than 20 by 2035.

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<sup>23</sup> Producing states used in analysis: Alaska, Idaho, Louisiana, Montana, North Dakota, Oklahoma, Texas, Utah and Wyoming.

<sup>24</sup> Idaho Department of Lands Oil and Gas Taxation Comparison: Analysis of Severance, Production and Ad Valorem Taxes (2016).

<sup>25</sup> Pindyck's exhaustible resource supply model says that demand uncertainty has no effect on the expected dynamics of market price, while reserve uncertainty shifts the expected rate of change of price only if extraction costs are nonlinear in reserves. If the demand function is nonlinear, both demand and reserve uncertainty affect the dynamics of production, whatever the character of extraction costs. More information is available at <https://dspace.mit.edu/bitstream/handle/1721.1/35223/MIT-EL-79-021WP-05768933.pdf?sequence=1>.

<sup>26</sup> Limitations identified by UW researchers.



# Appendices



### Appendix A: Comparable State Programs

State	Program Name	Effective Date	Sunset Date	Incentive	Eligible Projects	Incentive Duration
Oklahoma	Production Enhancement Rebate	July 1, 1994	June 30, 2017	Exemption from gross production tax for any incremental production resulting from enhancement projects	Any eligible workover, eligible recompletion, reentry of plugged and abandoned wellbores, or addition of a well or field compression	28 months from date of first sale after project completion
Arkansas	Enhanced Recovery Operations Severance Tax Credit	July 1, 1995	None	50% reduction in severance tax on incremental increases in production resulting from approved enhanced recovery projects	Approved workover and completion projects	Duration of operation
California	Enhanced Oil Recovery Credit	January 1, 1996	None	5% tax credit on qualified oil recovery costs. Credit is reduced when reference price exceeds \$28 per barrel	Projects involving tertiary recovery methods, including miscible fluid displacement, steam drive injection, microemulsion flooding, in situ combustion, polymer-augmented water flooding, cyclic-steam injection, alkaline flooding, carbonated water flooding, immiscible nonhydrocarbon gas displacement	Duration of operation
Kansas	Incremental Production Exemption	July 1, 1998	None	Exemption from severance tax for any incremental production resulting from production enhancement projects	Workovers; recompletions to a different producing zone in the same well bore; secondary recovery projects; addition of mechanical devices to dewater a gas or oil well; replacement or enhancement of surface equipment; installation or enhancement of compression equipment, line looping or other technique	7 years after start-up date of project



State	Program Name	Effective Date	Sunset Date	Incentive	Eligible Projects	Incentive Duration
Mississippi	Enhanced Oil Recovery	April 1, 1994	None	Annual privilege tax is assessed against enhanced oil recovery wells at a discounted rate of 3% of the value of the oil or gas at the point of production; normal rate is 6%	Projects using any non-primary enhanced oil recovery method approved and permitted	Duration of operation
New Mexico	Enhanced Oil Recovery Incentive - Secondary Recovery	July 1, 1992	None	Special reduced recovered oil tax rate for incremental production achieved from enhanced oil recovery project. No reduction is available when WTI is more than \$28 per barrel	Projects involving processes other than primary recovery, including the use of a pressure maintenance process, a water flooding process, an immiscible, miscible, chemical, thermal or biological process	5 years from the date of recovery project approval
	Enhanced Oil Recovery Incentive - Tertiary Recovery	July 1, 1992	None	Special reduced recovered oil tax rate for incremental production achieved from enhanced oil recovery project. No reduction is available when WTI is more than \$28 per barrel		7 years from the date of recovery project approval
North Dakota	Secondary Recovery Project Exemption	July 1, 1991	None	Exemption from oil extraction tax for any incremental production resulting from secondary recovery projects	Secondary recovery (water flooding) projects	5 years from date of the incremental production
	Tertiary Recovery Project Exemption	July 1, 1991	None	Exemption from oil extraction tax for any incremental production resulting from tertiary recovery projects	Tertiary enhanced recovery projects, including CO2 injection	10 years from date of the incremental production



State	Program Name	Effective Date	Sunset Date	Incentive	Eligible Projects	Incentive Duration
Texas	Enhanced Oil Recovery Incentive	September 1, 1989	None	<p>- Oil produced from approved enhanced oil recovery projects or expansion of existing projects is eligible for special enhanced oil recovery tax rate of 2.3% of production's market value (one half the standard rate)</p> <p>- An additional 50% rate reduction (to 1.15%) applies for 30 years if the Commission certifies that anthropogenic carbon dioxide is used in the project</p>	Any process other than primary recovery, including use of an immiscible, chemical, thermal or biological process and any co-production project. Also includes the addition of injection and producing wells and change of injection pattern	10 years after Commission certification of production response
	Enhanced Efficiency Equipment Incentive	September 1, 2005	September 1, 2013	Tax credit of 10% of the cost of enhanced efficiency equipment used to produce oil from a marginal well, not to exceed \$1,000 per well	Enhanced efficiency equipment must be approved by an accredited petroleum engineering program at a higher educational institution in the state to reduce the energy used to produce oil by more than 10% per barrel	Duration of operation
Utah	Enhanced Recovery Incentive	January 1, 1996	None	50% reduction in severance tax rate on the incremental production achieved from enhanced oil recovery project	Projects involving the injection of liquids or hydrocarbon/non-hydrocarbon gases directly into a reservoir for the purpose of augmenting reservoir energy; modifying the properties of the fluids or gases in a reservoir; or changing the reservoir conditions to increase the recoverable oil, gas, or oil and gas through the joint use of two or more well bores	Duration of operation



State	Program Name	Effective Date	Sunset Date	Incentive	Eligible Projects	Incentive Duration
Wyoming	Tertiary Recovery Well Incentive <i>(Expired)</i>	July 1, 1985	March 31, 2008	Incremental oil production resulting from an enhanced recovery project is eligible for a 2% severance tax rate (instead of 6%). For projects approved after March 31, 2003, no reduction is available in months where the price received by the producer equals or exceeds \$27.50 per barrel	Tertiary enhanced recovery projects	5 years from first date of tertiary production