

A Comparative Analysis of Selected Petroleum Producing States:

The Oil & Gas Industry's Fiscal Contribution to State Governments
Interim Comprehensive Report to New Mexico Tax Research Institute
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Overview

The level of support that oil and gas production operations provide to their respective states has long been a topic of discussion. In turn, legislative and governmental initiatives implement policy responses to these discussions.

A central question is whether a particular state's revenue claim on the total production value is lax, or if it creates a competitive disadvantage when compared with neighboring states. However, finding comparable policy-related data between states is a struggle.

To that end, the New Mexico Tax Research Institute retained Moss Adams to analyze the contributions made by oil and natural gas producers to state and local government revenue. The analysis compares revenue contributions for the largest western onshore producing states in the context of the burdens placed on the productive value of each state's resources.

The research provided here is intended as a resource when assessing state and local government revenue policies, with a particular focus on the obligations paid by the oil and natural gas producers in each of the states analyzed. In the course of our research, we developed an appreciation for the difficulties of collecting and compiling revenue-related information in each state as well as the complexities of various revenue policies. To say it in simplistic terms, all severance taxes aren't created equally.

Moss Adams surveyed a number of similar research efforts performed in these same producing states. The complexities of fees, taxes, and royalties that oil and natural gas producers contribute in each state make these prior comparative efforts extremely difficult and potentially inconclusive. Acknowledging our significant appreciation for the contributions provided by these previous efforts, it's our hope to build on these prior accomplishments.

We're incredibly thankful to the many individuals who assisted and shared their knowledge while compiling this large volume of data and information. We couldn't have accomplished this task without your assistance.

Any comments or feedback would be greatly appreciated as we continue to update and revise our analyses.

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Summary of Findings

Comparing government revenue streams from oil and natural gas production activities among the producing states included in this study resulted in two very significant conclusions when considering the industry's fiscal contribution to government resources: first, eight of nine states in the study receive tax revenue in a relatively narrow band between 9 and 12.8%, and second, Land Income, which includes royalty revenue from oil and gas production on state and federal lands, primarily sets the states apart.

DIRECT ROYALTY AND TAX CONTRIBUTIONS

Although revenue contributed by taxation of oil and gas production (as a percentage share of oil and gas production value) is significant and relatively consistent among the analyzed states, the direct contributions from production royalties set several of the states apart in the share of total production value contributed to state revenues.

The share of value contributed in taxes generally ranges from 9% to 12%, with the dominant producing state — Texas — higher than most with taxes at 12.8% of the estimated value of production. If tax policy impacts the industry's investment and production decisions, then changes to how a state taxes the industry could impact the competitive market position of the state's producers (in relation to other states in the study area).

STRUCTURE OF GOVERNMENT REVENUES

Second, the royalty revenue earned by several states in the form of Land Income is an attribute that's a significant structural component of government revenue, defined by existing federal and state lease terms and subject to market value dynamics.

New Mexico and Wyoming are roughly comparable in these Land Income attributes of its oil and gas revenue streams, with Texas obtaining the highest dollar level of royalty contributions (by far). The distribution of these revenues are important fiscal resources in several states.

ROYALTY INVESTMENTS IN PERMANENT FUNDS

There's a third fiscal component resulting from the investments of oil and natural gas revenue: royalty revenue investments in permanent funds. This provides several state governments with large, stable revenue stream additions in the form of Investment Income from the historic management of oil and gas resources.

The states that receive significant, direct benefits of oil and gas market value royalties also realize the additional benefit of creating predictable Investment Income streams to help stabilize their respective governments' budgeting tasks.

Fiscal Contribution to Government

Significant revenue contributions are provided to numerous local and state government entities in the development and production of the oil and natural gas resources in the western states.

Governments' fiscal resources are substantially impacted by the operations of these economic enterprises, affecting both public services and resources available to citizens living in those communities. Conversely, the policies of producing states, with respect to the revenue obligations placed on the industry, can significantly impact the development climate for a state's oil and natural gas resources.

It's frequently expressed that these revenue contributions should be adjusted — either increased or decreased. In this analysis, we don't offer opinions about the sufficiency of the revenue contribution in support of state governments. Instead, the goal is to provide a valid *comparison* of the economic contribution to their respective primary jurisdictions. This information could then be used to help assess policies and their potential competitive impacts between producing states associated with these production-related revenue obligations.

The oil and natural gas resource assets located in the study area are managed by private, state, tribal, and federal owners.¹ State and local governments obtain fiscal revenues from the development of these resources (variously as Tax Revenue and Land Income). The development of oil and gas resources on private lands produces a variety of tax-related revenues which are incorporated in our analyses, but private royalties are excluded.² Where the state holds lands in trust and manages oil and gas resources, revenues may be earned as both taxes and royalties. The diversity of resource ownership (between state, federal, tribal, and private owners) is a substantial foundation of the government revenue opportunities provided from the oil and natural gas resource development within a state. Land ownership is a significant structural foundation of the revenues obtained by state and local governments.

¹ In the remainder of this discussion, we will combine the tribal and federal government resource management activities, and present all revenues from the oil and gas lease operations these lands as revenue from federally managed lands which are (in part) distributed to states. States do not share in tribal royalties. The development of tribal oil and gas resources are not insignificant in the study area, but the business activities that are taxable by state and local governments (e.g., taxable sales transactions related to off-reservation oil and gas business activities) are not separately identified in our analyses. The production volume/value from the tribal lands are otherwise included within the federal lands data reported herein.

² We also recognize that there are income taxes paid by private royalty owners on their royalty income. We are unable to identify a method to estimate such revenue in each of the study area states, and exclude private royalty income tax revenues from our analyses.

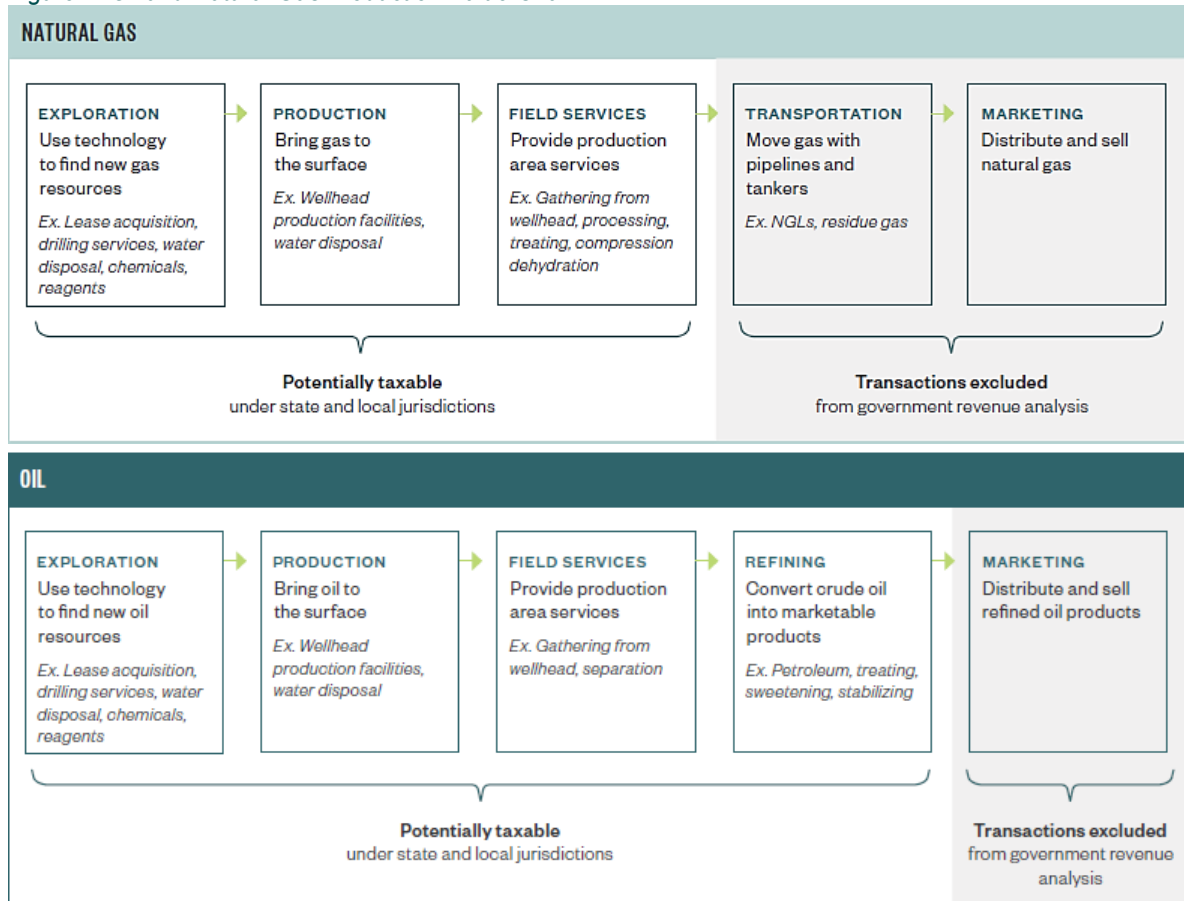
In producing states, economic activities that provide revenue to governments start with property or lease acquisition costs and field services, including landmen, roustabouts, drilling rigs, truckers, and consulting geologists or engineers.

PRODUCTION VALUE CHAIN

The cost of developing operating properties is significant, but the production-related activities produce the bulk of collected revenue in the form of taxes and royalties. The production value chain is generally completed with gathering and other field services activities, such as water hauling, trucking liquid products, and treating oil and gas to the point when produced oil may be marketed and natural gas is conditioned to enter interstate market pipelines. The economic value chain for oil and gas production is illustrated in Figure 1.

A producer's total production value is burdened by a variety of obligations to government, but also must provide sufficient revenue for the costs of development and operations as well as pay other private interest owners in those production activities. The production-related activities that potentially generate government revenue are broken out with brackets in the diagrams below.

Figure 1: Oil and Natural Gas Production Value Chain



Methodology

The analysis is limited to onshore oil and natural gas production. It's also important to note that what may appear similar frequently isn't — a severance tax in one state isn't similarly defined or administered as a severance tax in another state, for example. Our approach seeks to reduce this confusion.

ANALYSIS PROCESS

- Aggregates the revenue received by state and local governments, by category
- Compares that fiscal revenue to the total production value³ that occurred in each of the producing states (those included in the study are listed in the next section)
- Characterizes revenue contributions to government in context of recovery of costs, private royalty obligations and the distribution of federal mineral lease royalties from oil and gas production in each of those states

BENEFITS

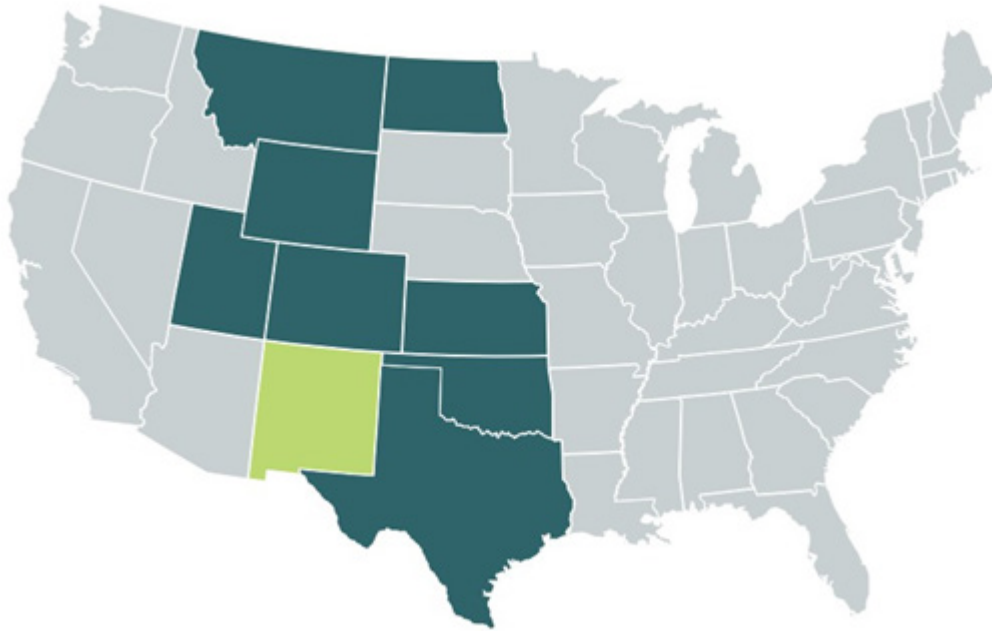
- Provides a valid comparative basis between states with vastly different levels of oil and gas resource production
- Compares oil and gas revenue burdens in widely divergent production areas by looking at government revenue received as a percentage of total production value

SCOPE

Although this analysis focuses on New Mexico, the comparisons also include government revenue from production as shown in Figure 2:

³ The method of estimating total production value is discussed in greater detail herein. Enough to say at this juncture that published oil and gas pricing data was obtained for more than fifty market locations throughout the nine state study area, and pricing data were applied recognizing location and quality adjustments common to localized production.

Figure 2: Study Area Map



Government Revenue Data	This was sourced from the revenue agencies in each state and involved multiple agencies in most of the states. Revenue data was collected with respect to fees, bonuses, royalties, sales and gross receipts taxes, production taxes, and taxation of field services through production area processing activities. ⁴																
Oil and Natural Gas Production	Production is identified by county in each state, along with the estimated production value in each of these geographic areas. Market value was compiled from a variety of posted or published price data.																
Production Data	This is tied to monthly reported oil and natural gas volumes reported by the US Energy Information Administration (EIA). This data is supplemented, when available, with additional detail related to production at the county level from federal, state, tribal, private, and state trust lands. ⁵ Figure 3 and Figure 4 (pages 11 and 12) present an overview of the locations and volumes of oil and natural gas production in the study area.																
Abbreviated Terms	<p>The industry sometimes uses specific, nonstandard abbreviations.</p> <table border="1"> <thead> <tr> <th colspan="2" data-bbox="529 1367 695 1392">NATURAL GAS</th> <th colspan="2" data-bbox="922 1367 964 1392">OIL</th> </tr> </thead> <tbody> <tr> <td data-bbox="456 1402 488 1428">cf</td> <td data-bbox="570 1402 667 1428">cubic feet</td> <td data-bbox="849 1402 881 1428">Bbl</td> <td data-bbox="971 1402 1040 1428">barrels</td> </tr> <tr> <td data-bbox="456 1438 488 1463">Mcf</td> <td data-bbox="570 1438 721 1463">1,000 cubic feet</td> <td data-bbox="849 1438 881 1463">Mbbbl</td> <td data-bbox="971 1438 1089 1463">1,000 barrels</td> </tr> <tr> <td data-bbox="456 1474 488 1499">MMcf</td> <td data-bbox="570 1474 748 1499">1 million cubic feet</td> <td data-bbox="849 1474 881 1499">MMbbbl</td> <td data-bbox="971 1474 1105 1499">1 million barrels</td> </tr> </tbody> </table>	NATURAL GAS		OIL		cf	cubic feet	Bbl	barrels	Mcf	1,000 cubic feet	Mbbbl	1,000 barrels	MMcf	1 million cubic feet	MMbbbl	1 million barrels
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Mcf	1,000 cubic feet	Mbbbl	1,000 barrels														
MMcf	1 million cubic feet	MMbbbl	1 million barrels														

⁴ For all states, except Texas, revenue data is provided on a fiscal year July through June basis. For Texas, the fiscal year data is for September through August. The analytical method employed isn't compromised by different fiscal year definitions. For each state, we rely on fiscal year revenue and monthly production data. Results are compared on a fiscal year basis, ignoring the two-month shift between Texas and the other states without significant consequence to the validity of the analysis.

⁵ Obtained principally from each producing state at a monthly county level and calibrated to match reported monthly statewide EIA data.

Production Value	In our analysis, we obtained discreet pricing data for nearly 50 locations throughout the study area where pricing information is reported either as a posted price or published index price for monthly transaction volumes. ⁶ For individual production areas, such as the Texas Permian Basin, we developed composite prices reflecting availability of multiple price series for both oil and gas. Figure 5 and Figure 6 (pages 13 and 14) report calculated production value by aggregated pricing pools, which is used in the analysis.
Valuation of Natural Gas Production	This is impacted by the recovered natural gas liquids (NGLs) entrained in the wellhead gas stream. The recovery of NGLs generally occurs in the production area and will result in a volumetric reduction of 5%–15% between the wellhead and in the marketed production of residue gas. Since about 2015, NGLs have been valued at up to an approximate 30%–50% net premium over the wellhead value of the unprocessed gas. We applied that premium to the reported recoveries of NGLs. ⁷

LIMITATIONS

Governmental revenue from oil and natural gas production is frequently dedicated to specific public purposes or funds. We’ve attempted to identify all oil and natural gas production-related revenue flowing to state and local governments, but aren’t able, within the current scope of this investigation, to reflect on how the revenue is specifically distributed.

To illustrate, some revenue is dedicated to permanent trust funds, such as New Mexico Trust Land royalties, while other revenue flows directly to a state’s general expenditure accounts — federal mineral lease revenue is distributed directly to New Mexico’s General Fund, for example. Although revenue distribution is interesting and important, this investigation focused on the total contributions of the oil and gas industry to government revenue.

⁶ Price data was obtained from Bloomberg terminal tickers, which is available to Moss Adams through subscription. As such, we’re unable to publish monthly price data tables for each individual series.

⁷ EIA provides data as to the Btu composition of the gas reported as entering each processing facility within our study area (US Energy Information Administration, EIA-757 Processing Capacity, <https://www.eia.gov/naturalgas/ngqs/#?report=RP9&year1=2014&year2=2014&company=Name> [to be updated October 2018]). This data allows estimates of the net uplift obtained in each producing area that’s provided by the recovery of NGLs because the Btu content of the gas stream correlates with the entrained liquids available for recovery.

State-to-State Comparisons

The substance of this analysis is summarized as a comparison of the contributions of the oil and gas producers to state revenue — and then looking at the percentage contributions between the producing states. We’ve chosen for comparison the large western onshore oil and gas-producing states. Of particular interest is assessing how revenue differs between states as a proportion of production value.

Presenting this comparison as a proportion of production value equalizes the scale between states. For example, if revenue is only discussed in dollar terms, Texas dwarfs every other state, with about ten times the production volume and five times the revenue of New Mexico.

This section will introduce the study area and set the context for the comparisons. We have summarized the key comparative results in the Executive Summary, with the details of the analysis for each of the individual states provided in the State Profiles which follow. We will first more fully describe foundations for the analyses performed, and then turn to a specific description of the methodology employed in our investigations.

The production volumes throughout the nine state area analyzed are graphically represented in the color-scale shaded mapping of county production volumes for fiscal year 2017, with natural gas production volumes reflected in Figure 3 and oil production volumes shown in Figure 4. Similarly, Figure 5 and Figure 6 depict estimated natural gas and oil production value (respectively) in each of the counties comprising the nine state study area (FY2017).

Two observations should be noted in these maps. First, there is broad geographic distribution of production in these states, with several pockets of high production volume and value. Second, the geographic size of each county influences the reported production data — that is, a geographically small county (e.g., Midland County, TX) may have very high rates of production per square mile, but a geographically large county (e.g., Lea County, NM) may have total production volume/value which is greater than an adjacent smaller county (producing at higher rates per square mile).



Figure 3: Natural Gas Production Volume - Study Area, FY2017 (MMcf)

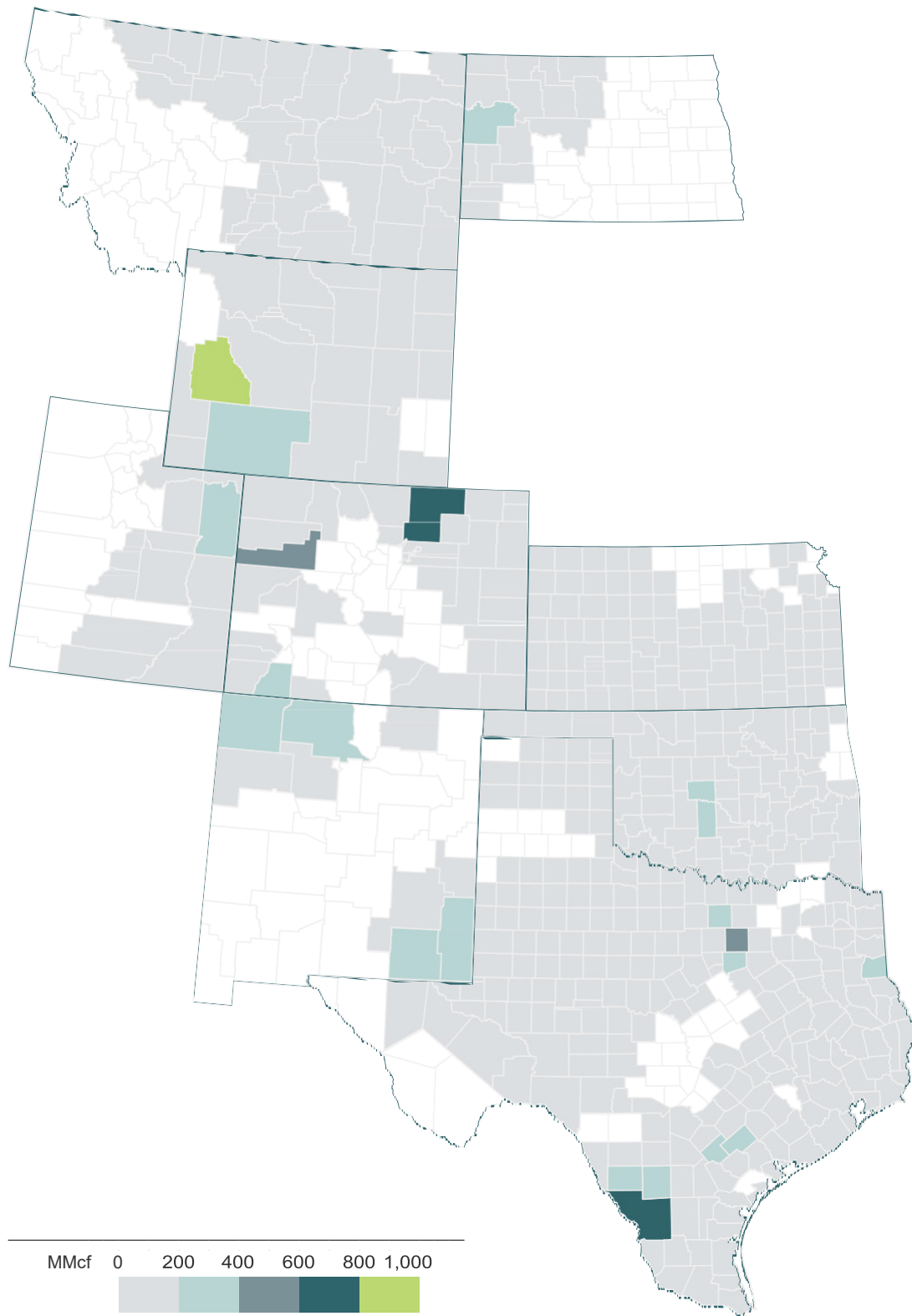


Figure 4: Oil Production Volume - Study Area, FY2017 (MMbbl)

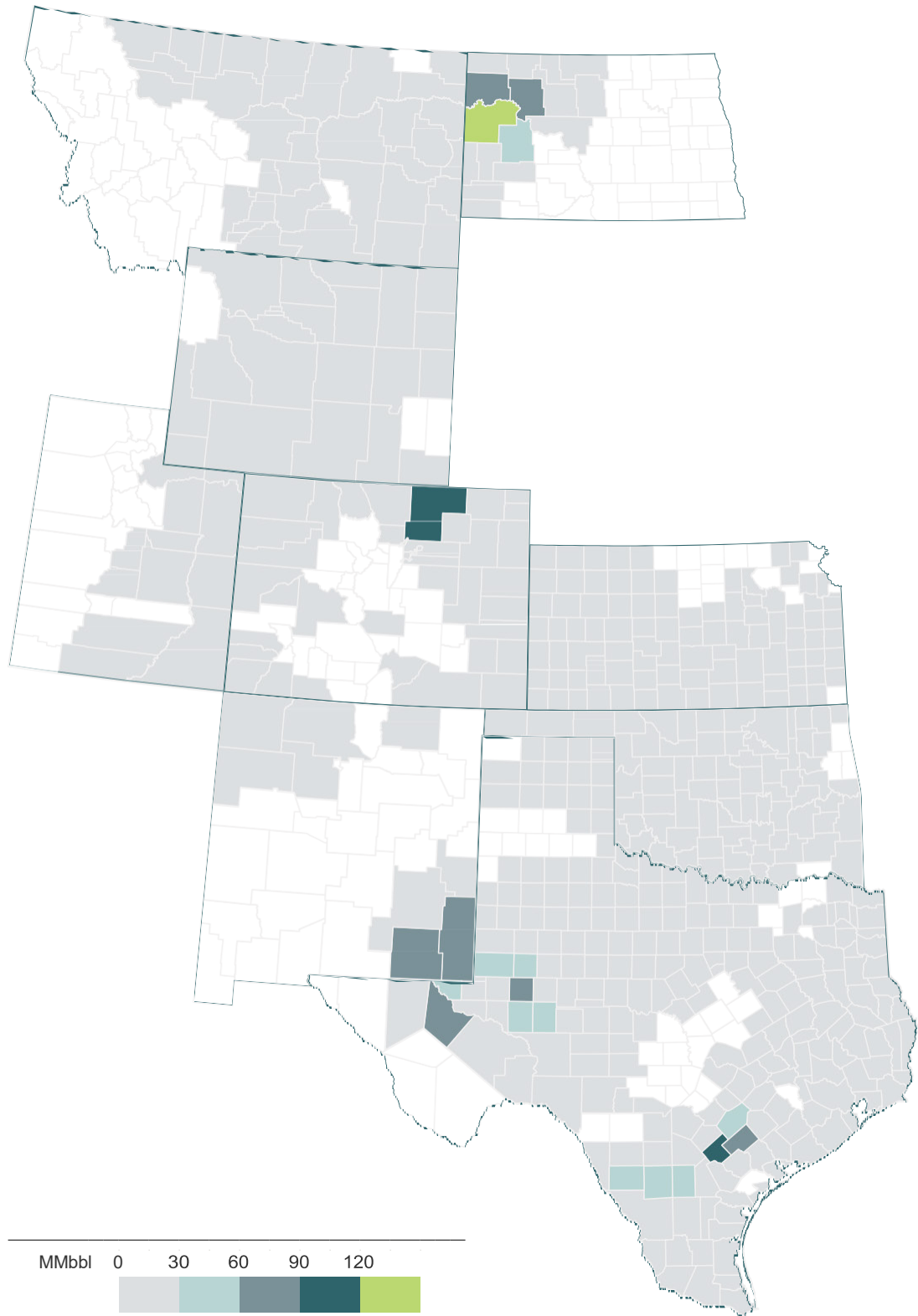


Figure 5: Natural Gas Production Value - Study Area, FY2017 (\$Billion)

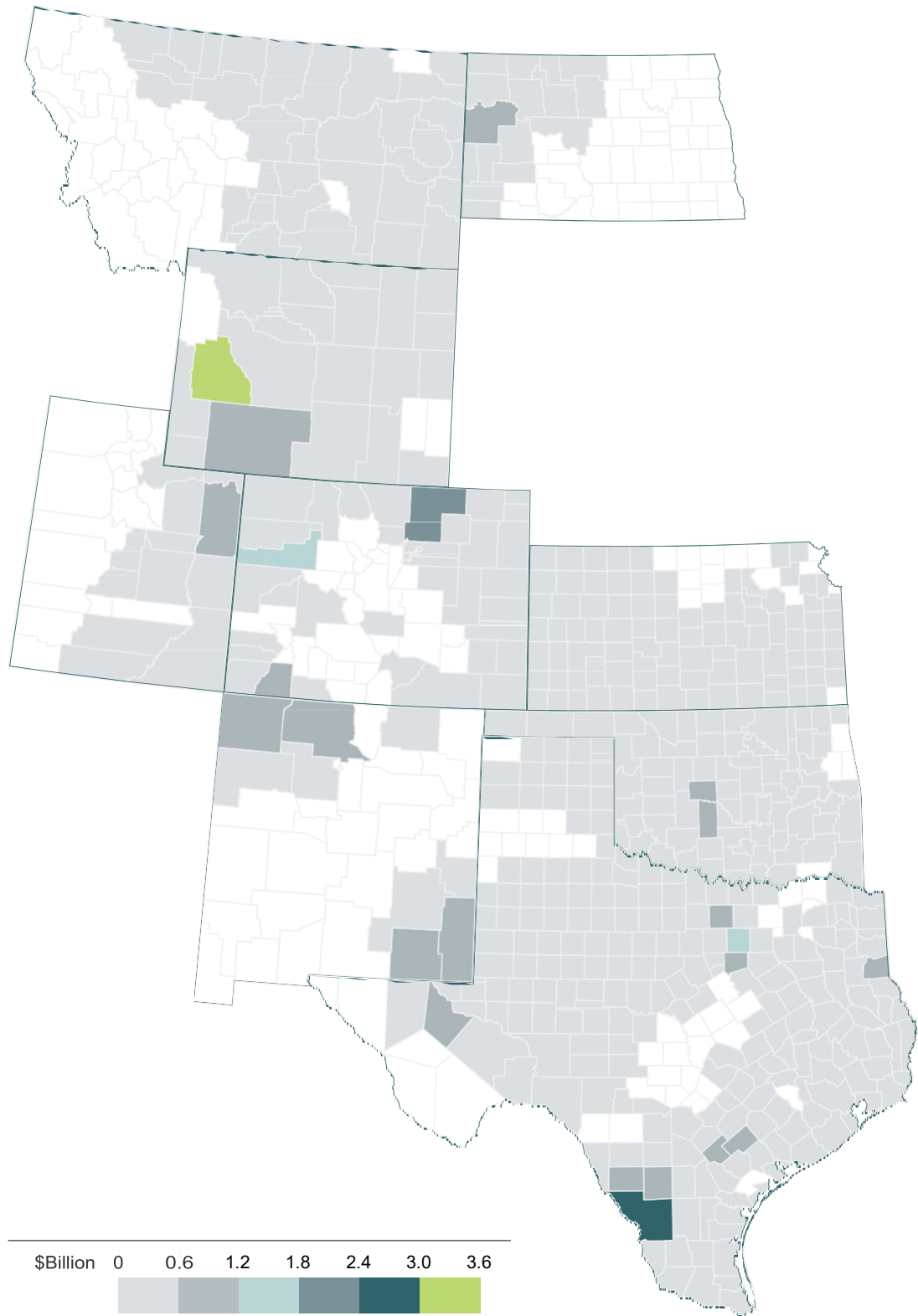
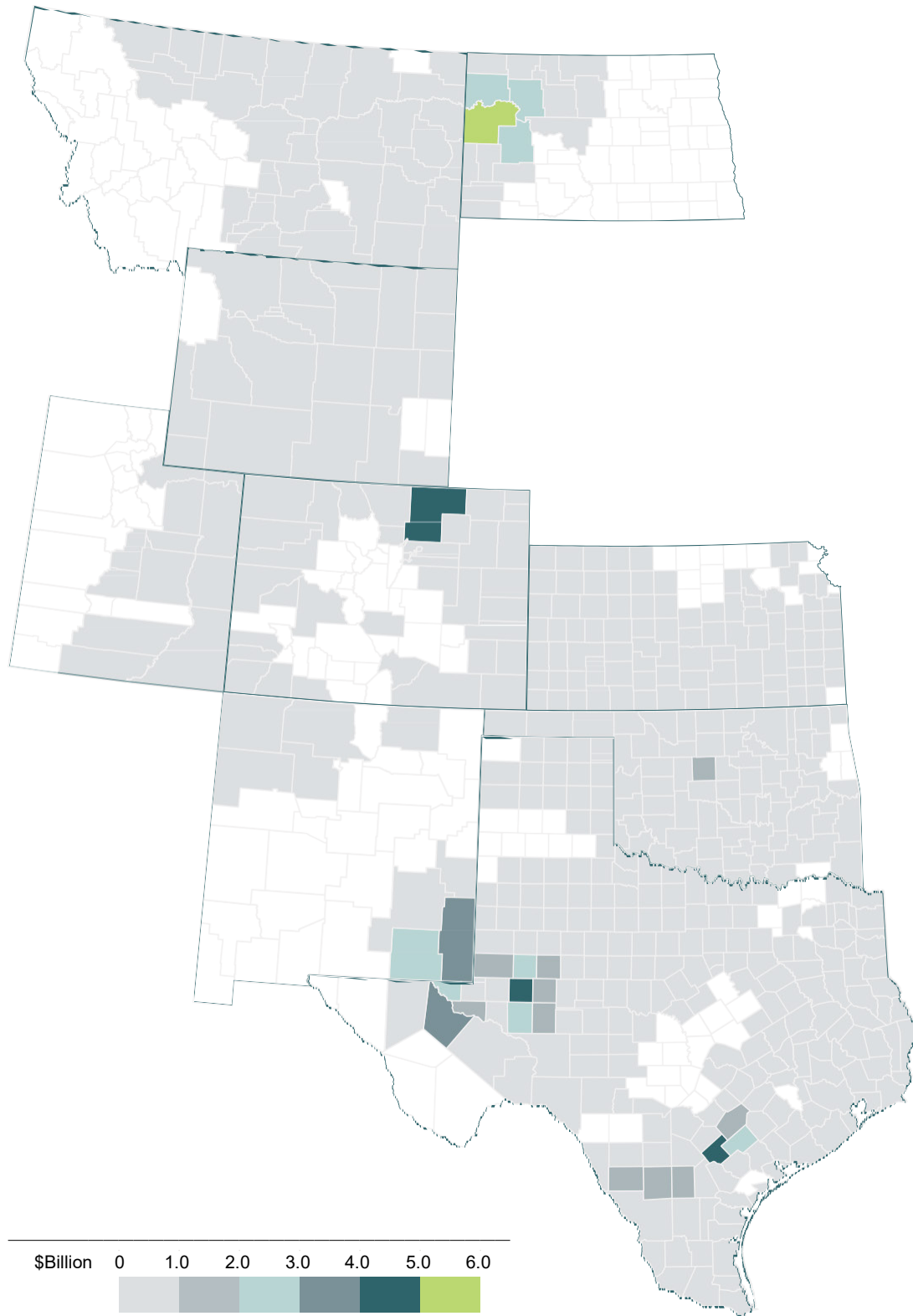


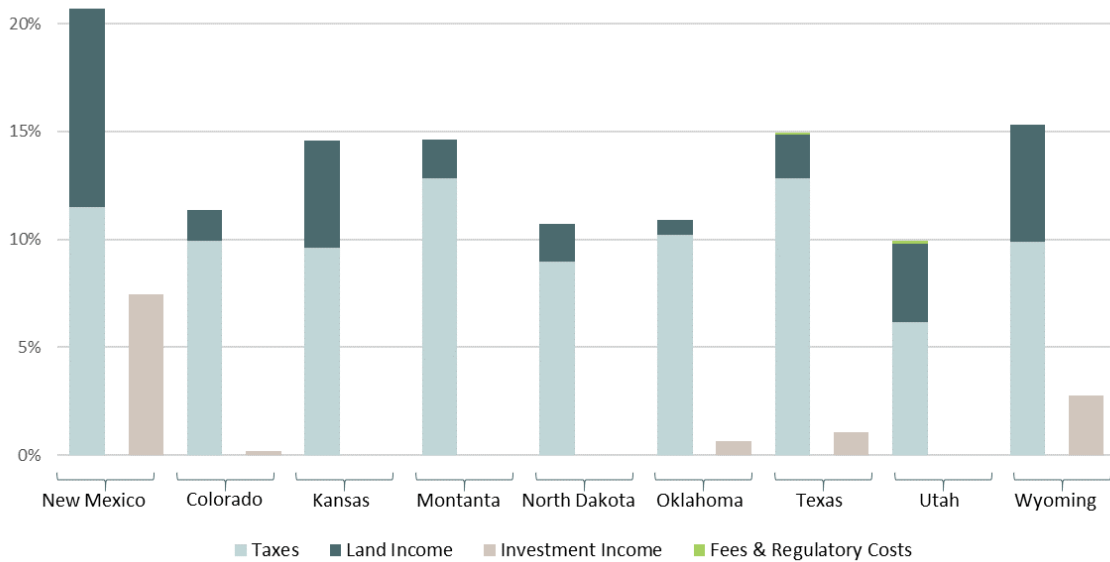
Figure 6: Oil Production Value - Study Area, FY2017 (\$Billion)



Summary of Comparative Findings

The method for comparing the individual states by calculating the governments' revenue as a percentage of the state's total production value allows for a valid basis to analyze and consider each state government's oil and gas revenue policies. The following graphic summarizes the significant results of this analysis, and compares fiscal year 2017 results for the study area states.

Figure 7: Revenue as Percentage of Estimated Production Value

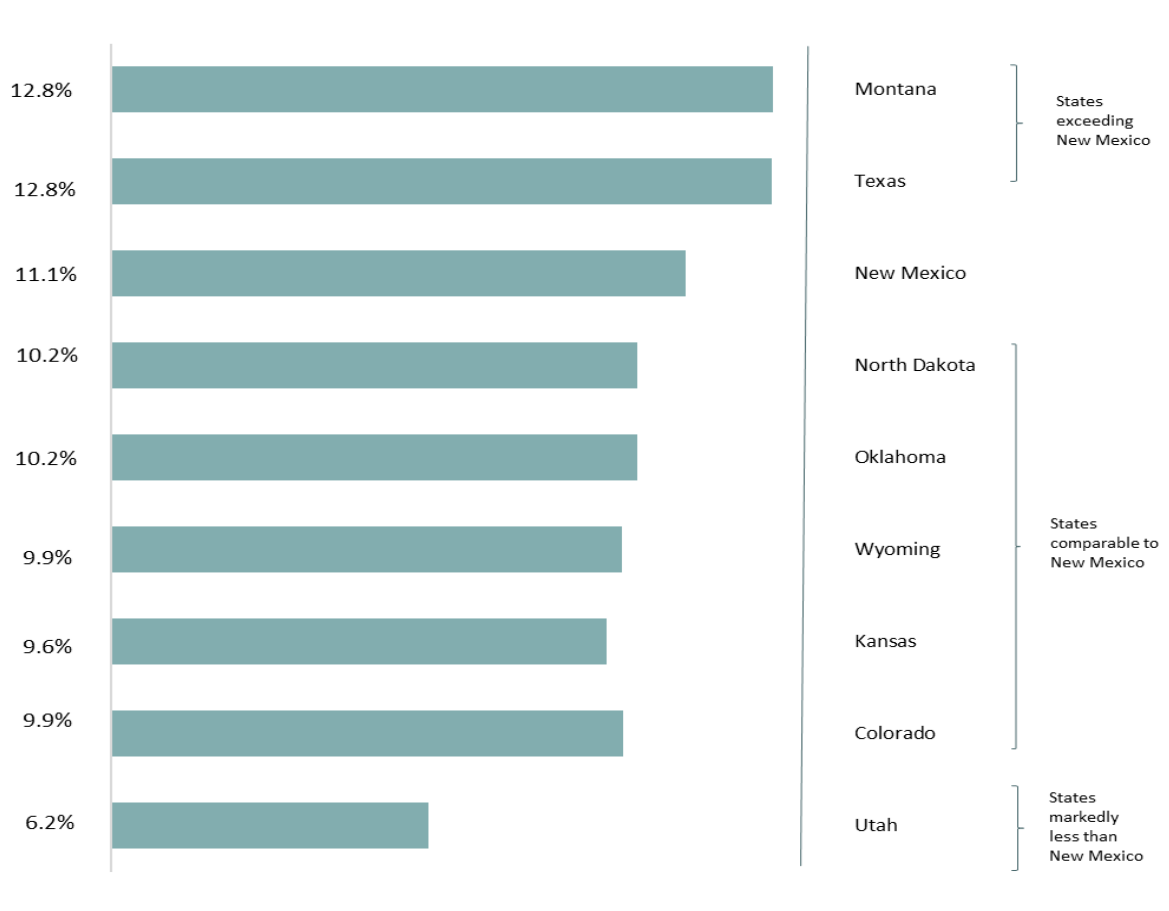


In the preceding diagram, note that Investment Income isn't received from current year production value. For comparative purposes (between states), the magnitude of Investment Income can be scaled in relationship to the total value of production in a state. While this Investment Income is current year income, it's derived from investment of prior-period production revenue by the subject state.

Two observations are most apparent in comparing the states in our study area.

First, the structure of taxes on oil and natural gas production activities provides Montana, Texas and New Mexico with the highest revenue contributions (11.1% to 12.8%) as it relates to the total production value, as seen in Figure 8.

Figure 8: Tax Revenue as Percentage of Estimated Production Value - Study Area, FY2017

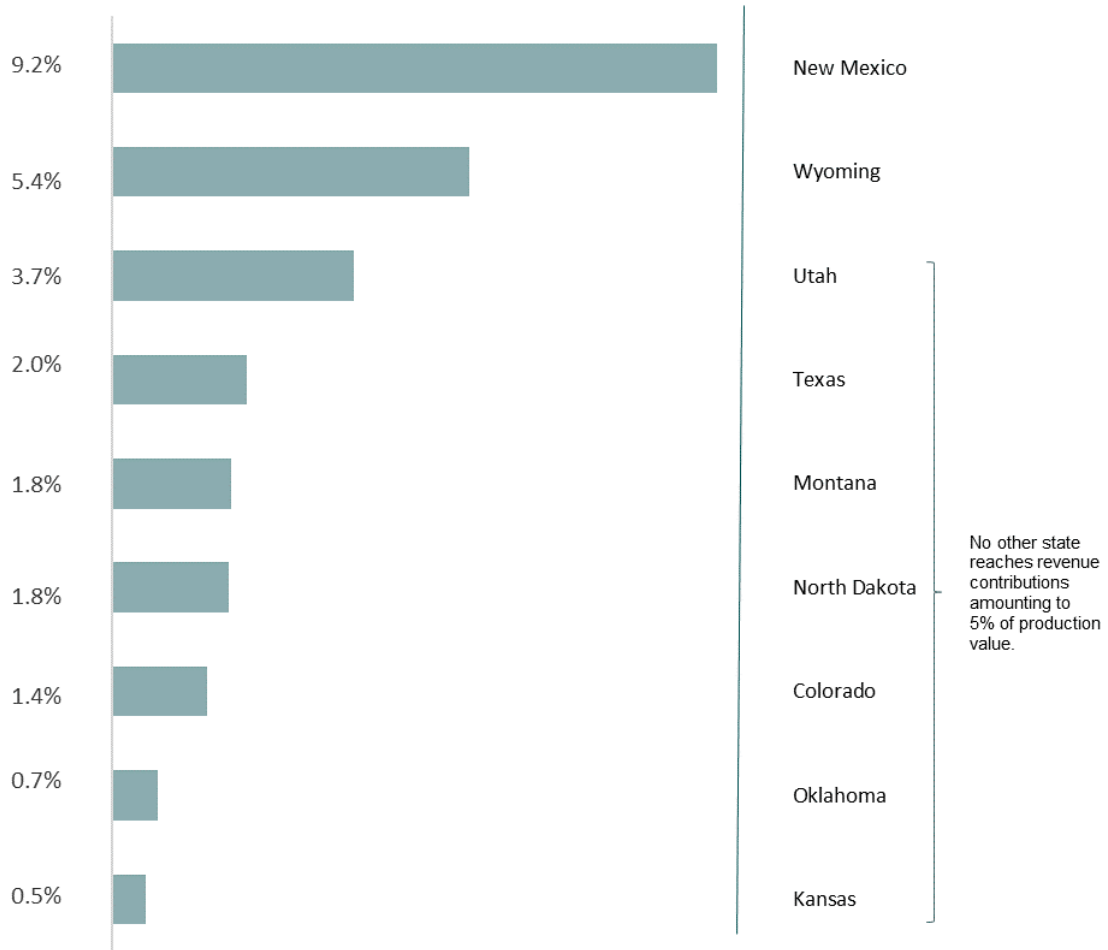


North Dakota, Oklahoma, Wyoming, Kansas and Colorado fall into a middle tier of producing states' taxation, with those governments' oil and gas Tax Revenue falling in a narrow band of 9.6% to 10.2% of total production value contributed as Tax Revenues. And the only real outlier in the nine states analyzed is Utah with only 6.2% of total production value contributed by oil and gas taxation.

Second, as Figure 9 reflects, the percent of total production value that's contributed in Land Income to the state is what sets New Mexico apart from the other producing states in the study area. The bulk of this income is in state trust land royalties and federal lease royalties, which contributes revenue to government that's 9.3% of the total value of oil and gas production in the state. Wyoming obtains revenue equal to 5.8% of the value of statewide oil and gas production, but no other state reaches revenue contributions from Land Income amounting to 5% of production value.⁸

⁸ New Mexico's federal royalty revenue is distributed for current year budget requirements, while state trust land revenue is deposited in the state's Land Grant Permanent Fund and then invested to provide interest income. In New Mexico, the distributed interest income in FY2017 (\$795 million) is equal to 7.5% of the total production value.

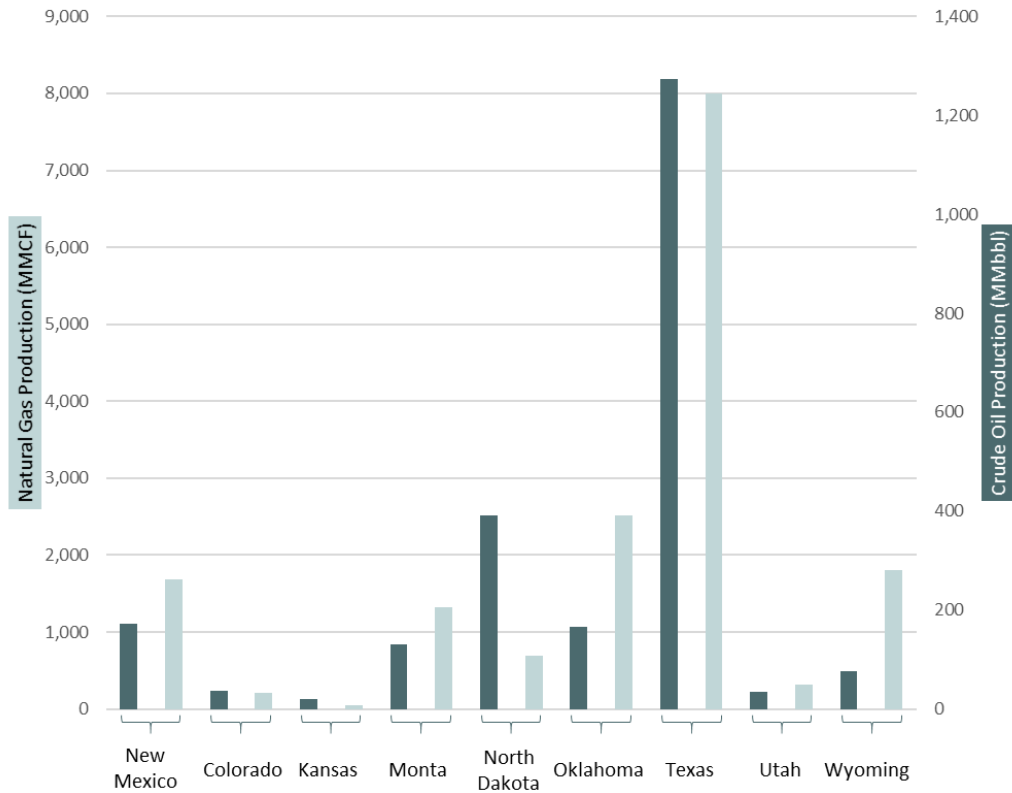
Figure 9: Land Revenue as Percentage of Estimated Production Value - Study Area FY2017



Production Profile

Having established that the percentage of production value is an appropriate basis for the state-to-state comparisons, this analytical requirement is clearly illustrated by comparing the volumes of oil and natural gas productions in each of the study area states.

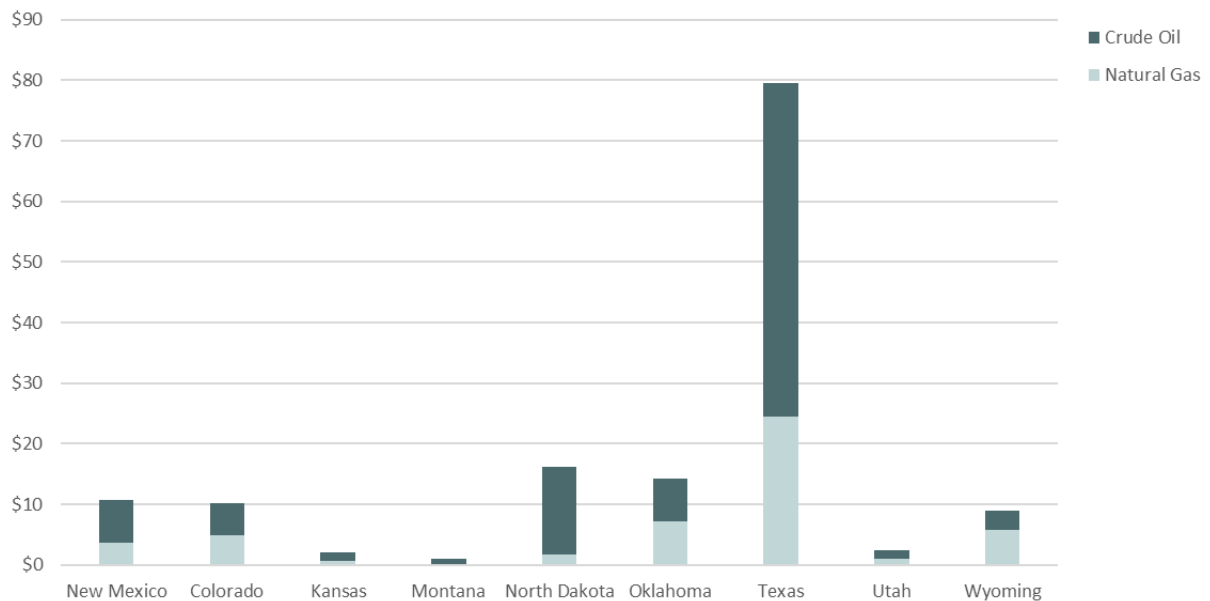
Figure 10: Production Volume - Study Area, FY2017



The graphics illustrate why it's essential to use revenue contributions as a percent of total value. Texas production volumes obscure everything else if it isn't scaled relative to the other states. The oil and natural gas revenue *policy issues* remain the same in each of the states, but the scale of the impacts are simply different.

Charting the production value provides further support for the scaling method employed for the state-to-state comparative analysis. The following graph reflects the total oil and natural gas production value for 2017 in each of the states included in this report's study area.

Figure 11: Estimated Production Value - Study Area, FY2017 (\$ Billion)



The pricing in our analysis is provided by nearly 50 locations throughout the study area where pricing information is reported either as a posted price or published index price for monthly transaction volumes.⁹ For individual production areas, such as the Texas Permian Basin, we’ve developed composite prices reflecting availability of multiple price series for both oil and gas.

The methodology adopted for this state-to-state comparative analysis — revenue contributions as a percentage of total production value — requires that special consideration be paid to the differences in the value exhibited in the different regions where production occurs. Various economic factors contribute to geographic price differentials, including conditions of markets served; access to pipeline capacity; quality of resources produced; and other conditions effecting market supply and demand.

The oil and gas industry participates in a form of market price discovery by reporting of various oil and natural gas transactions at specific locations throughout the producing areas. In other cases, there is a public posting of market prices which is reported by various media services. However, even with more than 33 natural gas pricing locations, and more than a

⁹ Price data was obtained from Bloomberg terminal tickers, which is available to Moss Adams through subscription. As such, we’re unable to publish monthly price data tables for each individual series. The Data Appendix identifies pricing locations relied upon for this analysis.

dozen oil pricing locations, it was required to assess a price (or calculate a composite price) to production from each county for both oil and natural gas production.¹⁰

Figures 5 and 6 report calculated production value, by aggregated pricing pools, which is used in the analysis.

The valuation of the natural gas production is impacted by the recovered natural gas liquids (NGLs) entrained in the wellhead gas stream. The recovery of NGLs generally occurs in the production area and will result in a volumetric reduction of 5%–15% between the wellhead and in the marketed production of residue gas. Since about 2015, NGLs have been valued at up to an approximate 30%–50% net premium over the wellhead value of the unprocessed gas — and we applied that premium to the reported recoveries of NGLs.¹¹

Government Revenue

Texas and Montana impose the highest levels of taxes on the value of production in FY2017. New Mexico (at 11.1% of production value) obtains the third highest percentage of revenue contributions from taxes on oil and gas production activities. The remaining states are largely consistent in a range from 10.5% to 9.3% of the value of production. Finally, it is notable that Utah's taxation of oil and gas production value is substantially lower than the other eight states investigated.

If tax policy impacts the industry's investment and production decisions, then the tax policies of the highest taxing states could impact the competitive market position of that state's producers (in relation to other states in the study area).

Structure of Government Revenue

As previously discussed, taxes are a common foundation in all states for the revenue contributions from the oil and natural gas industry. A second category of revenue earned by states is in the form of Land Income (primarily state and federal royalties). In several of the states, Land Income is a significant structural component of government revenue. The specific income is defined by existing federal and state lease terms, and is subject to dynamic market value (i.e., price and production volume swings). New Mexico and Wyoming are roughly comparable in these Land Income components of its oil and gas revenue

¹⁰ It is openly acknowledged there is no precise way to assign value to production at a county level. However, our approach has attempted (we believe, for the first time) to associate location-based production value in an oil and gas tax policy related analysis. We invite further discussion as to this methodological initiative.

¹¹ EIA provides data as to the Btu composition of the gas reported as entering each processing facility within our study area (US Energy Information Administration, EIA-757 Processing Capacity, <https://www.eia.gov/naturalgas/ngqs/#?report=RP9&year1=2014&year2=2014&company=Name> [to be updated October 2018]). This data allows estimates of the net uplift obtained in each producing area that's provided by the recovery of NGLs because the Btu content of the gas stream correlates with the entrained liquids available for recovery.

streams, and Utah, Montana, and Texas also have royalty earnings exceeding 2% of the value of oil and gas production.

Most of the previously published comparative analyses have focused only on the tax obligations imposed on oil and gas production. In some cases, royalties paid directly to the state have been ignored. The role of royalty revenue should not be disregarded in those states where production obligations provide this income. Where such revenue is derived from a state's share of oil and gas royalties on federal lands, there is a direct payment received pursuant to the 52%/48% split between federal and state earnings.

Additionally, most of states in the study area also hold mineral estate ownership rights, held in trust for specific public beneficiaries which also receive oil and gas royalty revenues. These beneficiaries are generally public schools, but may include other public institutions (e.g., hospitals, prisons, etc.). In most of the public lands owned and managed by a state, the state's constitution established the trust land assets and structures the management of the mineral resources to held in trust by designated authorities (i.e., fiduciaries).

Royalty Investments in Permanent Funds

The third fiscal component — resulting from the long-term investment of oil and natural gas royalty or severance Tax Revenue — is the Investment Income from permanent fund investments.

We recognize the significant direct revenue contributions from royalty income due to the states, with inclusion of both the federal and state royalties as Land Income in our analysis. Additionally, we also separately report Investment Income (e.g., from Land Grant Permanent Fund investments), and set that income to the side of the direct income categories in recognition of the difference in the nature of these income stream that derives from *historic* oil and gas production.

Although these annual trust land revenues may be deposited in permanent funds by the individual states, annual Investment Income from these investments can contribute significant additional revenues to state coffers. It is appropriate to view these permanent fund investments of oil and gas royalties as a *public policy decision to retain historic royalty revenues for the benefit of future generations*, with specific distributions of Investment Income on these investments to various beneficiaries or public purposes.

In order to “scale” the relative level of Investment Income in each state, it is appropriate to compare this current year Investment Income to the production value in a state (for that same year). With the express acknowledgement that current Investment income is *not* earned from current year oil and gas production value, it is still valid to compare (“scale”) each state's current Investment Income in relationship to the current year production value.

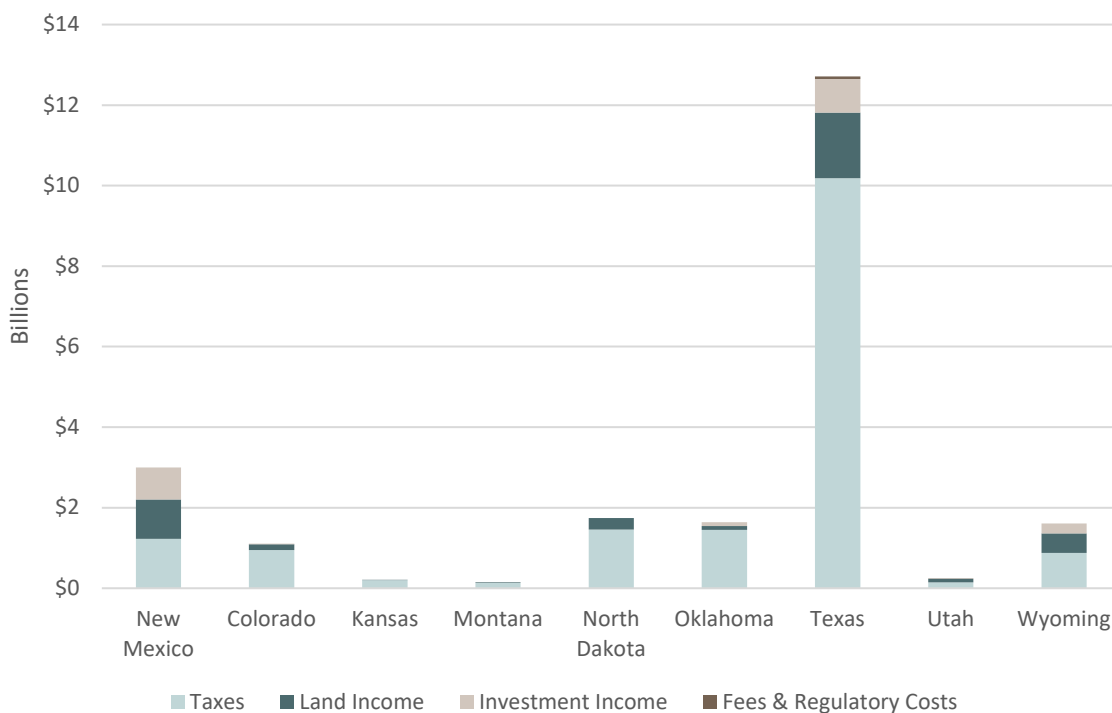
In the nine state area, annual Investment Income provides New Mexico’s government with the largest percentage share of investment revenue (as related to annual production value), but Texas has a larger Investment Income due to the size of its permanent funds (i.e., the “scaling” issue). Both Wyoming and Montana realize significant additions to the government revenue stream from Investment Income earnings as a result of the historic investment and management of oil and gas permanent funds.

The states that receive substantial benefits from oil and gas Investment Income also realize the additional benefit of creating predictable Investment Income streams to help stabilize their respective governments’ budgeting tasks.

REVENUE FROM OIL AND GAS PRODUCTION

- Texas earned over \$12 billion.
- New Mexico received about \$3 billion.
- No other state received even \$2 billion in revenue from its oil and natural gas-related resources, although North Dakota comes within rounding error of \$2 billion at \$1.99 billion.

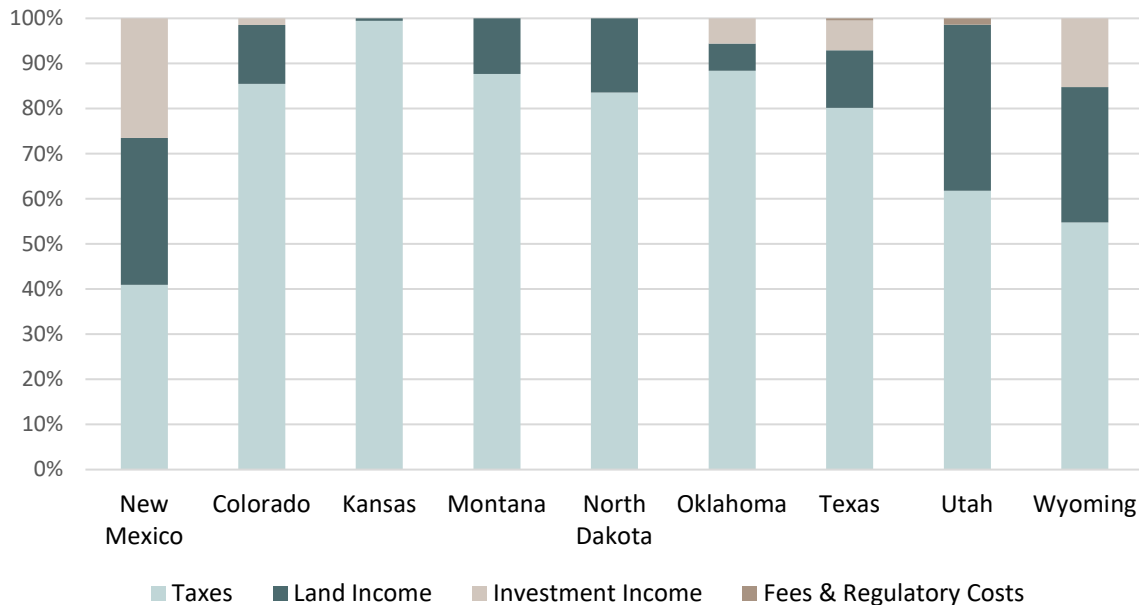
Figure 12: Government Revenue by Category - Study Area, FY2017 (\$ Billion)



REVENUE CATEGORIES AS A PERCENTAGE OF TOTAL OIL AND GAS REVENUE

Whereas New Mexico, Wyoming, and Utah have relatively large shares of reported revenue from Land Income — primarily state and federal royalty income — the other producing states in are substantially more dependent on income from taxation of the produced resources. This observation has significant tax policy implications. New Mexico oil and gas related revenue is the most evenly balanced between the three major categories

Figure 13: Distribution of Revenue - Study Area, FY2017



DISCUSSION OF REVENUE ISSUES

Identification of revenue data directly related to oil and gas resources development, production, and operating activities is frequently discretely reported and easily extracted from available fiscal revenue reports. Other data — e.g., personal income tax from oil and gas production-related activities — must be estimated based on prior year reported income taxes and current year economic activities in the relevant sectors.¹²

Essentially all revenue data relied on in the Report is derived directly from public fiscal accounting records and reports,¹³ although a number of states required compilation of

¹² The North American Industrial Classification System (NAICS) is commonly relied on in government revenue accounting, and facilitates the ability to isolate economic activities in oil and natural gas production-related activities for such estimates.

¹³ Specific sources are cited with respect to the data reported for each of the nine states investigated, and such source information is identified with narrative discussion of each state's profile which follows herein.

reports or data files from multiple state agencies to obtain a comprehensive government revenue picture related to oil and natural gas production-related economic activities.

However, inclusion of income tax and sales & use Tax Revenues related to oil and gas production activities requires that estimates be developed, as none of the states directly report these taxes as related to production activities. Although analysts in some of the states have independently developed detailed methods for estimating taxable income and output associated oil and gas production, there is no consistent method employed in these *ad hoc* estimates. For the analysis of income Tax Revenues we have identified personal income associated with the oil and gas sectors of each states' economy,¹⁴ and applied a composite personal income tax rate revealed by each state's Tax Revenue records.¹⁵

In regard to income taxes, it is particularly notable that the oil and gas industry frequently structures exploration and development activities as partnerships. This organizational structure results reporting of income for "pass through" entities as personal income. Thus, estimating personal income Tax Revenues associated with oil and gas development will capture a significant component of the industry's operations.¹⁶

With respect to sales and use Tax Revenues, it was necessary to estimate the total value of economic activities within various NAICS codes, and apply an effective (state and local) tax rate derived from the statewide revenue and output data. The sectors for which estimates were developed were identified as directly related to oil and gas production activities.¹⁷ The 2016 economic output in relevant oil and gas production-related economic sectors (i.e., NAICS codes)¹⁸ is the latest sector output data available, and 2017 estimates were based on statewide revenue growth rates (2016-2017).

Within the time and funding limitations of the research conducted and summarized herein it should be noted that not all government revenue issues can be fully addressed. For example, substantial interest is often expressed in the specifics of distributions by governments of oil and gas revenues, with some states dedicating certain revenue streams

¹⁴ U.S. Department of Commerce, Bureau of Economic Analysis, "Personal Income (by sector and state)," [<https://www.bea.gov/data/income-saving/personal-income>].

¹⁵ As a result of the common method for estimate income taxes utilized in this analysis, it was determined not useful to attempt calibration of specific income tax revenues to published reports of oil and gas industry income in the nine states.

¹⁶ Corporate income taxes aren't included in this analysis. The diversity of many corporate operations, extending beyond the production-related activities, which are the focus of this report, can't be disentangled to identify corporate tax revenue related to production-related activities in any particular state. In addition, the breadth of economic activities of these corporate enterprises allow many deductions, net operating loss carryforwards, and other complexities that preclude a discrete statement of corporate income tax paid in relationship to just the oil and gas production activities.

¹⁷ For example, drilling oil and gas wells (NAICS 213111), oil and gas pipeline and related structures construction (NAICS 237120), oil and gas field machinery and equipment manufacturing (NAICS 333132), etc.)

¹⁸ Census Bureau, U.S. Department of Commerce, "2016 State and Local Government Finance Datasets and Tables" [<https://www.census.gov/data/datasets/2016/econ/local/public-use-datasets.html>]

to specific beneficiaries (e.g., public schools, specific universities, etc.), while other portions of these revenues flow to general state expenditure coffers.

Moreover, many government revenue policies with respect to oil and natural gas industry activities (e.g., deductible expenses from taxes and royalties) could be more fully addressed through the further development of the data and analytics presented herein. Developing these analytical insights in a multi-year time series analysis also has great potential for improved understanding of each state's comparative position with respect to the issues raised here.

State Profiles

New Mexico

SUMMARY OF NEW MEXICO FINDINGS

New Mexico has the greatest percentage share of total oil and natural gas production value directly contributed to government revenue when compared with the rest of the states in this analysis. This result occurs because:

- New Mexico taxes oil and natural gas production at rates comparable to the highest rates of taxation compared with the other nine states.
- New Mexico realizes a larger share of total oil and gas production value through its royalty earnings, a product of a larger share of total production originating from public oil and gas leases, whether state or federal.
- Historic decisions to invest a large portion of New Mexico's annual oil and natural gas revenue in permanent funds created a significant annual income from these investments. This income stream augments current year revenue contributions from oil and gas production.

Robust policy considerations are also offered by the structure of New Mexico government's large share of revenue streams from the industry's oil and natural gas production activities.

Compared with New Mexico, no other state in the study area:

- Receives as large a combined share of the industry's total state production value as government Tax, Land Income, and Investment Income revenue
- Experiences the same level of exposure the dynamic market value of the produced petroleum commodities in its direct revenue streams
- Enjoys the same degree of insulating stability to state revenue from permanent fund income management

OIL AND GAS PRODUCTION PROFILE

- 3rd largest oil producing state in the United States, behind only Texas and North Dakota
- 9th largest natural gas producer.¹⁹

¹⁹ Energy Information Administration, US Department of Energy, "Natural Gas Marketed Production" (ng_prod_sum_a_epg0_vgm_mmcf_m.xls) and "Crude Oil Production" (pet_crd_crpdn_adc_mbbl_m.xls), accessed at <http://www.eia.gov/dnav/>.

Two primary oil and gas producing regions:

- San Juan Basin in the northwest corner of the state
- Permian Basin in the southeast

Largest oil and natural-gas producing counties:

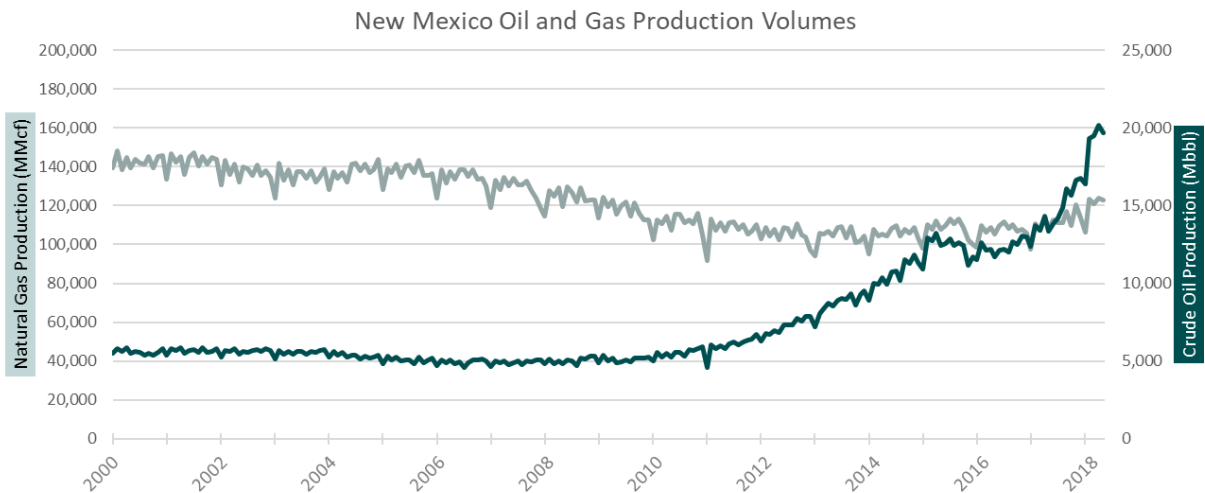
- Oil: Lea County
- Natural Gas: Eddy County

Although southeast New Mexico is traditionally thought of as an oil producing region, the rise of associated gas has driven Eddy County, the state's second largest oil producer, to be the largest natural gas producing county.

These stats were accurate at the time of publication in January 2019.

Production Volumes and Value

Figure 14: Production Volume - New Mexico, FY2000–2018



Since 2010, New Mexico's oil production has increased exponentially. Associated gas production in the traditionally oil-producing Permian has even reversed the decades-long decline in state-wide natural gas production.

Production by Land Type

A significant proportion of production takes place on public lands, both state trust lands and federal mineral leases. As compared with most of the other states in the study, New Mexico derives a large share of its oil and gas-related government revenue from this Land Income.

The following chart depicts the distribution of production volumes for natural gas and oil in fiscal year 2018.

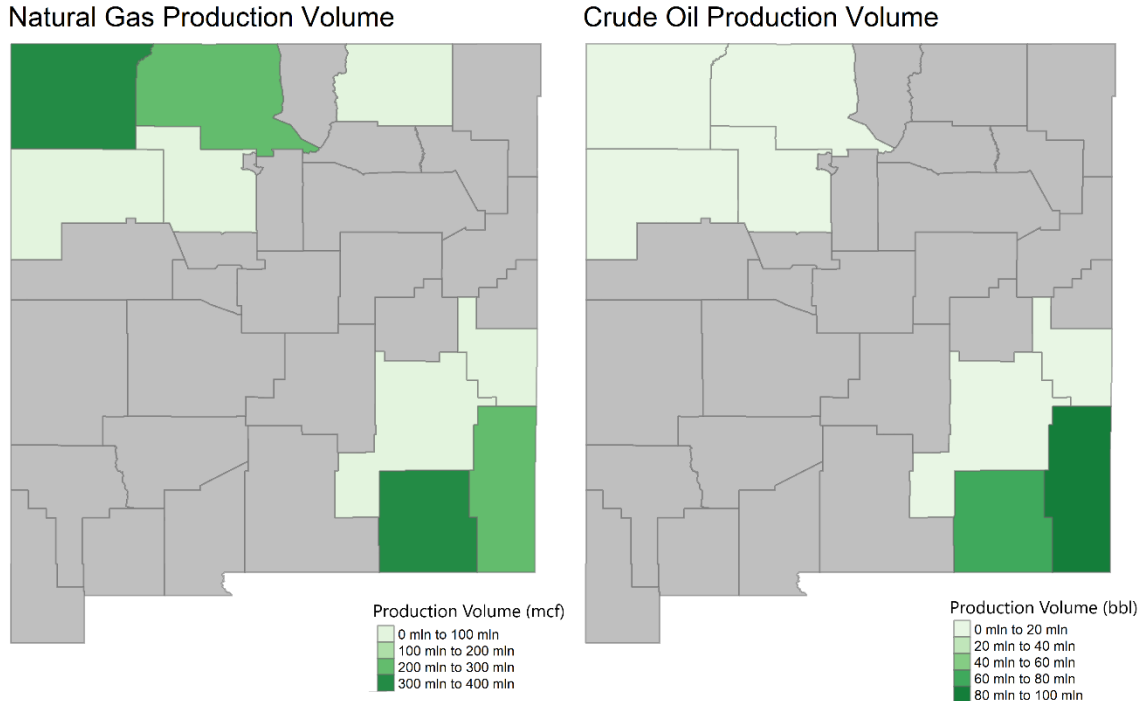
Figure 15: NM Production, by Land Type



This finding is significant because only one other state — Wyoming — approaches a similar share of production that provides royalty income directly to government entities. Royalty earnings are categorized in our analysis as Land Income, which also includes fees, rent, and bonus payments received by the state.

Production by County

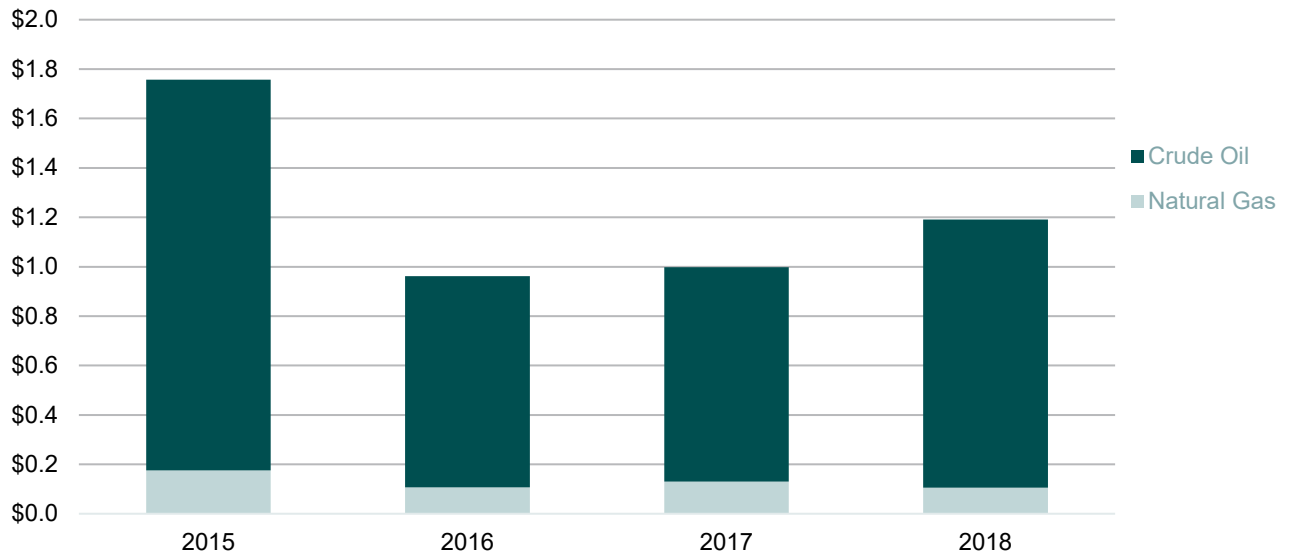
Figure 16: NM Production Volumes, by County



Historically, New Mexico’s production value was derived primarily from natural gas. Advances in production technologies have led to an oil production boom, combined with the

long, steady decline in natural gas prices, which tipped the production value balance in favor of crude oil around 2010. In fiscal year 2018 (July 2017–June 2018 production months), oil accounted for over 75% of total production value in New Mexico.

Figure 17: Estimated Production Value - New Mexico, FY2015–2018 (\$ Billion)



REVENUE

The New Mexico oil and gas industry has a significant role in revenue contributions to New Mexico’s government. The state government’s primary sources of revenue from oil and gas production comes in the form of Tax Revenue, Land Income, and, to a lesser degree, Investment Income.

Aggregating government revenue from oil and gas production activities and comparing that revenue as a percentage of the production value is a valid measure of the burden borne by the industry in support of government. Importantly, it’s also a valid basis for comparing different producing states with significant structural differences in their revenue collection programs.

Government Revenue Categories

The following table lists types of revenue that make up the larger revenue categories, which span Taxes, Land Income, and Investment Income. The specific types of revenue — production and income taxes, for example — are further disaggregated to the individual revenue programs, such as oil and gas severance tax and oil and gas rentals.

Table 1: NM Government Revenue Sources, by Type and Program

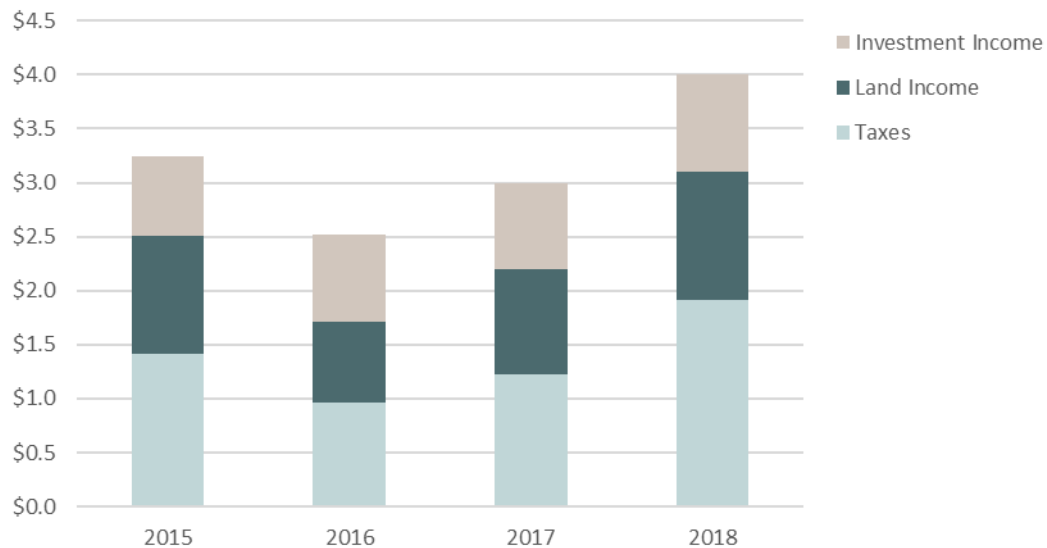
	Type	Name	FY2015	FY2016	FY2017	FY2018
Taxes	Production Taxes*	Oil and Gas Severance Tax	\$412.0	\$257.3	\$338.1	\$491.1
		Emergency School Tax	\$374.2	\$232.4	\$307.9	\$441.0
		Oil and Gas Conservation Tax	\$23.8	\$13.0	\$17.1	\$24.9
	Property Taxes*	Ad Valorem Production Tax	\$127.5	\$84.4	\$119.9	\$171.8
		Ad Valorem Production Equipment Tax	\$26.0	\$31.2	\$22.1	\$177.5
	Processing Taxes*	Natural Gas Processors Tax	\$18.6	\$20.4	\$10.5	\$10.6
	Sales & Use Taxes	Gross Receipts and Compensating Tax	\$370.9	\$277.9	\$354.1	\$511.0
Personal Income Tax		\$67.0	\$48.5	\$56.8	\$82.0	
Land Income	Federal Mineral Leasing		\$395.7	\$302.8	\$474.1	\$500.0
	State Lands Rents, Royalties & Bonus	State Oil and Gas Royalties	\$653.5	\$406.3	\$434.6	\$583.7
		Oil and Gas Bonus	\$38.0	\$36.7	\$65.3	\$107.0
		Oil and Gas Rentals	\$2.1	\$2.0	\$1.9	\$1.8
Investment Income	Investment Income	Land Grant Permanent Fund Income	\$576.9	\$634.8	\$617.7	\$689.2
		SLO Oil and Gas Interest	\$4.0	\$3.9	\$2.9	\$3.4
		Severance Tax Permanent Fund Income	\$159.0	\$168.4	\$174.4	\$210.0
Total			\$3,249.0	\$2,520.1	\$2,997.4	\$4,005.1

*Available directly from state-published sources and don't require estimation.

Summary of New Mexico Government Revenue

In the 2016–2017 fiscal year, New Mexico collected \$3 billion in revenue from activities related to oil and natural gas production. This data is summarized in the following graph.

Figure 18: Government Revenue by Category- New Mexico, FY2015–2018 (\$Billion)



It is important to recognize that the state government revenue data included in this analysis reflect both state and local government revenue collections, as well as the state’s share of the federal royalty income. The industry makes these revenue contributions to government, but is also obligated to pay private royalties and lease operating expenses from the total production value. Thus, this analysis is not a “total burdens” analysis, but instead reflect only the industry’s revenue contribution from production activities to state and local governments.

Permanent Funds

- Land Grant Permanent Fund. New Mexico dedicates its state trust Land Income to this fund, which was valued at \$18 billion as of September 30, 2018. Investment income from investments distributed approximately \$638.1 million in FY2018 to public beneficiaries.
- Severance Tax Permanent Fund. A portion of the severance tax collections are invested in this fund, which was valued at \$5.3 billion. It generated an additional \$200.4 million in Investment income to the state in FY2018.²⁰

No other state in our study area, with the exception of Texas, has established permanent funds and related Investment earnings of this magnitude. However, these funds are a significantly smaller share of the Texas total government revenue stream as is found in New Mexico.

²⁰ New Mexico State Investment Council, current fund balances as of September 30, 2018, and distributions reported for fiscal year 2017. [<http://www.sic.state.nm.us/dashboard.aspx>, accessed November 7, 2018].

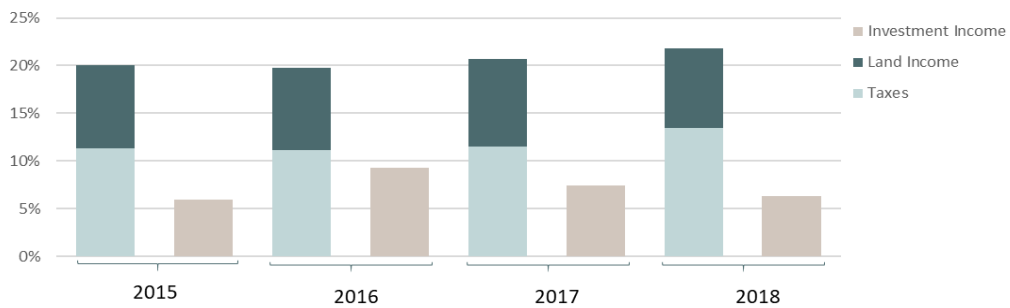
Notably, some of these revenue streams are related to the dynamic value of production, which fluctuates with market prices, while other streams are tied to fixed fees or one-time payments, such as bonuses.

Revenue as a Share of Production Value

Total New Mexico oil and gas production values for fiscal year 2017 totaled approximately \$10.5 billion. Of that, approximately \$3 billion flowed to state and local governments in the form of revenue from Tax Revenue, Land Income, and Investment Income.

As can be seen in the following graph, the percentage of the total New Mexico production value providing revenue to government has fluctuated in recent years. This is simply the product of the dynamic production value, primarily related to increased oil production in the southeast part of the state.

Figure 19: Revenue as Percentage of Estimated Production Value- New Mexico, FY2015–2018



Texas

SUMMARY OF TEXAS FINDINGS

Texas stands out by virtue being, by far, the largest producer of oil and natural gas in the United States, with corresponding dominance in oil and gas related revenues. Compared to North Dakota — the second largest oil producer in the country — Texas produced over three times as much oil by volume as its nearest competitor.

Texas also distinguishes itself with the amount and quality of readily available revenue data. The granularity of the data provided by the Texas Comptroller of Public Accounts allows for finer disaggregation of data than any other state in the study area – New Mexico is a close second – which is evidenced by the largest array of specifically identified revenue streams of any state examined.

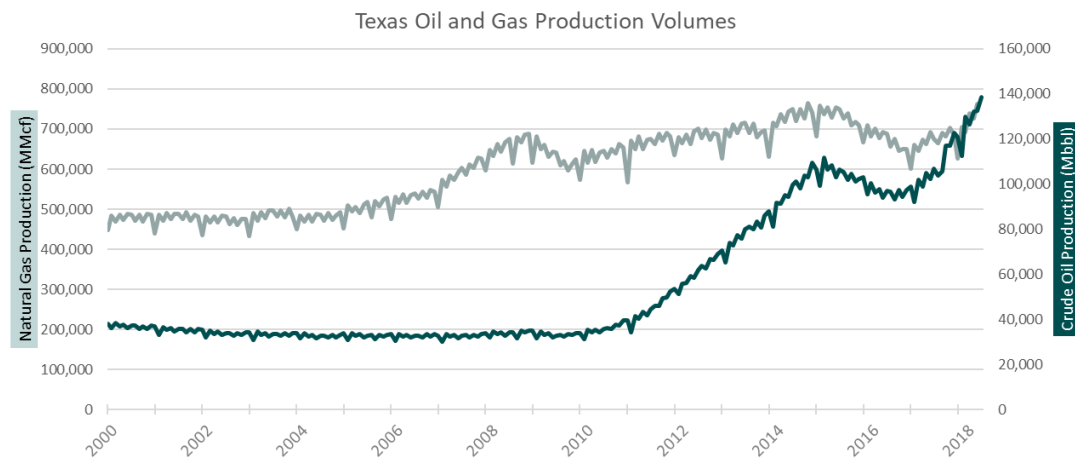
OIL AND GAS PRODUCTION PROFILE

Texas is historically known as an oil and gas producing giant. In addition, changes in markets combined with improved drilling and extraction technology have caused a nearly seven-fold increase in oil production over the past decade, adding to an already high level of production. Natural gas production has grown more slowly over time, but is around record levels as of the most recently available EIA data.

Production Volumes and Value

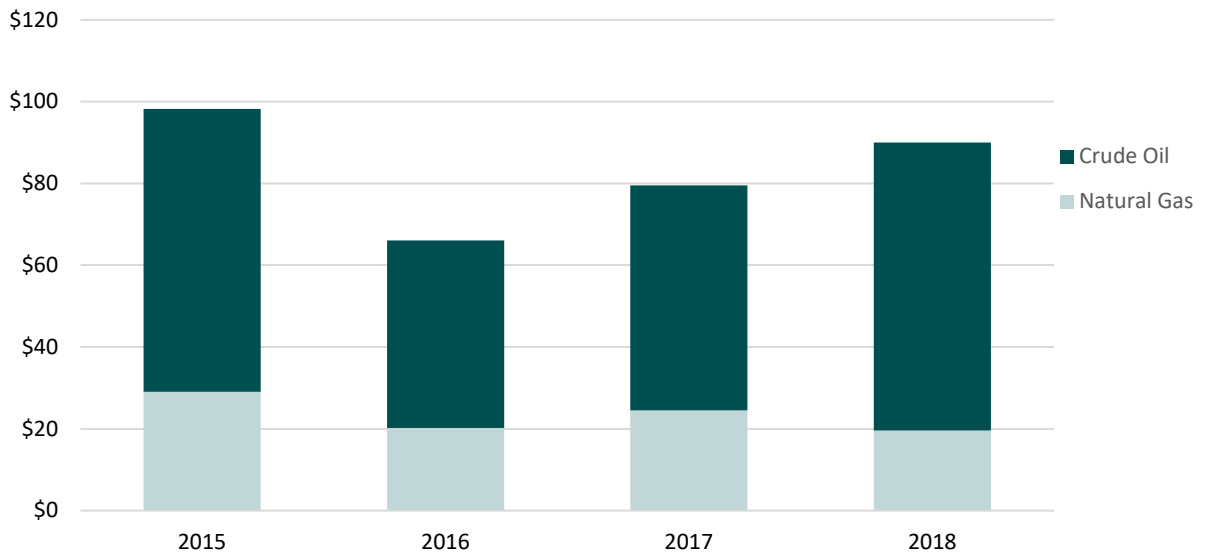
After a slight decline between mid-2015 and early 2017, Texas resumed its exponential growth in oil, and increased its rate of natural gas production, largely due to associated gas.

Figure 20: Production Volume - Texas, FY2000–2018



While production volumes have reached record highs in 2018, prices are still well behind the peak in 2014/2015. In combination, this has created three years of increasing production value, with 2018 production value somewhat below the peak in 2015. (See Figure 21)

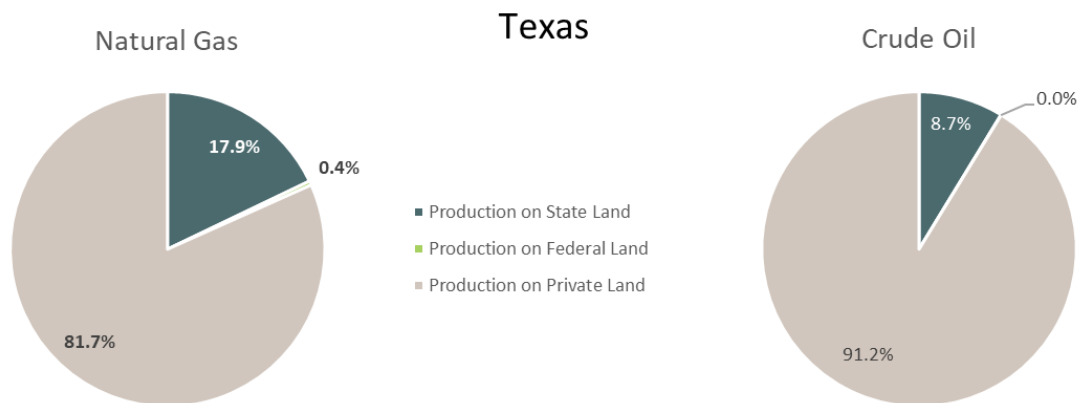
Figure 21: Estimated Production Value - Texas, FY2015–2018 (\$ Billion)



Production by Land Type

The story of this report once again turns to the percentage of production that occurs on public lands. Figure 22 illustrates that Texas production occurs overwhelmingly on private lands – 81.7% of natural gas, and 91.2% of oil, by volume. This is another illustration of how different New Mexico is from other states in terms of land ownership.

Figure 22: TX Oil and Natural Gas Production, by Land Type

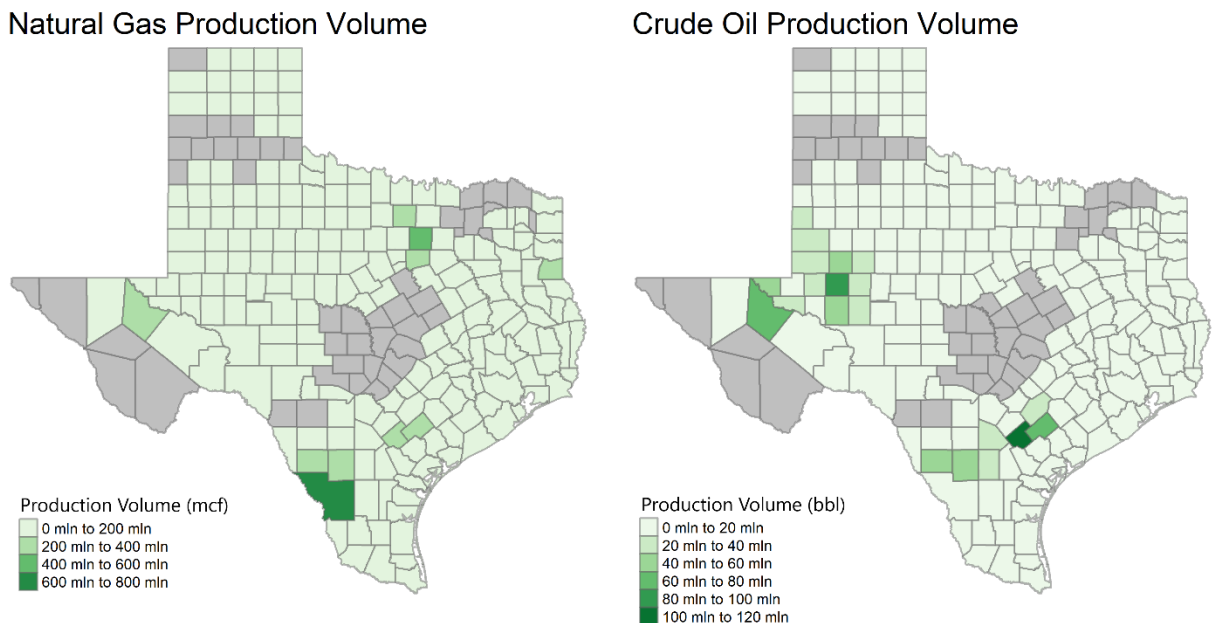


Production by County

Texas sits on top of some of the largest oil and gas producing formations in the country. These include the Permian in west Texas and east New Mexico, the Eagle Ford shale in the southern part of the state, the Haynesville shale in the east, and the Barnett shale in the north part of the state to name a few of the most prominent current plays.

Data acquired from the Texas Railroad Commission indicates that there are 224 (of 254) counties in Texas that have produced at least some oil over the study period, and 217 with at least some natural gas production. Some of the counties in high producing regions are depicted in deceptively light shading in the following maps, but this is an artifact of a there being a large number of geographically small counties.

Figure 23: TX Production Volumes, by County



REVENUE

Government Revenue Categories

Taxes

Texas, like most states in the study area, derives the lion's share of revenues from taxes on oil and gas resources. Along with Kansas, Texas levies a property tax on oil and gas reserves. Texas's largest oil and gas related Tax Revenue sources are Sales and Use Taxes and Property Taxes.

Table 2: TX Government Revenue Sources, by Type and Program

\$ millions

Type	Name	FY2015	FY2016	FY2017	
Taxes	Production Taxes*	Crude Oil Production Tax	\$2,877.0	\$1,703.9	\$2,107.3
		Natural Gas Production Tax	\$1,280.4	\$578.8	\$982.8
		Oil Regulation Tax	\$2.0	\$0.4	\$0.0
		Sulphur Tax	\$3.5	\$0.7	\$0.0
		Condensate Production Tax	\$0.0	\$0.0	\$0.0
	Property Taxes	Ad Valorem Tax	\$4,830.0	\$4,130.0	\$3,120.0
	Sales & Use Taxes	Sales & Use Taxes	\$4,506.1	\$3,234.1	\$3,977.0
Personal Income Tax	Texas Has No Income Tax	\$0.0	\$0.0	\$0.0	
Land Income	Federal Mineral Leasing	Federal Mineral Leasing	\$6.2	\$5.5	\$6.5
	State Lands Rents, Royalties & Bonus*	Gas Royalties from Lands Owned by Ed. Institutions	\$261.0	\$199.7	\$292.9
		Gas Royalties from Other State Lands	\$11.6	\$6.8	\$8.0
		Gas Royalties from Parks and Wildlife Lands	\$2.3	\$1.2	\$2.2
		Oil Royalties from Lands Owned by Ed. Institutions	\$889.8	\$571.5	\$768.9
		Oil Royalties from Other State Lands	\$30.6	\$15.0	\$15.4
		Oil Royalties from Parks and Wildlife Lands	\$1.2	\$0.5	\$0.5
		Oil and Gas Bonus	\$179.8	\$207.8	\$476.1
		Oil and Gas Rentals	\$24.1	\$15.9	\$41.2
Brine and Water Receipts	\$14.2	\$6.3	\$10.7		
Investment Income	Perm. Uni. Fund Distr. to the Avail. Uni. Fund	\$763.6	\$772.9	\$839.4	
	Interest on Oil Overcharge Loans*	\$1.2	\$1.2	\$1.2	
	Interest on Land Sales, Public School Land*	\$0.0	\$0.0	\$0.0	
Fees & Regulatory Costs*	Oil and Gas Regulation and Cleanup Fee Surcharge	\$25.1	\$18.3	\$23.3	
	Oil and Gas Violations	\$16.6	\$13.7	\$11.1	
	Oil and Gas Well Drilling Permit	\$8.6	\$4.6	\$6.8	
	Oil Field Clean Up Fee	\$6.8	\$6.6	\$6.4	
	Natural Gas Regulatory Fee	\$5.2	\$5.1	\$5.1	
	Land Office Administrative Fees	\$2.3	\$2.4	\$2.8	
	Land Office Fees	\$1.4	\$1.2	\$1.9	
	Oil and Gas Compliance Certification Reissue Fee	\$0.9	\$0.7	\$0.7	
	Abandoned Well Site Equipment Disposal	\$0.5	\$0.2	\$0.3	
	Oil Spill Prevention and Response Act Violations	\$0.2	\$0.1	\$0.1	
Injection Well Regulation	\$0.1	\$0.1	\$0.1		
Total		\$15,752.4	\$11,504.9	\$12,708.9	

*Available directly from state-published sources and don't require estimation.

Land Income

Texas state trust lands are split into two broad categories – land managed by the General Land Office, and the properties managed by the University Lands System. Both categories

of land are managed separately, and have different beneficiaries. Texas gains very little revenue from federal leases, due to the very low share of federal lands.

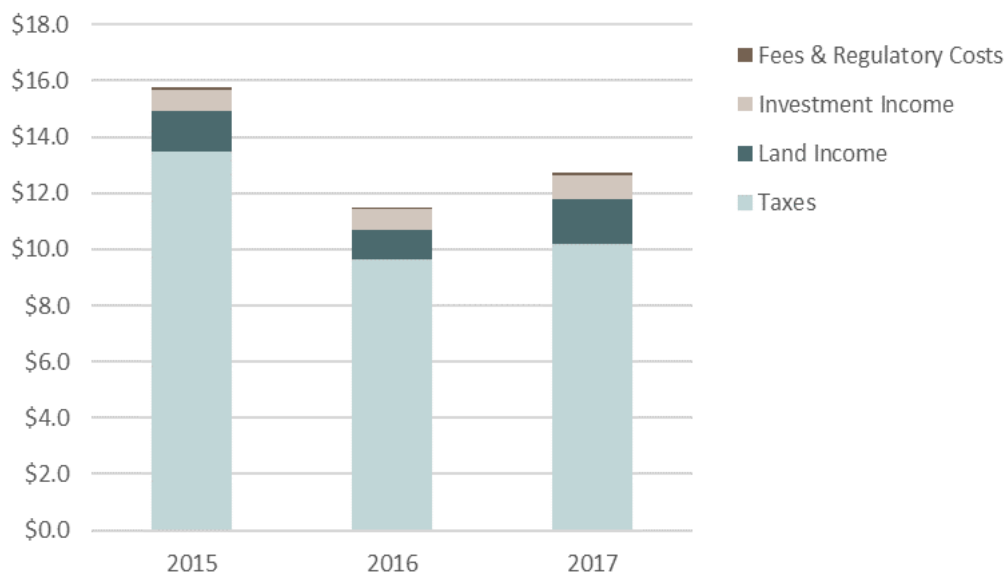
Investment Income

Texas receives Investment revenue related to onshore oil and gas production from at least one source – the Permanent University Fund that makes annual distributions of a portion of earnings into the Available University Fund for the benefit of Texas’s university system.

Summary of Texas Government Revenue

As it is very strongly correlated with production value, Texas collects, by far, the largest amount of revenue from oil and gas production. The largest proportion of this is from Taxes.

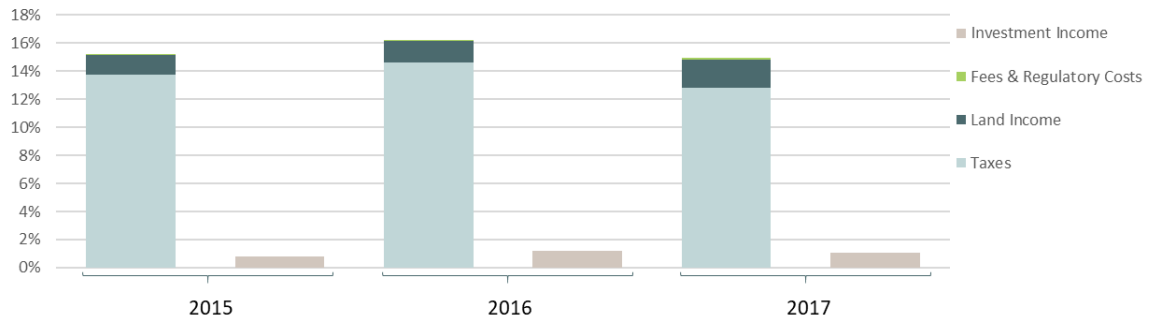
Figure 24: Government Revenue by Category - Texas, FY2015–2017 (\$ Billion)



Revenue as a Share of Production Value

Texas is tied with Montana for the highest level of Tax Revenue from oil and gas as a share of production value.

Figure 25: TX FY Revenues, stated as Percent of Estimated Production Value



North Dakota

SUMMARY OF NORTH DAKOTA FINDINGS

In some sense, the timing of this study – both in its scheduled first publication, and in the inclusion of the specific years investigated — presents a picture of North Dakota that would be different if the study were undertaken a year earlier or later. For the 10-year period ending in December 2015, oil production had been growing at an average year over year rate of over 29%. Corresponding revenue also peaked in FY2015. In FY2016 and FY2017, Tax Revenues decreased sharply from that peak both in terms of dollars, and as a share of production value.

Another issue of timing for North Dakota relates to the North Dakota Legacy Fund. The Legacy Fund was created by constitutional amendment in 2011.²¹ Constitutionally, there were to be no distributions from the investment earnings from the fund prior to FY2018, which is not included in the analysis presented here.

Finally, production tax rates were lowered during years examined, which further served to reduce revenue as a share of production value.

OIL AND GAS PRODUCTION PROFILE

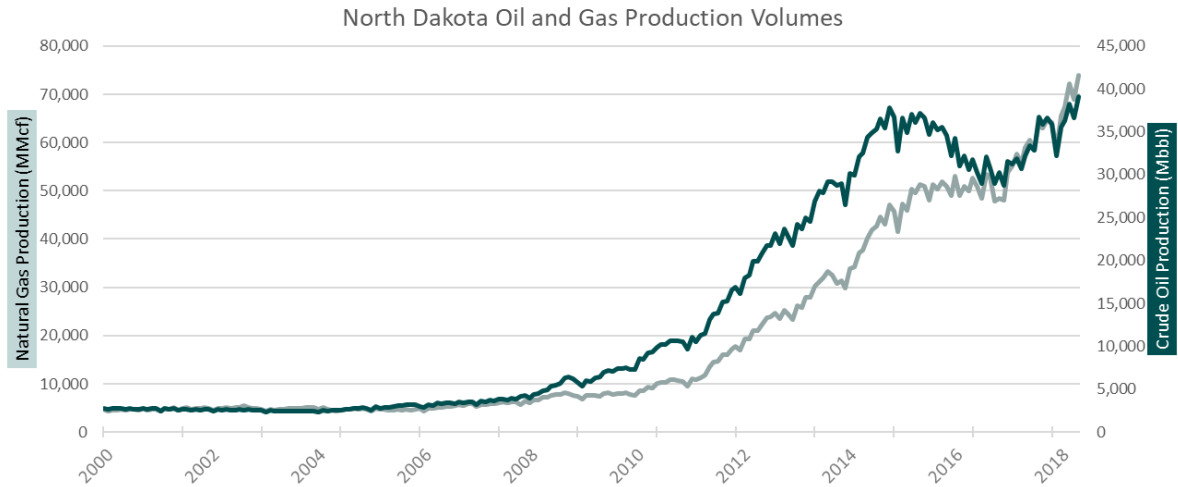
The tenfold increase in oil production over the last decade has pushed North Dakota to a position as the second largest oil producing state in the nation, behind only Texas. Associated gas has increased at a similar rate, placing North Dakota as the 11th largest natural gas producer. Nowhere is the shale oil revolution more evident than in the Bakken formation, which is the foundation of the state's resource base.

Production Volumes and Value

The shale oil revolution is manifest in western North Dakota in the Bakken formation. Previously “uneconomical oil” is now being produced at a rate of nearly 20 MMbbl per month as the benefit of development and production technology improvements. The rapid growth in production has resulted in significant infrastructure constraints (e.g., field service pipelines, transportation facilities, plants and related facilities), particularly on the natural gas side. Figure 26 illustrates the exponential growth of oil and gas production in North Dakota over the past decade.

²¹ North Dakota Constitution, Article X, Section 26

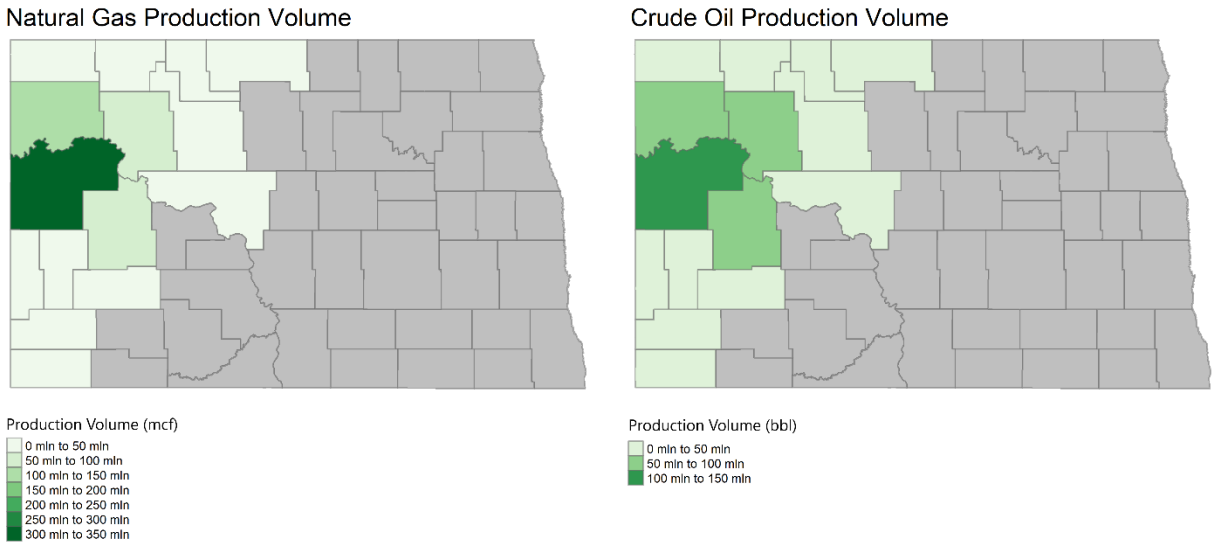
Figure 26: Production Volume - North Dakota, FY2000–2018



Production by County

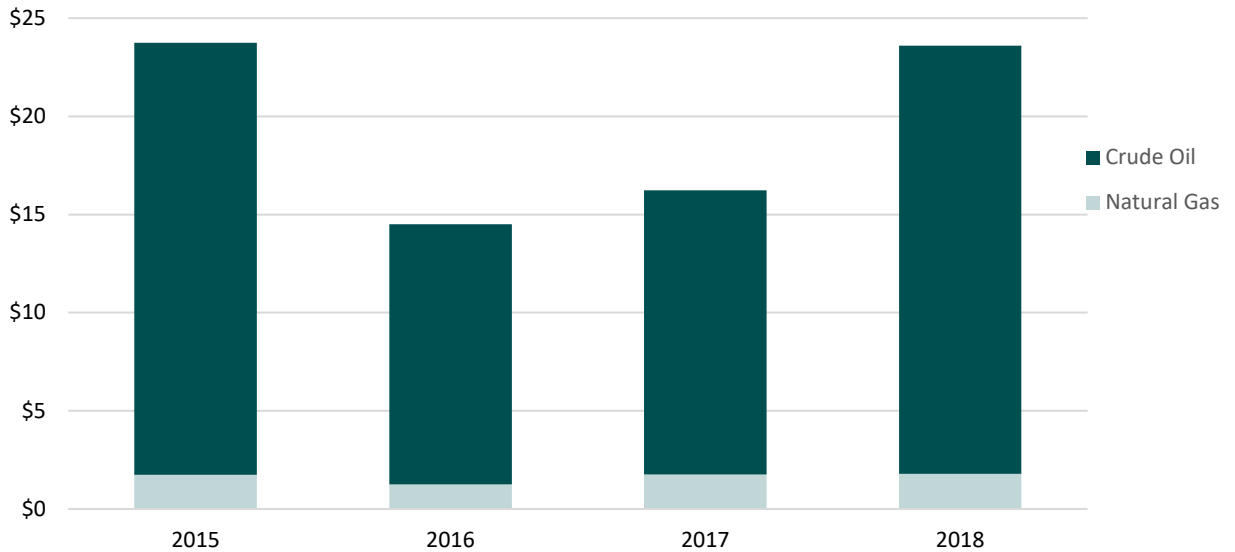
North Dakota production is largely concentrated in a single county — McKenzie County — in the heart of the Bakken formation. Based on state provided county level production data, McKenzie County, North Dakota is the highest oil producing county in the nine state study area, with FY2018 production of over 169 MMbbl, as compared to about 200 MMbbl statewide for New Mexico, the next largest producing state in the nation.

Figure 27: ND Production Volumes, by County



The dominance of the oil resource in North Dakota is readily apparent in Figure 28. Approximately 92% of North Dakota’s statewide estimated production value is related to the oil resource, at nearly \$22 billion worth of crude oil produced in FY2018. Natural gas value amounted to about \$1.8 billion.

Figure 28: Estimated Production Value - North Dakota, FY2015–2018 (\$ Billion)



REVENUE

Government Revenue Categories

Taxes

North Dakota levies an Oil and Gas Production Tax, as well as an Oil Extraction Tax that applies only to crude oil production. The Natural Gas Production Tax is based on the volume of production, as opposed to the value of the resources produced.

Land Income

North Dakota gets some revenue from royalties on both state and federal leases, but the combined total is less than one-fifth of the revenue received from oil and gas related taxes.

Investment Income

While North Dakota does not have permanent fund Investment income that is counted in the years examined, that is only because the North Dakota Legacy fund, which was added to the state constitution in 2011, was stipulated to not make any distributions prior to fiscal year 2018. The fund had a total investment value of \$5.6 billion dollars as of October 2018. North Dakota dedicates fully 30% of oil and gas tax production revenue to the fund.

Table 3: ND Government Revenue Sources, by Type and Program

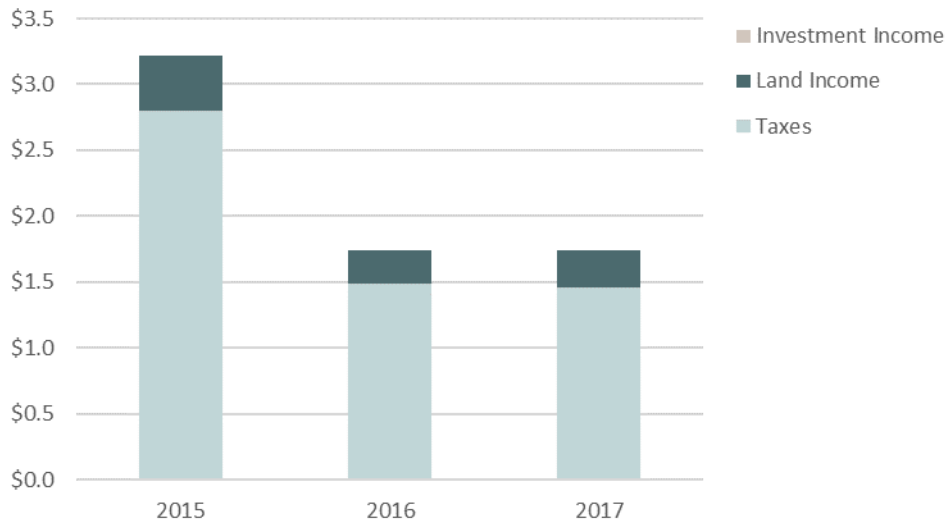
		\$ millions			
Type	Name	FY2015	FY2016	FY2017	
Taxes	Production Taxes*	Oil and Gas Production Tax	\$1,286.7	\$750.5	\$734.9
		Oil Extraction Tax	\$1,514.3	\$732.9	\$719.9
	Sales & Use Taxes	Sales & Use Taxes	\$286.7	\$162.7	\$218.9
	Personal Income Tax	Personal Income Tax	\$29.3	\$14.8	\$29.1
Land Income	Federal Mineral Leasing	Federal Mineral Leasing	\$71.1	\$52.8	\$84.6
	State Lands Rents, Royalties & Bonus*	Bonus	\$333.4	\$192.7	\$192.9
		Royalties	\$17.1	\$12.8	\$8.6
Investment Income	ND Legacy Fund Made No Distributions Prior to FY18	\$0.0	\$0.0	\$0.0	
Total		\$3,538.6	\$1,919.2	\$1,989.0	

*Available directly from state-published sources and don't require estimation.

Summary of North Dakota Government Revenue

Between fiscal years 2015 and 2016, North Dakota revenue from oil and gas fell by over 45% due to sharp declines in oil prices and a corresponding drop in production, which combined for a highly volatile reduction in the state's revenues. While production volumes have since recovered to peak levels, prices have not, and revenues remained well below the 2015 level in 2017.

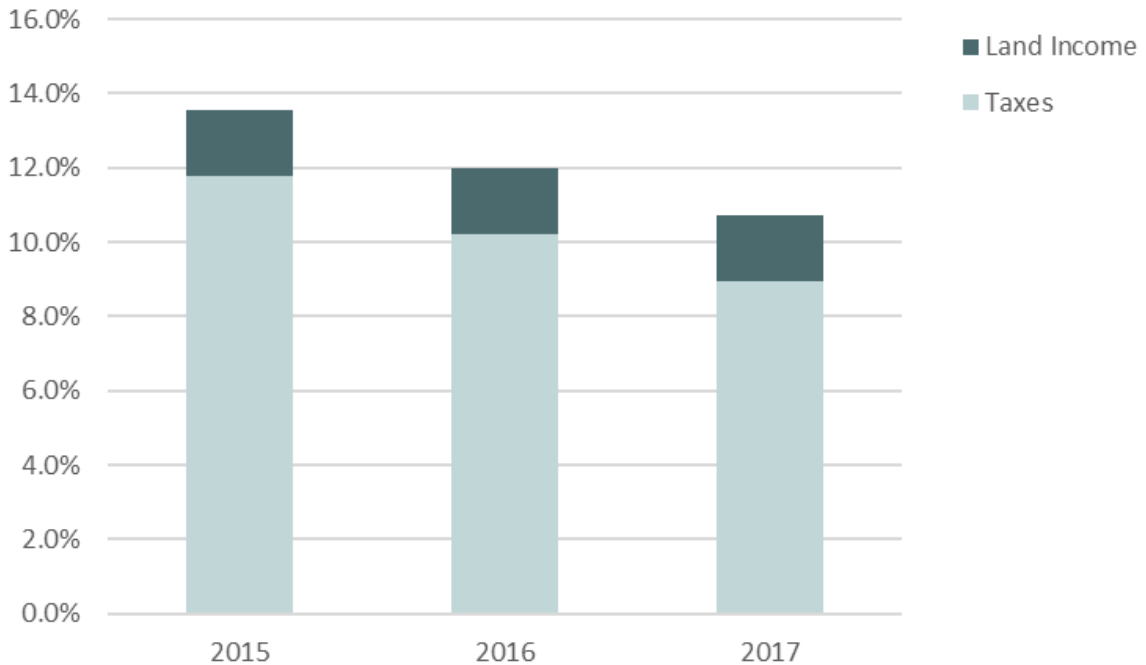
Figure 29: Government Revenue by Category - North Dakota, FY2015–2017 (\$Billion)



Revenue as a Share of Production Value

North Dakota revenues have also fallen as a percent of production value, as price-triggered Oil Extraction Tax incentives were repealed by the legislature, and replaced with permanently reduced tax rates effective January 1, 2016. Also, natural gas, which had been taxed at a rate of \$0.1106 per Mcf in FY2016, was taxed at \$0.0601 in FY2017.²²

Figure 30: CO FY Revenues, stated as Percent of Estimated Production Value



²² State of North Dakota Office of the State Tax Commissioner, "53rd Biennial Report for the Biennial Period of July 1, 2015 Through June 30, 2017"

Oklahoma

SUMMARY OF OKLAHOMA FINDINGS

Cushing, Oklahoma has traditionally been considered the “pipeline crossroads of the world,” and is the location of the U.S. benchmark West Texas Intermediate price for crude oil. While the recent lifting of the U.S. export ban and other factors have reduced its market importance somewhat, it is still a vital trading hub for U.S. oil produced from many surrounding states.

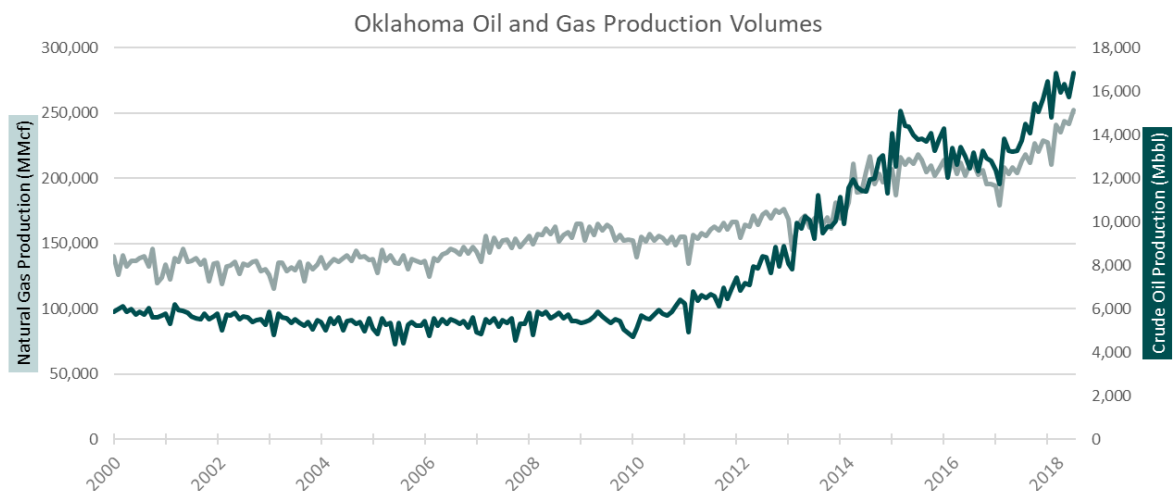
At a level of taxation of about 10% on the total value of production, Oklahoma is similar to New Mexico, in terms of taxes. However, with a far lower share of production on public lands, the similarities end there.

OIL AND GAS PRODUCTION PROFILE

Oklahoma is the fourth largest oil producer, and the third largest natural gas producer in the U.S. Unlike some of the other states in the study area, including New Mexico, Oklahoma’s natural gas production has steadily increased since 2000, as shown in Figure 31, below.

Production Volumes and Value

Figure 31: Production Volume - Oklahoma, FY2000–2018

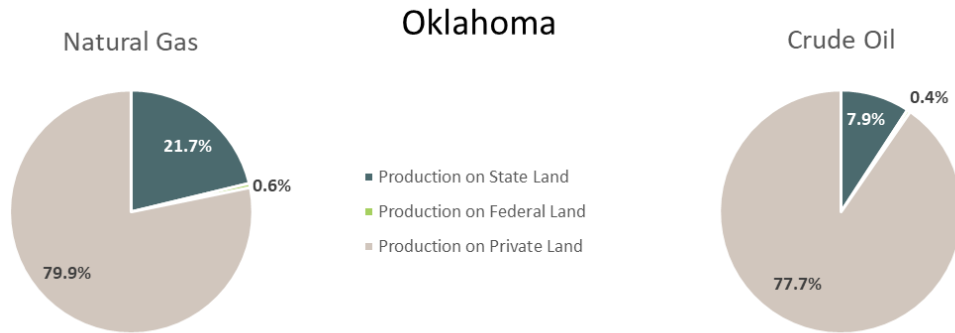


Production by Land Type

The Oklahoma Land Office manages 1.1 million mineral acres of trust land. Because of this, Oklahoma generates a fairly significant portion of its natural gas on state trust land — 22%

in 2017, while state lands only account for about 8% of oil production. Federal land, in both cases, provides less than 1% of total production.

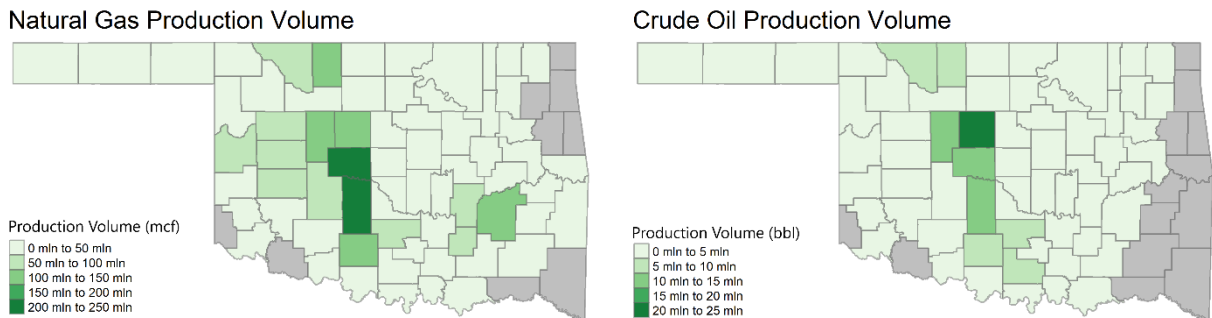
Figure 32: OK Production, by Land Type



Production by County

Oil and natural gas production occurs in nearly every county in Oklahoma, but the largest proportion of production is located in the center of the state. Major producing formations include the Ardmore basin and the Anadarko basin, which includes the Woodford Shale, the South Central Oklahoma Oil Province (“SCOOP”) and the Sooner Trend Anadarko Basin Canadian and Kingfisher Counties (“STACK”).

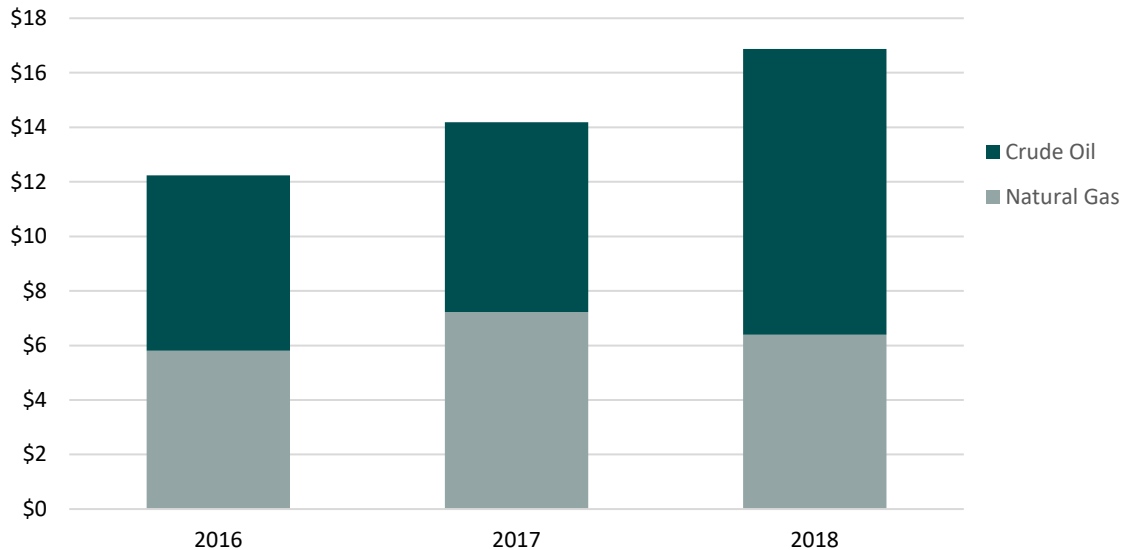
Figure 33: OK Production Volumes, by County



Oklahoma’s steadily increasing volume of production has overwhelmed price fluctuations in recent years, and leading to relatively steadily increasing value of production.²³ (See Figure 34) Oil-related revenue has led the way in the escalating production value, augmented by the increasing strength in oil and gas production volumes, trends which are more pronounced in Oklahoma relative to some of the other states in the study area.

²³ Availability issues with regard to county level oil and gas production prevented the inclusion of FY15 production value for Oklahoma.

Figure 34: Estimated Production Value - Oklahoma, FY2016–2018 (\$ Billion)



REVENUE

Government Revenue Categories

Taxes

Oklahoma has a Gross Production Tax on the value of oil and natural gas produced, as well as a petroleum excise tax. Oklahoma’s severance tax is levied in lieu of property tax at the state level, but local governments do levy property tax on oil and gas related property. This is in contrast to Texas and Kansas, who levy property tax on the value of reserves.

Land Income

Oklahoma receives significant revenue from royalties on state lands, and a small amount from federal mineral leasing. This is a direct reflection of the percentages of land ownership, as discussed above.

Investment Income

The Commissioners of the State Land Office of Oklahoma manage a portfolio of investments valued at about \$2.5 billion as of FY2017, which generates interest and dividends for the state.

Table 4: OK Government Revenue Sources, by Type and Program

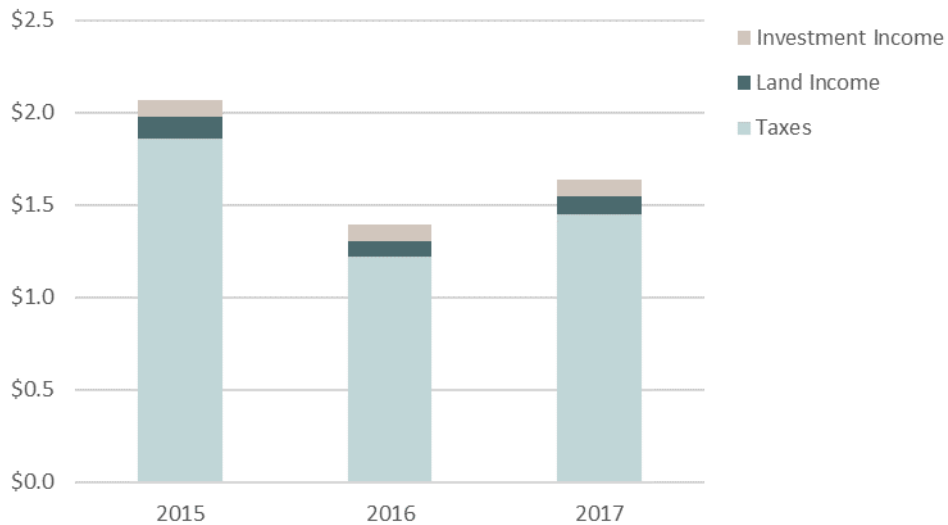
			\$ millions		
Type	Name		FY2015	FY2016	FY2017
Taxes	Production Taxes*	Gross Production Tax	\$683.5	\$355.9	\$429.8
		Petroleum Excise Tax	\$14.3	\$10.7	\$12.2
	Property Taxes		\$163.6	\$172.6	\$186.5
	Sales & Use Taxes		\$736.1	\$515.4	\$594.4
	Personal Income Tax		\$258.0	\$162.7	\$225.4
Land Income	Federal Mineral Leasing		\$9.3	\$6.0	\$4.6
	State Lands Rents, Royalties & Bonus*	Rents and Royalties	\$106.1	\$71.8	\$82.3
		Misc.	\$7.9	\$5.3	\$11.7
Investment Income	Land Office Dividends*		\$34.1	\$36.7	\$36.3
	Land Office Interest*		\$55.4	\$54.4	\$55.5
Total			\$2,068.4	\$1,391.5	\$1,638.6

*Available directly from state-published sources and don't require estimation.

Summary of Oklahoma Government Revenue

With significantly higher natural gas production, Oklahoma receives more total Tax Revenue than New Mexico, in dollar terms, at about \$1.4 billion in FY2017.

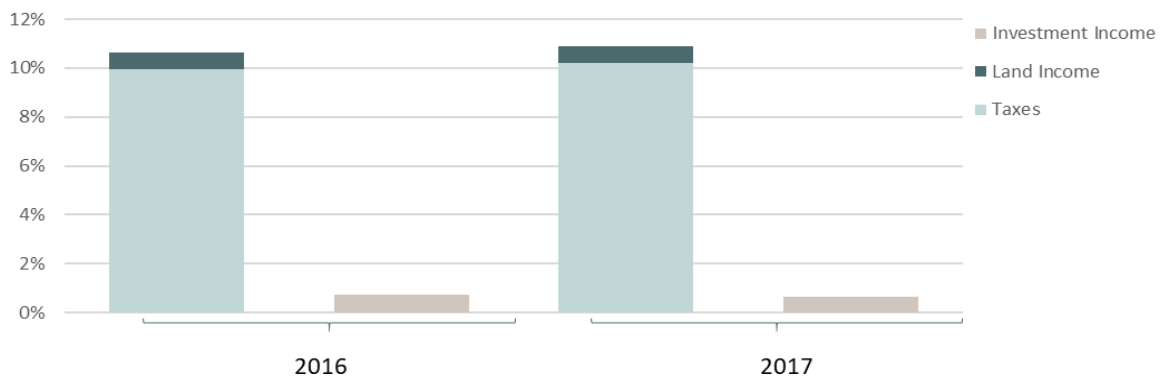
Figure 35: Government Revenue by Category - Oklahoma, FY2015–2017 (\$ Billion)



Revenue as a Share of Production Value

As is the case with nearly all of the states in this study, Oklahoma's difference in government revenues from oil and gas production largely comes down to land ownership, particularly the very low percentage of production that takes place on federal lands. On a Tax Revenue basis, New Mexico and Oklahoma garner a similar amount of government revenue from oil and gas. However, the Land Income really sets the two apart.

Figure 36: Revenue as Percentage of Estimated Production Value - Oklahoma, FY2016–2017



Colorado

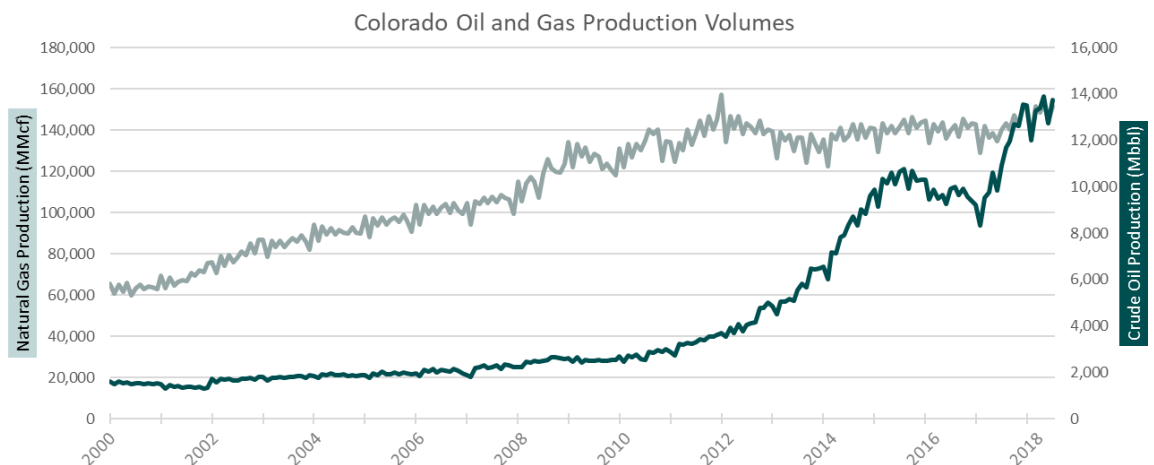
SUMMARY OF COLORADO FINDINGS

With a combined 10.8% of production value flowing to Taxes and Land Income in fiscal year 2017, Colorado ranks sixth in oil and gas industry revenue contributions to state and local government in the study area. A unique factor in the state's structure of fiscal income is Colorado's Ad Valorem credit against severance taxes. That credit is discussed in additional detail below, but in short, a credit of 87.5% of ad valorem taxes based on production can be claimed against severance tax obligations. This decreases total tax collections below what the statutory rates might suggest.

OIL AND GAS PRODUCTION PROFILE

Production Volumes and Value

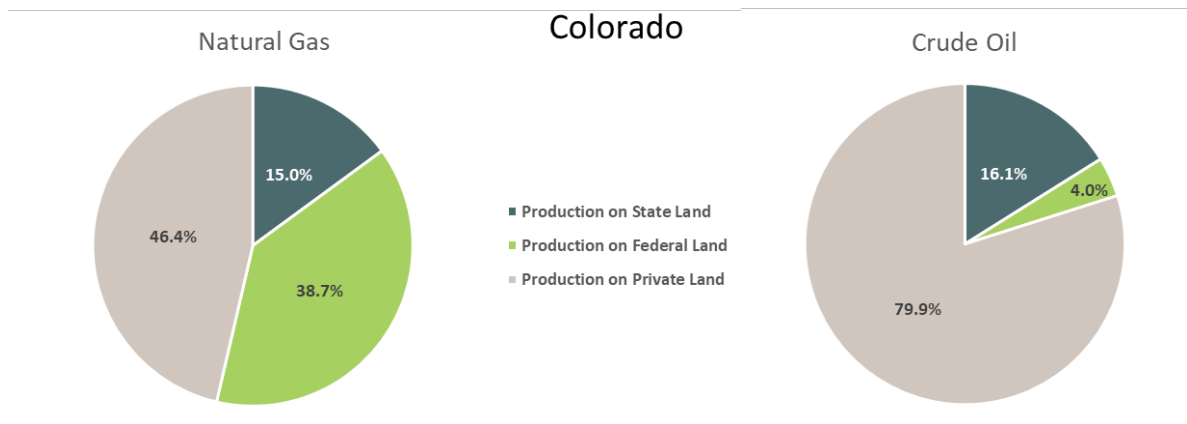
Figure 37: Production Volume - Colorado, FY2000–2018



Production by Land Type

Colorado oil and gas production is largely a tale of two production areas. The Denver-Julesburg basin in the northeast portion of the state produces the vast majority of crude oil (and significant gas volumes) in Colorado, while the Piceance and San Juan basins on the western slope provides a significant portion of the natural gas produced in the state. This is also important in terms of land ownership, as the northeast corner of the state — where oil production is highest — is largely privately owned, while the western slope has a high percentage of federal land. This is evident in the following graph, which reflects a much greater share of Colorado natural gas is produced on federal leases, as compared to oil.

Figure 38: CO Natural Gas and Crude Oil Production, by Land Type



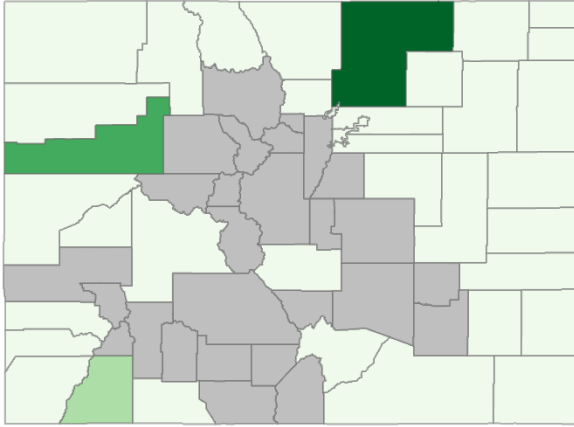
Production by County

With respect to both oil and natural gas production, Weld County in north-central Colorado dominates. Not only is Weld County currently the production leader in the state, it is also the focus for a great deal of recent exploration and development activities. As part of the Wattenberg field in the Denver-Julesburg Basin, the productive resources are most generally described as part of the Niobrara Formation, which extends broadly across Colorado, Wyoming, and Nebraska.

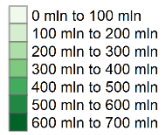
The northwestern slope production in Colorado is provided from the Piceance Basin formation, which extends into eastern Utah. The production in southwestern Colorado is from the San Juan Basin resources, which are extensive through northwestern New Mexico and southeastern Utah. The western slope production is predominantly natural gas resources, but significant natural gas liquids, condensate, and oil are also produced from these properties. In the production volume maps which follow, it is apparent that oil and natural gas production occurs throughout Colorado, except in the mountainous regions in the central part of the state.

Figure 39: CO Production Volumes, by County

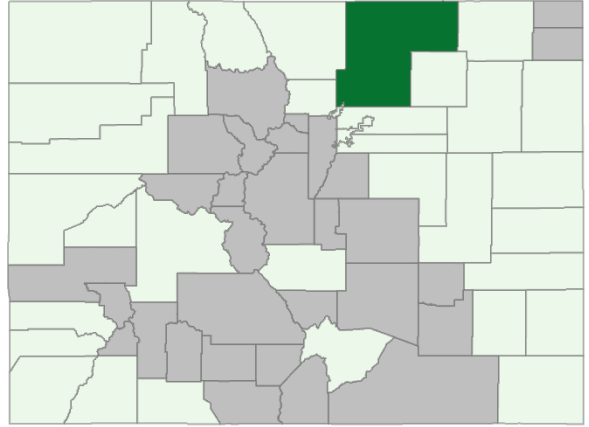
Natural Gas Production Volume



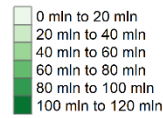
Production Volume (mcf)



Crude Oil Production Volume

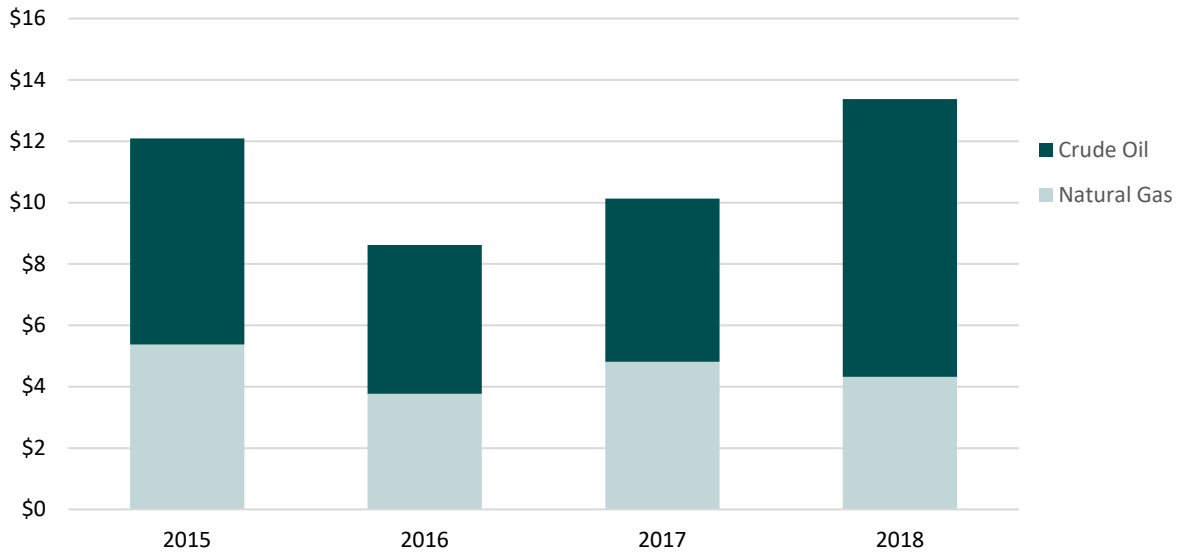


Production Volume (mbl)



The following graph reflects the relationship in Colorado's oil and natural gas production value, with the oil production reflect significant strength in recent years.

Figure 40: Estimated Production Value - Colorado, FY2015–2018 (\$ Billion)



REVENUE

Government Revenue Categories

Perhaps the defining characteristic of government revenue from oil and gas in Colorado is the Ad Valorem Tax Credit.²⁴ In Colorado, oil and gas property, as well as production, are subject to ad valorem tax. This credit allows for taxpayers to take a credit, against severance tax liability, equal to 87.5% of the property taxes paid on the prior year's oil and natural gas production. This creates a couple of issues with regard to revenues. First, because the ad valorem Tax Revenue accrues to local governments and the severance tax accrues to state government, the credit essentially functions as a transfer from the state general fund to local governments. The second major issue is one of timing: the credit is based on taxes paid on prior year production and applied to taxes paid on current year production. If production values are changing, either through price or volume increases or decreases, the impact of the credit can vary widely. The credit is not refundable (i.e. it can reduce severance tax liability to \$0, but cannot generate a refund). In combination with refunds for other reasons, refunds exceeded severance Tax Revenues collected in fiscal year 2017, for a net of -\$14.3 million.²⁵ For the purposes of this report, we have used a value of \$0 for Colorado Severance Tax in fiscal year 2017.

Taxes

Colorado taxes oil and gas production directly in the form of the Oil and Gas Severance Tax and the Oil and Gas Conservation Levy. A portion of the Ad Valorem tax assessed by local governments is also based on the value of production.

The Colorado severance tax has several unique features. The tax is actually assessed on an annual basis, although a withholding feature requires 1% of all proceeds paid to interest owners for oil and gas sales to be withheld by the disburser and remitted on a quarterly basis. The severance tax rate is determined using a sliding scale based on the owners' total Colorado oil and gas income during the production year. A credit, described above, of 87.5% of ad valorem tax related to production is allowed to be taken against the severance tax liability.

Property taxes are estimated using reported valuations and average mill on a county level.

Sales and Use Taxes and Individual Income Taxes have been estimated for Colorado by the same standardized methodology that we have applied in other states.

Land Income

²⁴ Colorado Code of Regulations, Regulation 29-105(2)(a).

²⁵ Colorado Department of Revenue, "Annual Report 2017", <<https://www.colorado.gov/pacific/revenue/annual-report>>, Accessed on 10/03/2018

Colorado collects Land Income from leases on both state trust and federal land. The Colorado State Land Board administers about four million acres of subsurface land, on which it collects rents, royalties, and bonus revenue. Colorado also collects a share of the royalties from federal leases.

Investment Income

Oil and gas related Investment income in Colorado consists of earnings of the Public School Permanent fund. The fund provided \$17 million in revenues to Colorado in FY2017.

Table 5: CO Government Revenue Sources, by Type and Program

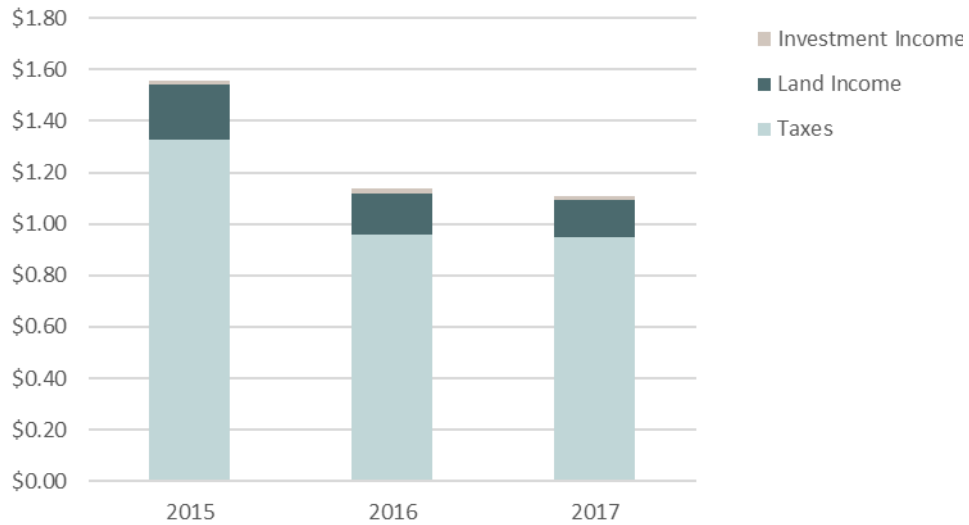
			\$ millions		
Type	Name	FY2015	FY2016	FY2017	
Taxes	Production Taxes*	Oil & Gas Conservation Tax	\$7.2	\$5.7	\$7.1
		Oil & Gas Severance Tax	\$24.3	\$28.6	\$0.0
	Property Taxes	\$675.1	\$444.5	\$421.0	
	Sales & Use Taxes	\$323.3	\$242.8	\$309.3	
	Personal Income Tax	\$297.9	\$237.1	\$209.4	
Land Income	Federal Mineral Leasing	\$53.3	\$55.6	\$58.3	
	State Land Rents, Royalties & Bonus*	Natural Gas Royalties	\$26.1	\$17.5	\$20.7
		Oil Royalties	\$79.2	\$42.1	\$44.0
		Oil & Gas Rentals	\$2.0	\$1.6	\$1.2
		Bonus	\$50.7	\$42.7	\$20.3
Investment Income	Public School Permanent Fund Interest	\$17.5	\$17.5	\$16.6	
Total		\$1,556.6	\$1,135.7	\$1,107.9	

*Available directly from state-published sources and don't require estimation.

Summary of Colorado Government Revenue

Colorado oil and gas related revenues have declined over the study period. However, FY2018 revenues, which are not included here are likely to increase, as production value in FY2018 has surpassed the peak production value in FY2015. Although Land Income (\$144.5 million in FY17) is not insignificant, nearly 87% (\$946.8 million in FY17) of the state's oil and gas revenue is obtained from its tax programs.

Figure 41: Government Revenue by Category - Colorado, FY2015–2017 (\$ Billion)



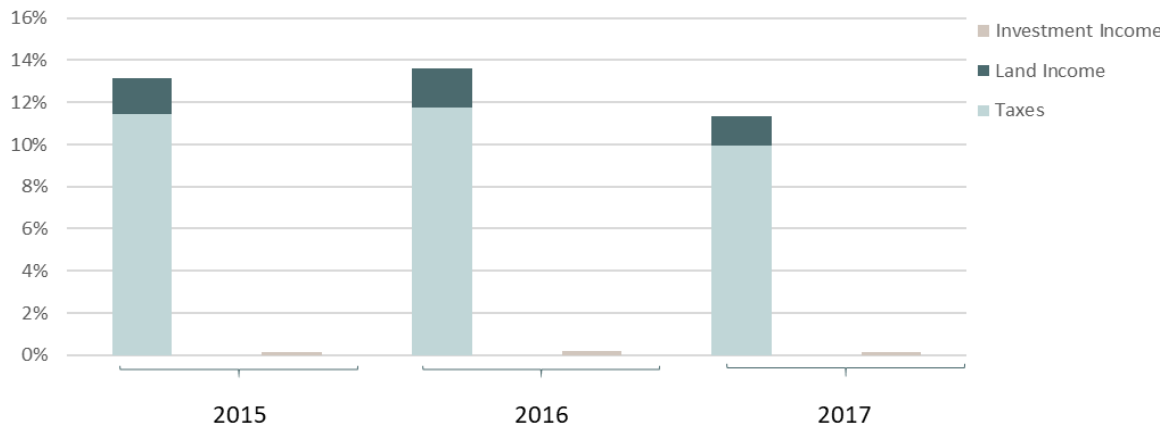
Permanent Funds

Public School Permanent Fund. Colorado dedicates a 95% of its royalties from state trust lands to the fund, the remaining 5% is used for operational expenses.

Revenue as a Share of Production Value

Colorado faced a combination of factors in FY2017 that depressed its revenue as a percent of production value. The timing of tax collections and tax credits (discussed earlier) and the interaction between the two tell a large part of the story. It is anticipated that the FY2018 percentage would return to something closer to the FY2015 and FY2016 percentages.

Figure 42: Revenue as Percentage of Estimated Production Value - Colorado, FY2015–2017



Wyoming

SUMMARY OF WYOMING FINDINGS

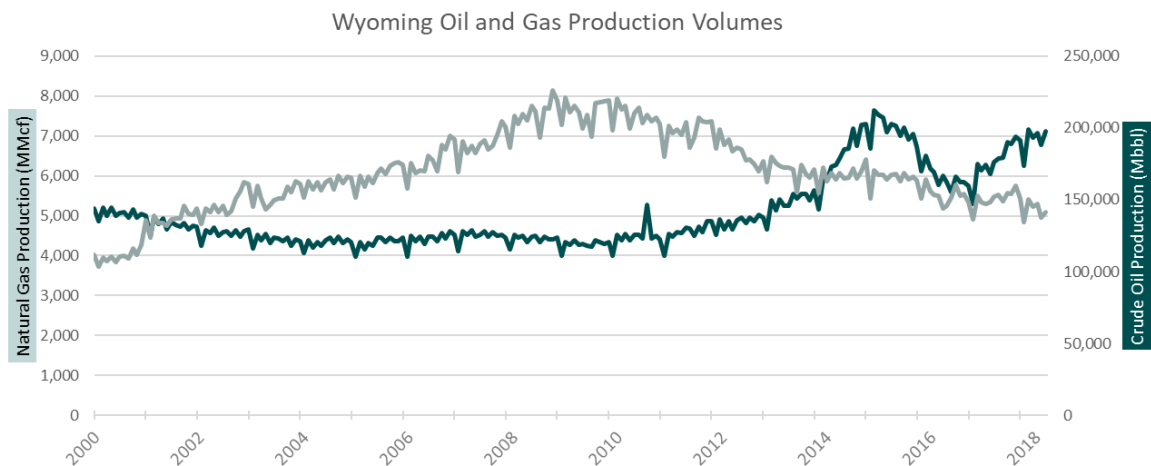
Wyoming comes the closest to New Mexico in terms of the balance between taxes and Land Income as sources of revenue. What hasn't happened in Wyoming that has in some of the other states in the study area is as significant an increase in production values and associated government revenues since prices have recovered somewhat from the 2014/2015 crash. Wyoming is the seventh largest producer of both oil and natural gas in the United States.

OIL AND GAS PRODUCTION PROFILE

Production Volumes and Value

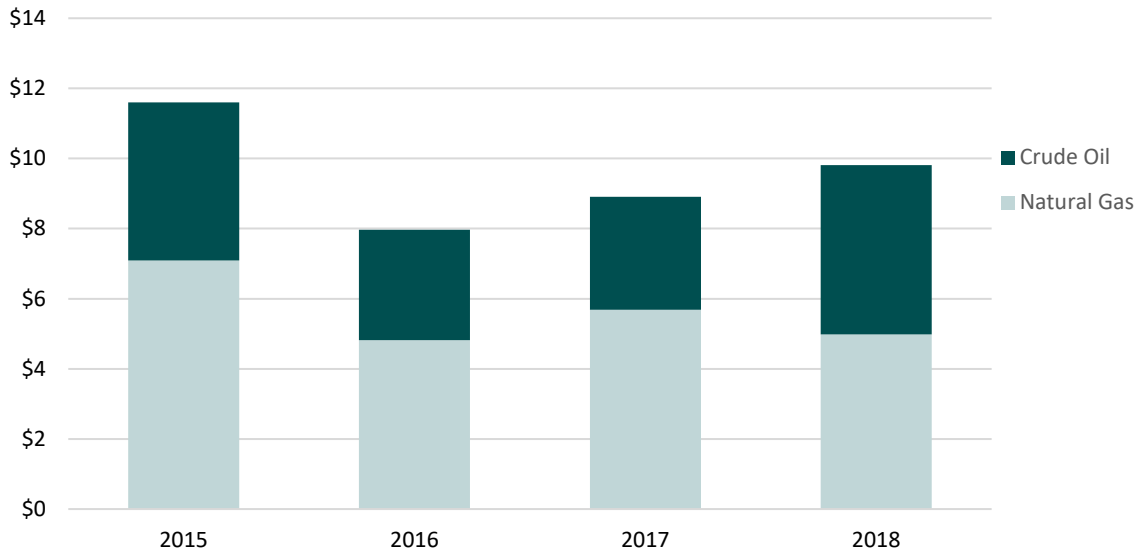
Natural gas production has been steadily declining from a peak in 2009, and while oil production volumes have increased from the trough in 2017, they have not yet regained peak 2015 levels.

Figure 43: Production Volume - Wyoming, FY2000–2018



Like New Mexico, one interesting story in terms of production value is the move from value primarily related to natural gas production to near parity between oil and gas. However, this change has happened somewhat more suddenly in Wyoming. In FY2015, about 61% of Wyoming's total production value was due to natural gas. By FY2018, that share was about 51%.

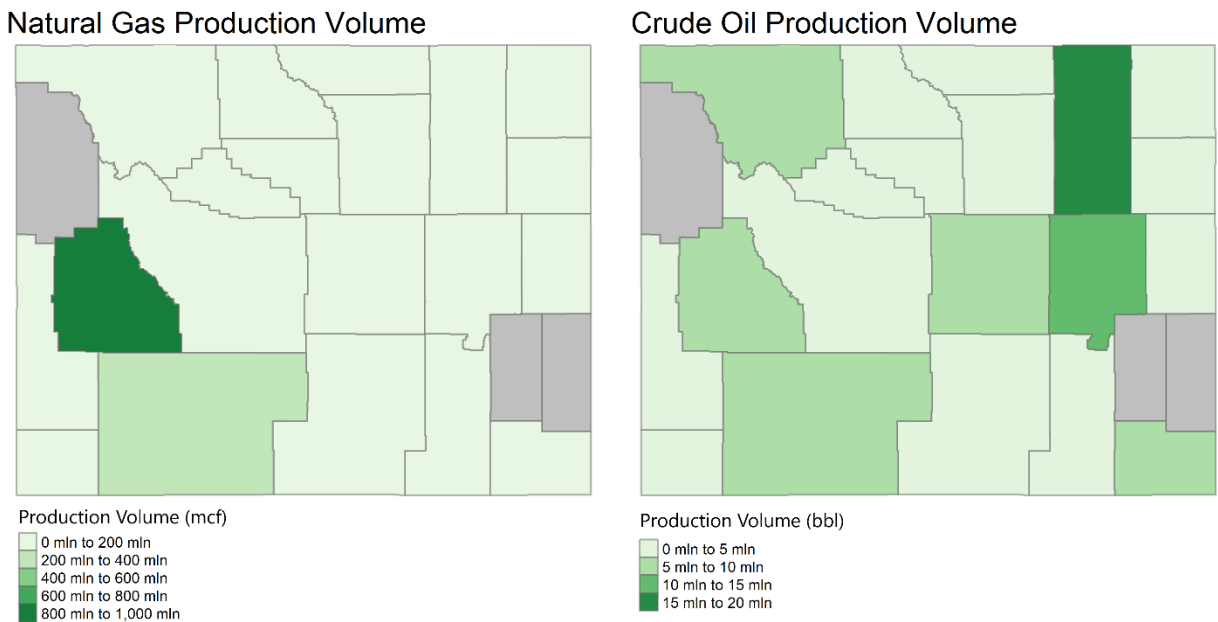
Figure 44: Estimated Production Value - Wyoming, FY2015–2018 (\$ Billion)



Production by County

Sublette County in western Wyoming produces just over half of the natural gas produced statewide, while the largest oil producing county, Campbell County in northeastern Wyoming, produces approximately one-fifth of the total oil.

Figure 45: WY Production Volumes, by County



REVENUE

Government Revenue Categories

Taxes

Wyoming receives a comparable percentage of Tax Revenue from oil and gas production to most of the other states in the study. Wyoming is, however, one of two states with no individual income tax.

Land Income

Wyoming receives the second highest percentage of total Land Income, with much more of that revenue (about 75%) coming from Federal Mineral Leasing.

Investment Income

We identified two significant sources of Investment Income related to oil and gas production in Wyoming: The Common School Permanent Land Fund and the Permanent Wyoming Mineral Trust Fund.

Table 6: WY Government Revenue Sources, by Type and Program

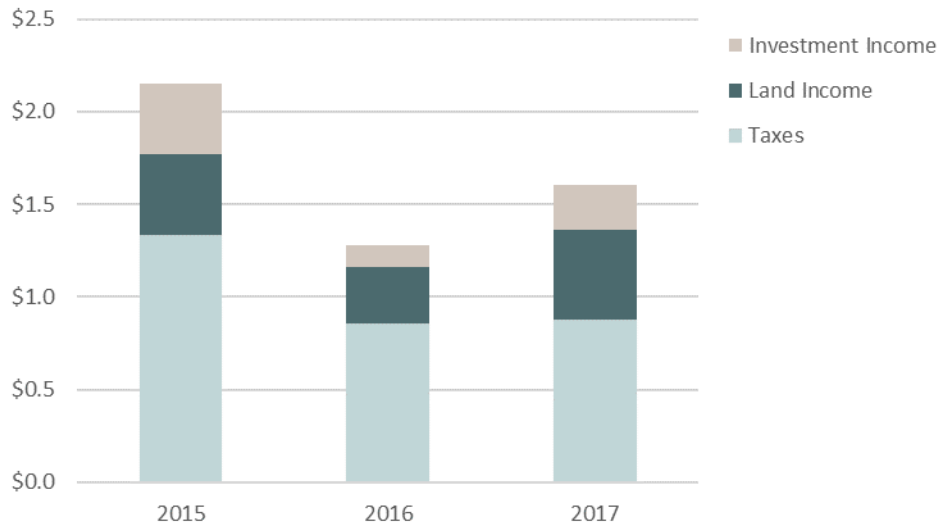
			\$ millions		
Type	Name	FY2015	FY2016	FY2017	
Taxes	Production Taxes*	Severance Tax, Natural Gas	\$175.5	\$143.2	\$188.8
		Severance Tax, Oil	\$188.3	\$142.2	\$186.7
	Property Taxes	\$727.8	\$397.7	\$316.6	
	Sales & Use Taxes	\$243.4	\$171.2	\$188.9	
	Personal Income Tax	Wyoming Has No Income Tax	\$0.0	\$0.0	\$0.0
Land Income	Federal Mineral Leasing	\$293.2	\$231.3	\$365.9	
	State Lands Rents, Royalties & Bonus*	\$144.3	\$76.7	\$116.0	
Investment Income	Investment Income*	Common School Perm. Land Fund Total Dist. Inc. (Gross of Fees)	\$88.0	\$31.0	\$64.0
		Perm. Wyoming Mineral Trust Fund Total Dist. Inc. (Gross of Fees)	\$292.0	\$88.0	\$181.0
Total		\$2,152.5	\$1,281.4	\$1,607.8	

*Available directly from state-published sources and don't require estimation.

Summary of Wyoming Government Revenue

Wyoming derives most of its oil and gas related government revenue from taxes. The largest single tax type is property tax.

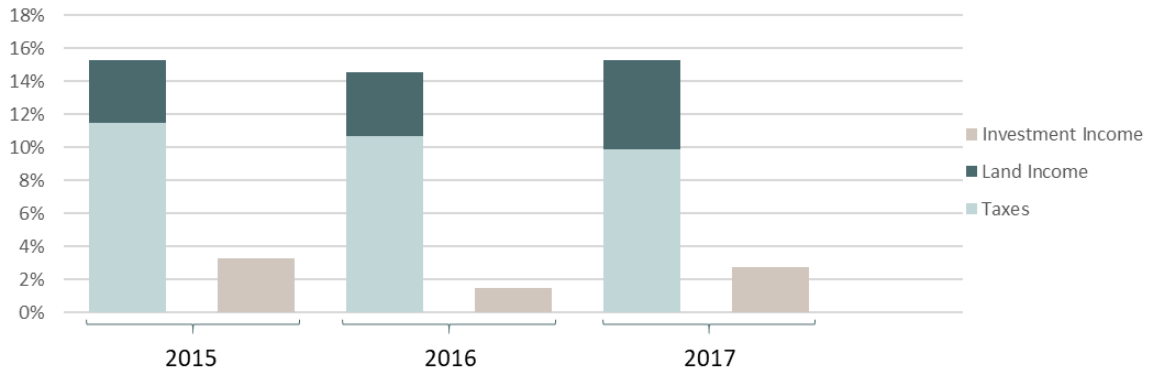
Figure 46: Government Revenue by Category - Wyoming, FY2015–2017 (\$Billion)



Revenue as a Share of Production Value

Wyoming comes the closest to New Mexico in terms of total revenue as a percentage of production value, and also in the share of that revenue coming from each of the three large categories. The biggest difference is in the amount of revenue that comes from production on state lands, which is much higher in New Mexico, due to the much larger share of the total reflected by production on state lands.

Figure 47: WY FY Revenues, stated as Percent of Estimated Production Value



Utah

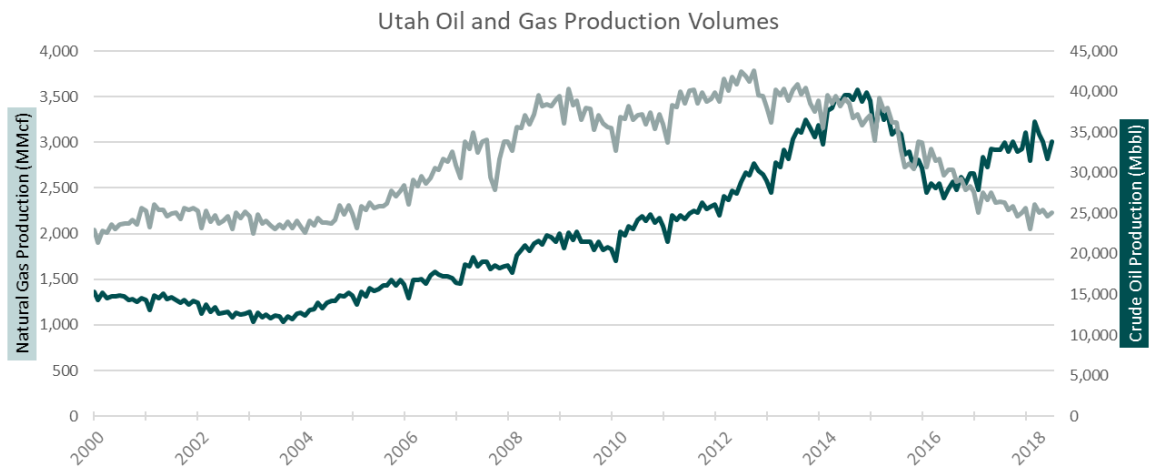
SUMMARY OF UTAH FINDINGS

This study found Utah to have the lowest level of total revenue related to oil and gas production in the study area, although Utah derives a third highest amount of revenue from Land Income, as a share of production value.

OIL AND GAS PRODUCTION PROFILE

Production Volumes and Value

Figure 48: Production Volume - Utah, FY2000–2018

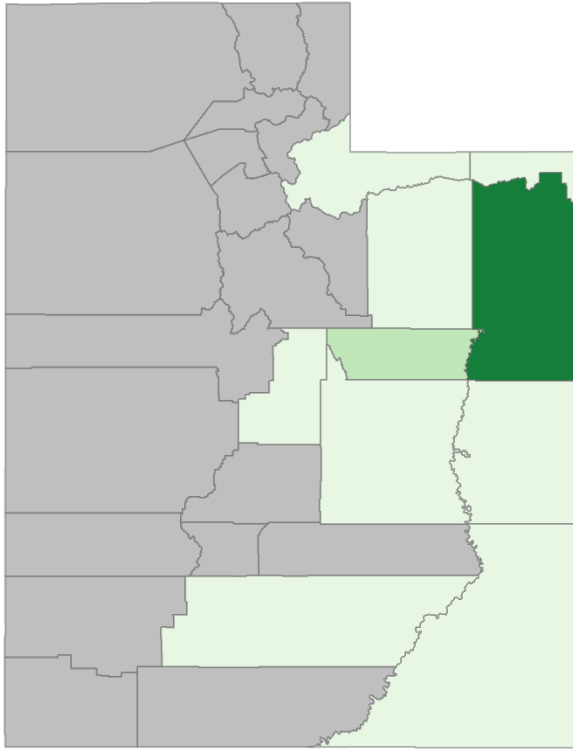


Production by County

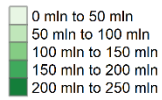
Utah's production of both oil and gas is largely concentrated in the eastern edge of the state, particularly in Duchesne and Uintah Counties.

Figure 49: UT Production Volumes, by County

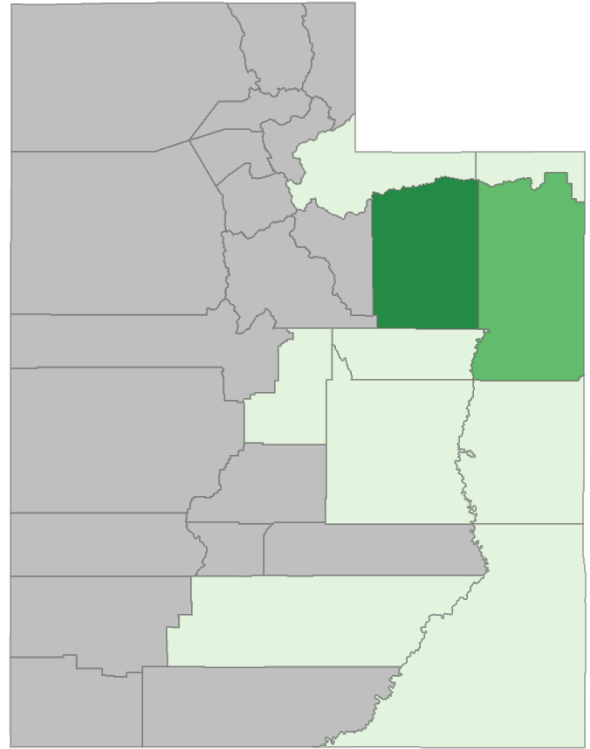
Natural Gas Production Volume



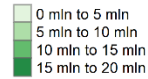
Production Volume (mcf)



Crude Oil Production Volume

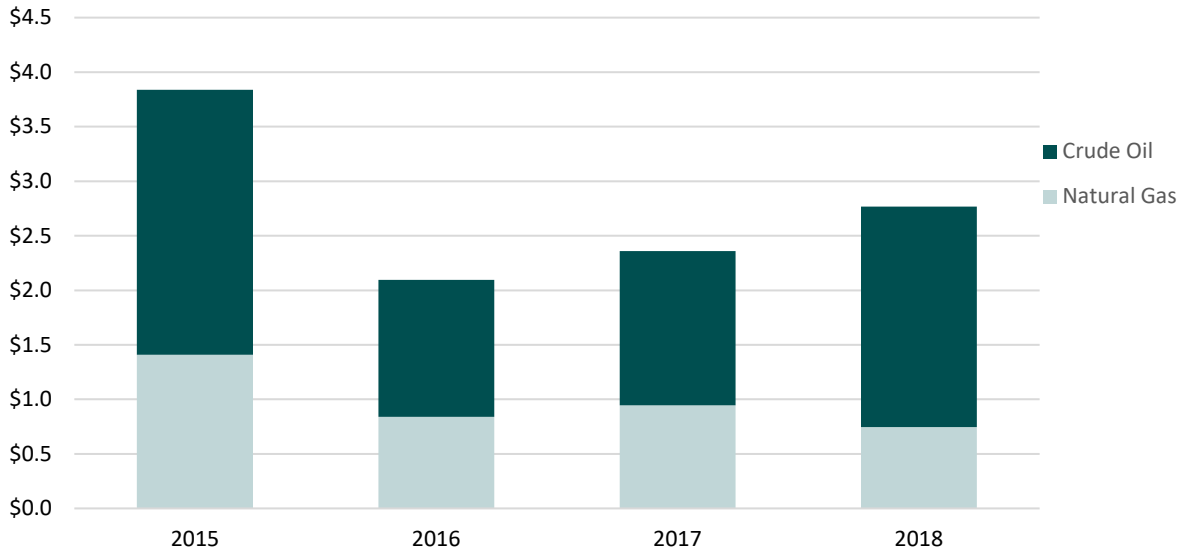


Production Volume (mbl)



While still off of the peak levels in 2015, Utah's production value is growing since the trough in 2016 entirely on the strength of its oil production increases, as gas continues its slide from peak production levels. In FY2018, over 70% of Utah's total production value was due to oil, as opposed to about 63% in FY2015.

FIGURE
 Figure 50: Estimated Production Value - Utah, FY2015–2018 (\$ Billion)



REVENUE

Government Revenue Categories

Taxes

Strictly in terms of taxes, Utah receives significantly less government revenue as a share of production value than any other state in the study.

Land Income

Utah receives more of its Land Income from Federal Mineral Leasing than from Royalties on State Trust Lands.

Investment Income

We were unable to identify Investment income due to oil and gas production with any clarity.

Table 7: UT Government Revenue Sources, by Type and Program

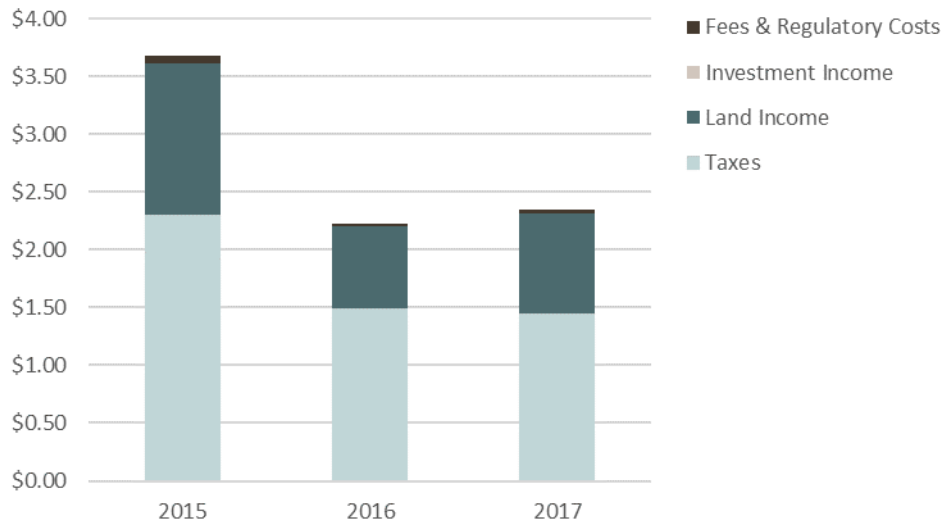
			\$ millions		
Type	Name	FY2015	FY2016	FY2017	
Taxes	Oil & Gas Severance Tax	\$69.7	\$20.8	\$9.3	
	Production Taxes*				
	Navajo Revitalization Fund	\$2.7	\$1.3	\$1.3	
	Uintah Basin Revitalization Fund	\$6.6	\$5.0	\$3.5	
	Oil & Gas Severance Tax Perm. State Trust Fund	\$0.0	\$0.0	\$3.1	
	Property Taxes	\$57.7	\$45.4	\$46.8	
Sales & Use Taxes		\$60.8	\$50.5	\$57.3	
Personal Income Tax		\$32.4	\$26.7	\$23.9	
Land Income	Federal Mineral Leasing	\$69.1	\$41.3	\$51.5	
	State Lands Rents, Royalties & Bonus*	\$61.7	\$28.9	\$34.7	
Fees & Regulatory Costs*	Oil & Gas Conservation Fee	\$6.7	\$3.1	\$3.3	
Total		\$367.6	\$222.9	\$234.6	

*Available directly from state-published sources and don't require estimation.

Summary of Utah Government Revenue

Utah's revenue has followed production value in terms of year over year changes. (i.e., changes in revenue are highly correlated with changes in value.)

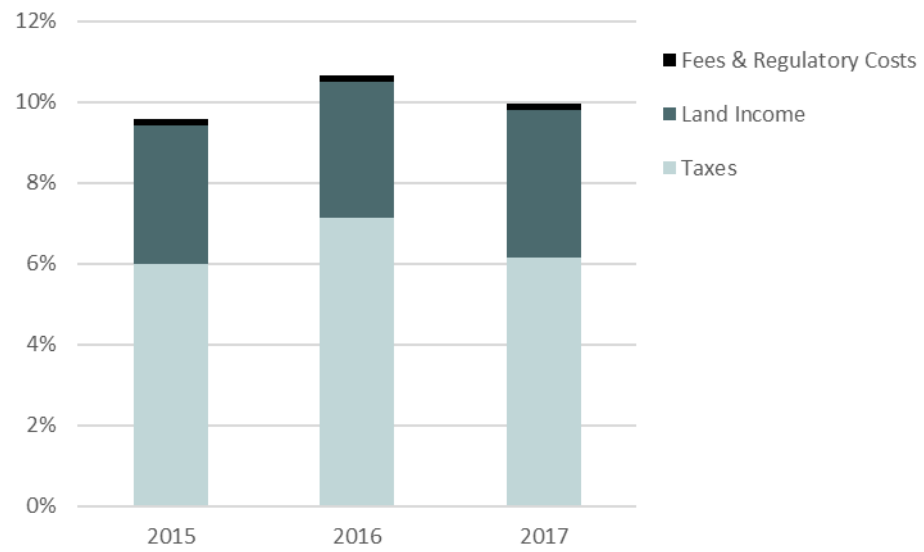
Figure 51: Government Revenue by Category - Utah, FY2015–2017 (\$Billion)



Revenue as a Share of Production Value

The total revenues for Utah as a share of production value are the lowest in the study. This is largely due to the significantly lower percentage of Tax Revenues. This difference outweighs the relatively high percentage of Land Income.

Figure 52: Revenue as Percentage of Estimated Production Value - Utah, FY2015–2017



Kansas

SUMMARY OF KANSAS FINDINGS

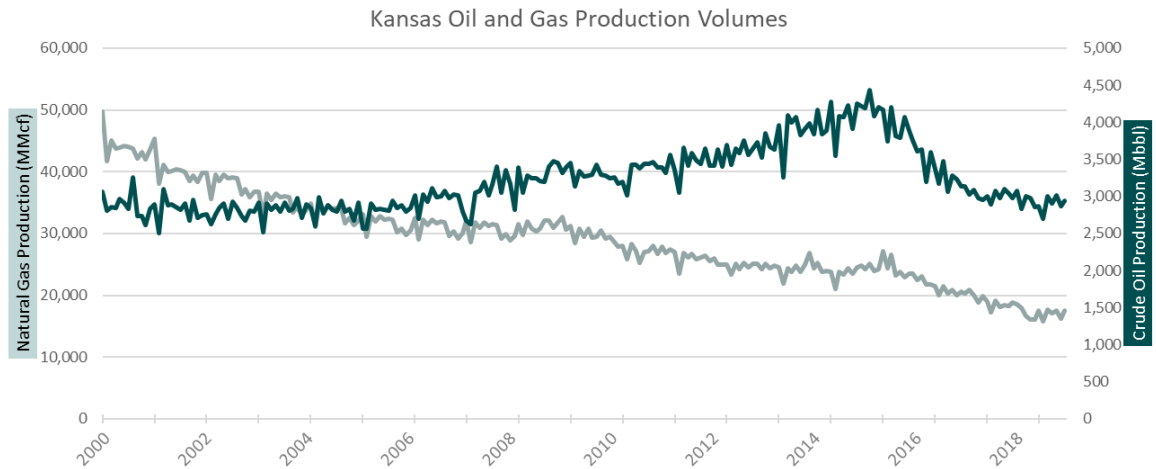
Kansas has the lowest combined taxes and Land Income as a percentage of production volume in our study area, but that is because Kansas has essentially no Land Income – bringing in a total of 0.1% of production value from the state share of royalties on federal leases. We could not identify any production on state trust land in Kansas. This marks Kansas as being on the far end of the spectrum from New Mexico in terms of land ownership. Anecdotally, Kansas is the only state in the study area that is not a member of the Western States Land Commissioners Association.

OIL AND GAS PRODUCTION PROFILE

Production Volumes and Value

As illustrated in Figure 53, natural gas production has experienced a long slow decline in Kansas over the last couple of decades. Oil production peaked in 2015 and has steadily declined since. Oil production had seen a long, slow increasing trend through 2015, but has fallen markedly since.

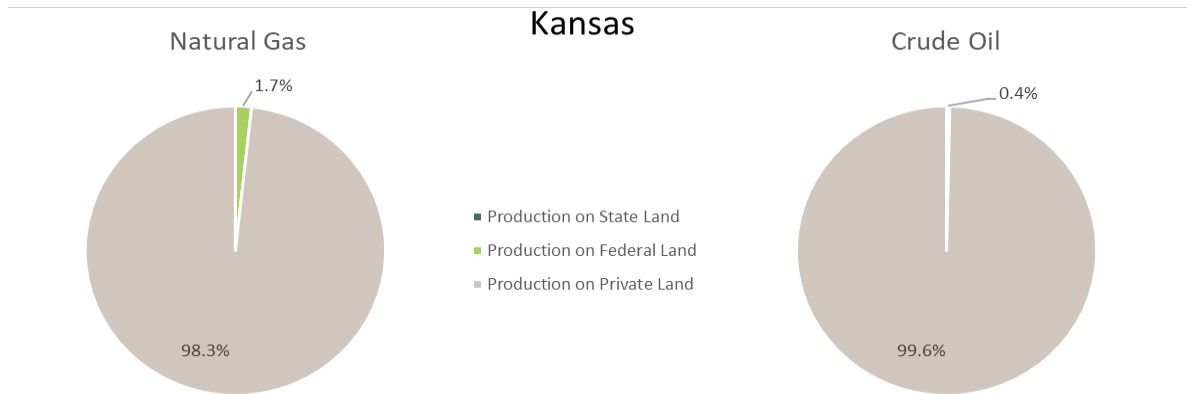
Figure 53: Production Volume - Kansas, FY2000–2018



Production by Land Type

Nearly all of the oil and natural gas production in Kansas takes place on private land. For this reason, Kansas stands out as the counterexample to New Mexico.

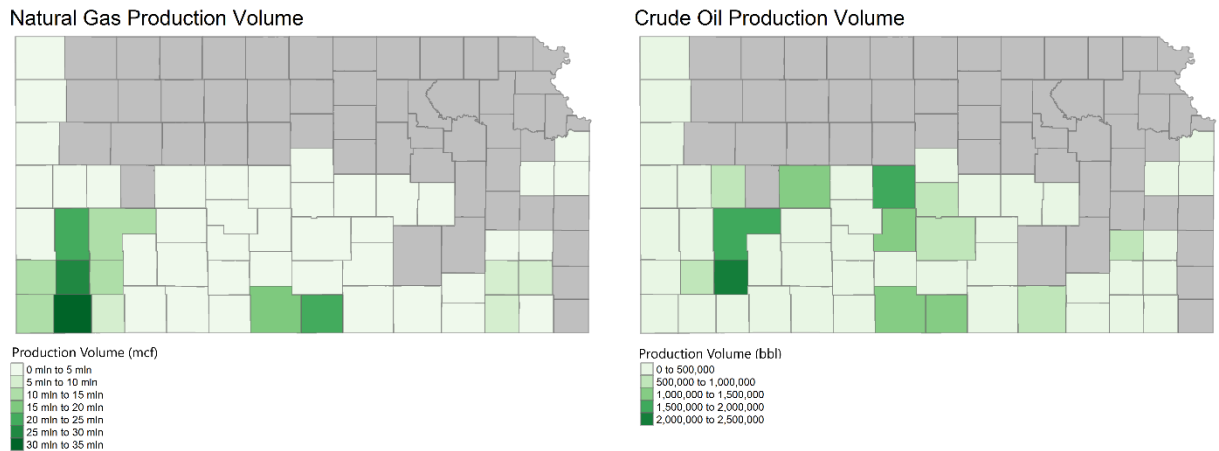
Figure 54: KS Natural Gas and Crude Oil Production, by Land Type



Production by County

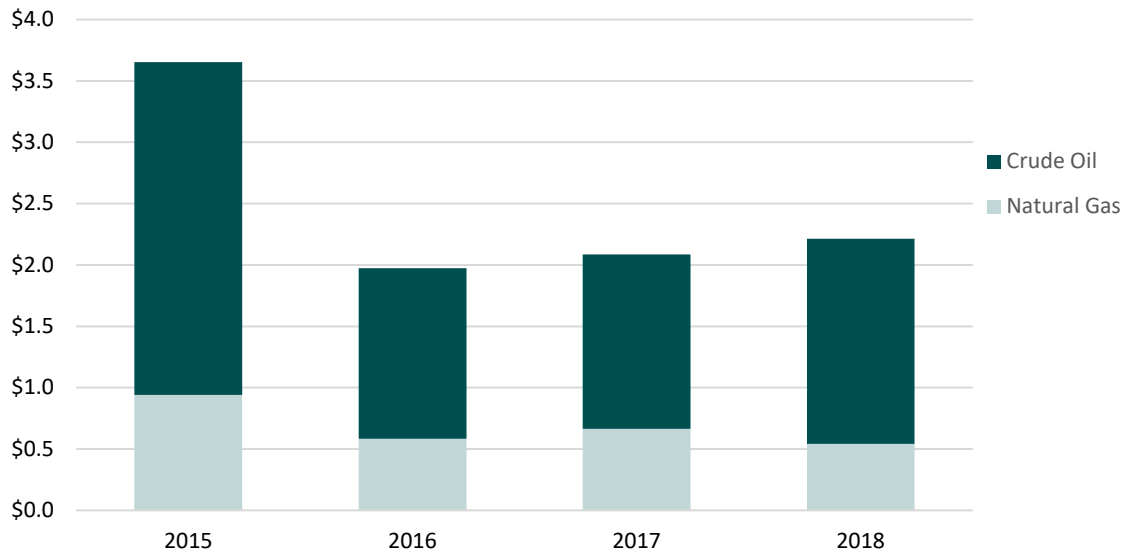
Kansas production of oil, and particularly natural gas, is concentrated in the southwest quadrant of the state, but is reasonably extensive through the southern half of the state.

Figure 55: KS Production Volumes, by County



As previously noted, Kansas' production of oil has been a primary driver of its oil and natural gas sector, and the following graphic reflects the dominance of the state's oil production in the value of the industry's output over the last several years.

Figure 56: Estimated Production Value - Kansas, FY2015–2018 (\$ Billion)



REVENUE

Government Revenue Categories

Taxes

Kansas’ sole significant source of government revenues from oil and gas comes in the form of taxes. Kansas, like Texas, levies a property tax on the value of oil and gas reserves, which is the primary revenue source. Kansas also directly taxes oil and gas production in the form of the Oil and Natural Gas Severance Taxes. Sales and use taxes were estimated in the same manner as all other states.

Land Income

Federal Mineral Leasing is the sole source of Land Income in Kansas, but produces a relatively nominal \$1.1 million in revenues (FY17).

Investment Income

We identified no oil and gas related Investment income in Kansas.

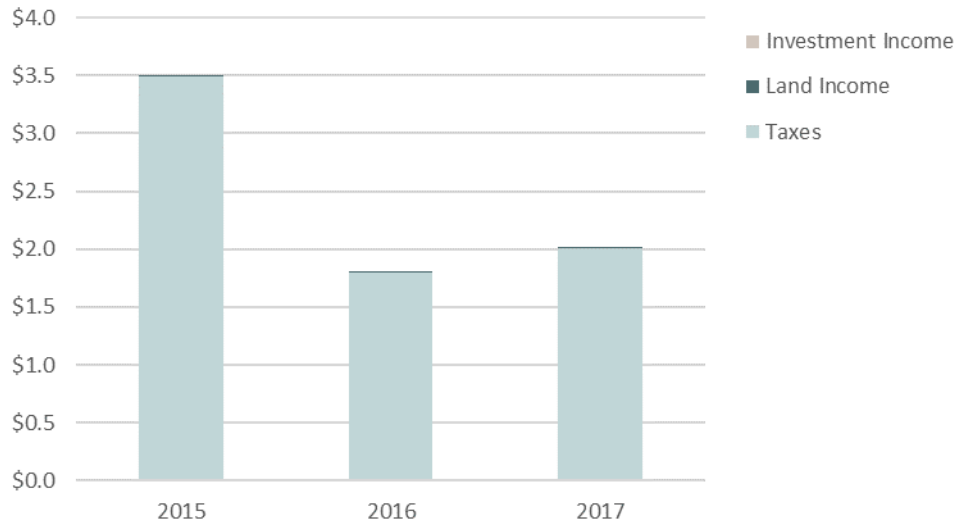
Table 8: KS Government Revenue Sources, by Type and Program

			\$ millions		
Type	Name	FY2015	FY2016	FY2017	
Taxes	Natural Gas Severance tax	\$34.2	\$11.3	\$17.8	
	Oil Severance Tax	\$87.2	\$32.5	\$33.8	
	Property Taxes	\$133.4	\$68.6	\$88.4	
	Sales & Use Taxes	\$47.0	\$31.6	\$37.2	
	Personal Income Tax	\$46.9	\$35.4	\$23.1	
Land Income	Federal Mineral Leasing	\$1.2	\$1.0	\$1.1	
Investment Income	We Identified no Permanent Fund Investment Income	\$0.0	\$0.0	\$0.0	
Total		\$349.9	\$180.4	\$201.4	

*Available directly from state-published sources and don't require estimation.

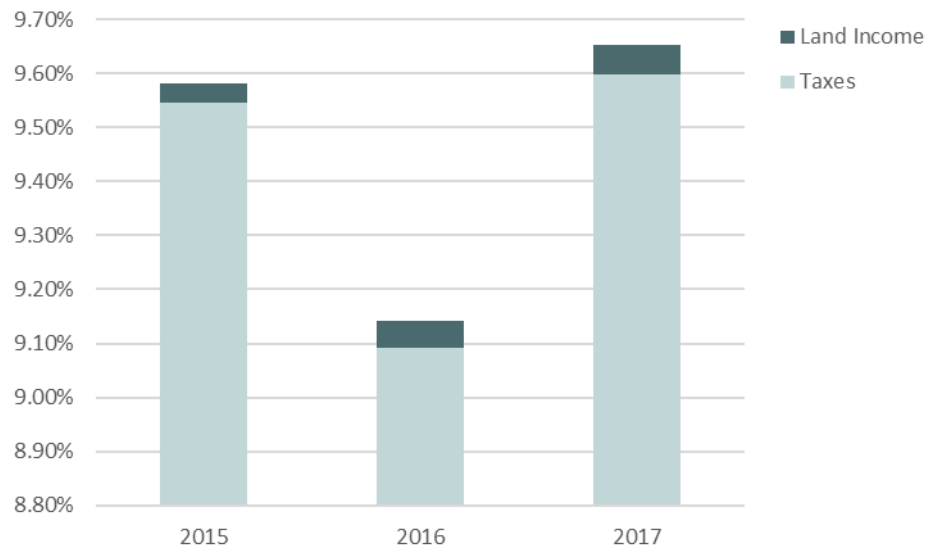
Summary of Kansas Government Revenue

Figure 57: Government Revenue by Category - Kansas, FY2015–2017 (\$ Billion)



Revenue as a Share of Production Value

Figure 58: Revenue as Percentage of Estimated Production Value - Kansas, FY2015–2017



Montana

SUMMARY OF MONTANA FINDINGS

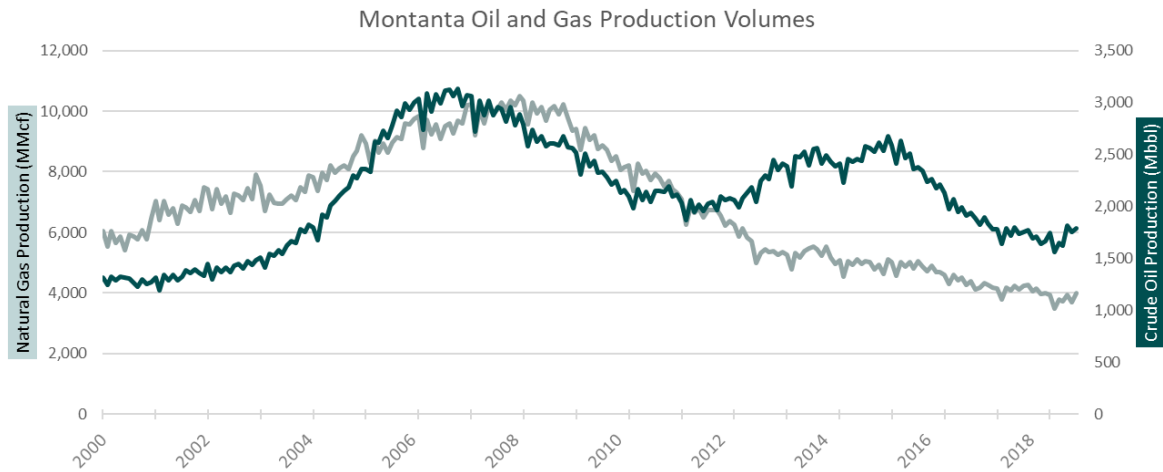
More than perhaps any state in the study, with the possible exception of Kansas, Montana's oil and gas production volumes have not recovered from recent declines. Because of this, Montana's revenue from oil and gas related sources is down considerably from peak levels. Importantly, the development of the non-traditional resources in other states through horizontal drilling and completion technology has not provided the same opportunities in Montana as seen in many of the producing areas investigated.

OIL AND GAS PRODUCTION PROFILE

Production Volumes and Value

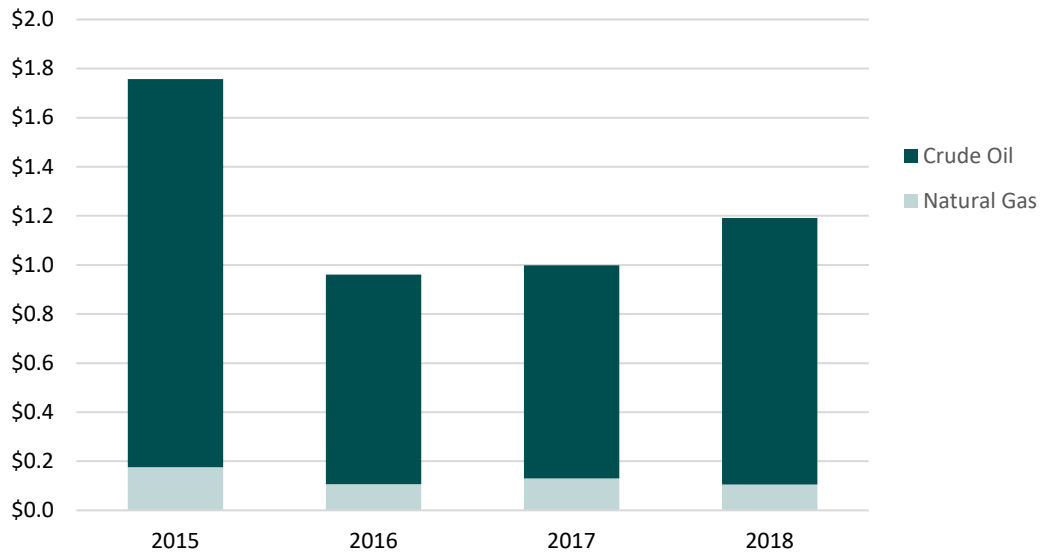
While natural gas production volumes continue a steady decline from a peak in 2008, oil production is showing signs of potentially turning upwards in late 2018, following steady declines from the recent peak 2015 (which was short of peak levels in 2007). New development activities have primarily addressed oil prospects, and there appears to be some renewed opportunity in recent production trends and oil is the much more significant of the petroleum resources found in Montana.

Figure 59: Production Volume - Montana, FY2000–2018



The total value of production has increased in the past several years, primarily on the strength of market prices, since the trough in FY2016. However, oil production value remains down by over 31% in FY2018 from FY2015, and natural gas production value is down nearly 40% over the same time period.

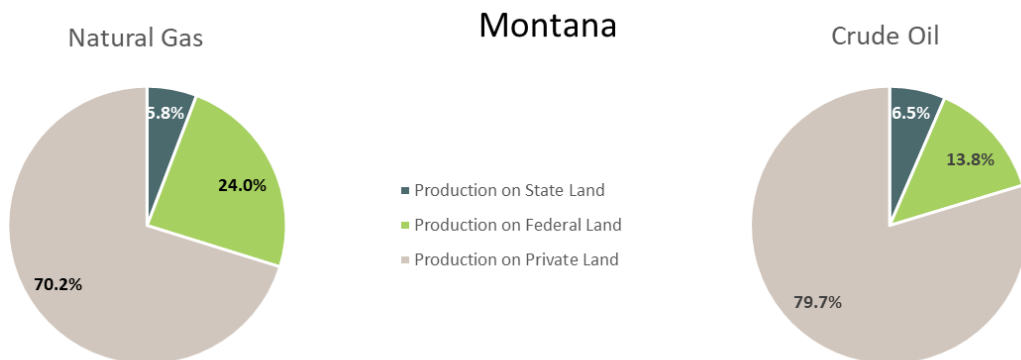
Figure 60: Estimated Production Value - Montana, FY2015–2018 (\$ Billion)



Production by Land Type

Montana produces about 70% of its natural gas and 80% of its oil on private lands. Federal leases account for 24% of natural gas 14% of oil.

Figure 61: MT Production by Land Type, FY2017

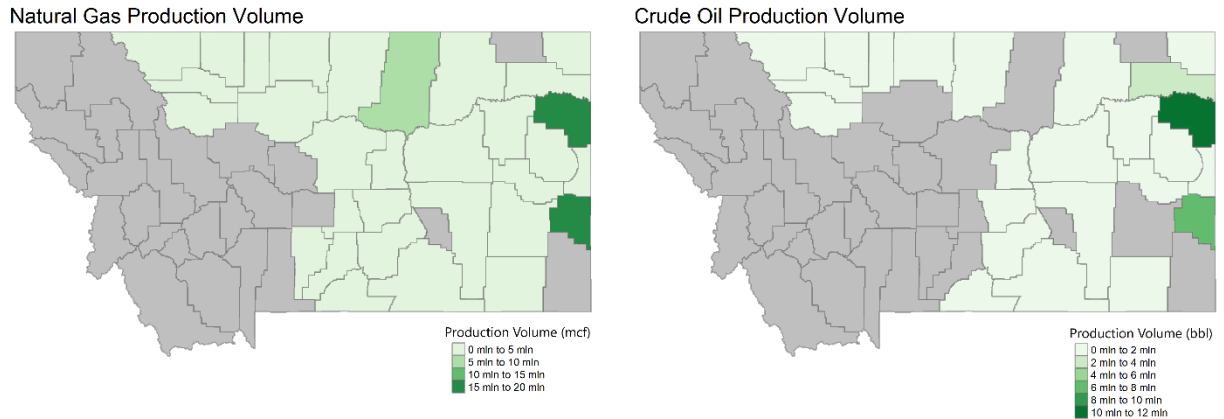


Production by County

The eastern edge of Montana sits in the Bakken Shale formation, which has become one of the most important oil producing regions of the country with the recent changes in extraction technology. Two counties, Richland and Fallon, are number one in both oil and natural gas

production in Montana. Together, they account for about 60% of statewide oil production, and 24% of natural gas production.

Figure 62: MT Production Volumes, by County



REVENUE

Government Revenue Categories

Taxes

One distinguishing feature of Montana’s tax regime is the absence of a sales and use tax.

Land Income

Montana receives a small amount of Land Income from both state and federal leases. While state royalties, rents, and bonuses have previously been significantly larger than Federal Mineral Leasing revenue, in FY2017 they were roughly similar in size.

Investment Income

We could not identify any oil and gas related Investment income in Montana.

Table 9: MT Government Revenue Sources, by Type and Program

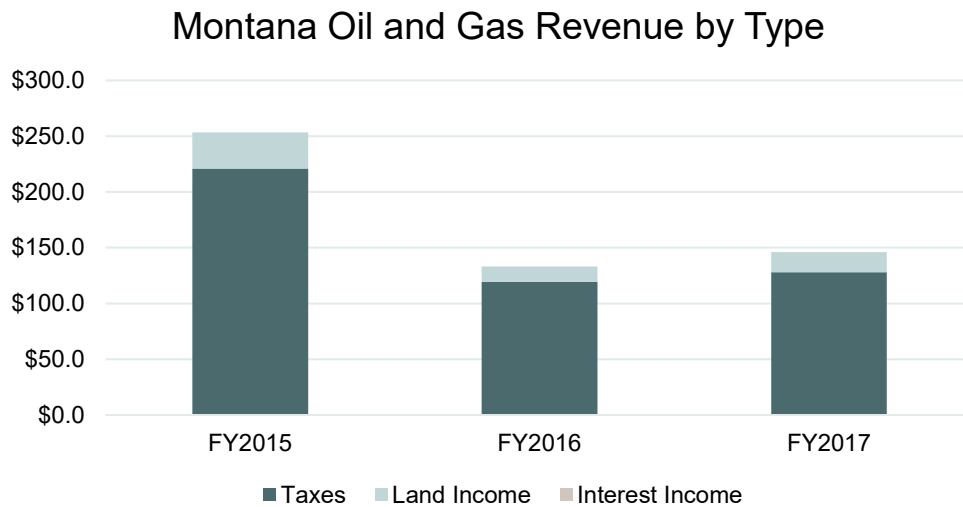
			\$ millions		
Type	Name	FY2015	FY2016	FY2017	
Taxes	Production Taxes*	\$188.4	\$95.4	\$100.2	
	Personal Income Tax	\$32.7	\$24.0	\$27.8	
	Sales & Use Taxes	\$0.0	\$0.0	\$0.0	
Land Income*	Federal Mineral Leasing	\$12.2	\$4.3	\$8.8	
	State Lands Rents, Royalties & Bonus	Oil and Gas Royalties	\$14.8	\$7.9	\$7.5
		Oil and Gas Rents & Bonus	\$5.2	\$1.6	\$1.7
Total		\$253.3	\$133.2	\$146.0	

*Available directly from state-published sources and don't require estimation.

Summary of Montana Government Revenue

In FY2017, Montana received about 87% of its oil and gas related revenue from taxes, and the remaining 13% from Land income. Revenues in FY2017 were about 56% of peak FY2015 revenues.

Figure 63: MT Fiscal Year Revenues from Oil & Gas, by type



Revenue as a Share of Production Value

Revenue as a share of production value increased in FY2017 largely based on price based severance tax incentives that were in effect in FY2016²⁶. In percentage terms, FY2017 revenues are more similar to FY2015, even though the dollar amount is much lower.

Figure 64: Government Revenue by Category - Montana, FY2015–2018 (\$ Billion)

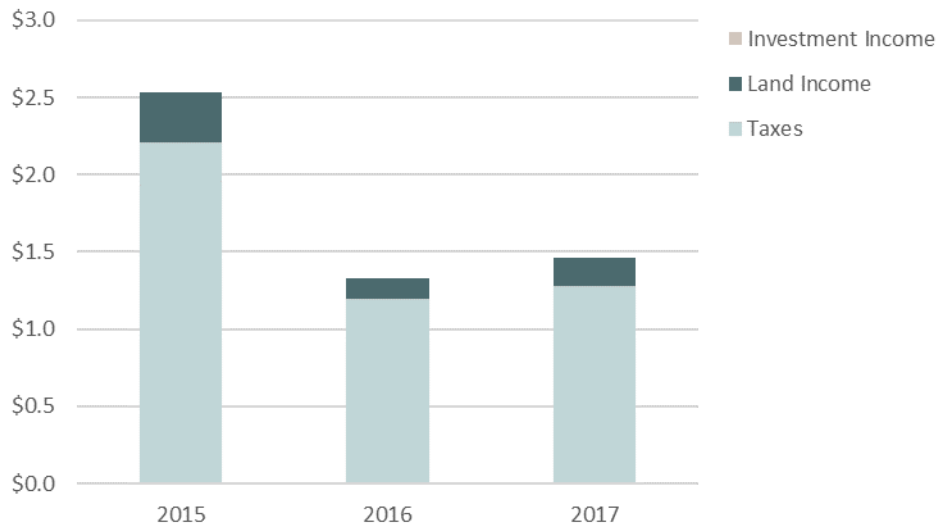
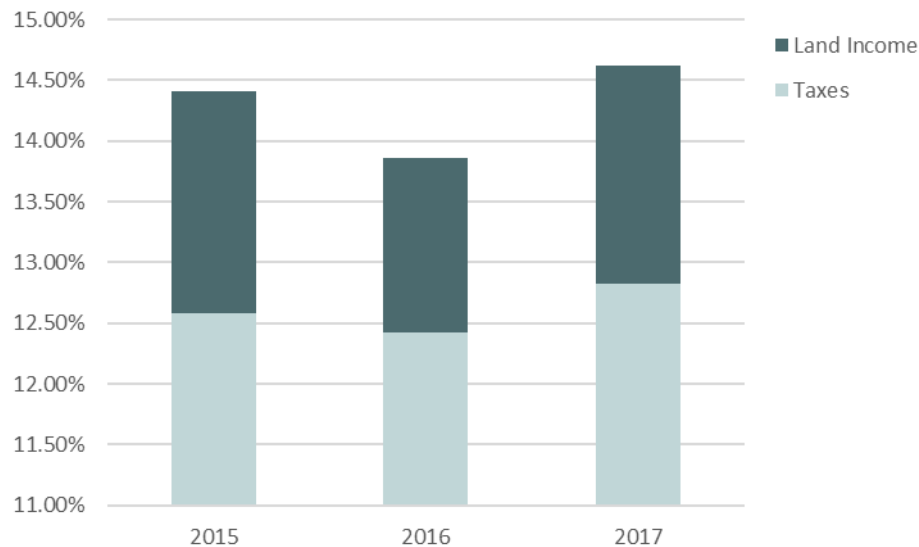


Figure 65: Revenue as Percentage of Estimated Production Value - Montana, FY2015–2017



²⁶ "Production Tax Rates Imposed On Oil and Natural Gas – Exemption", 15-36-304, MCA

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