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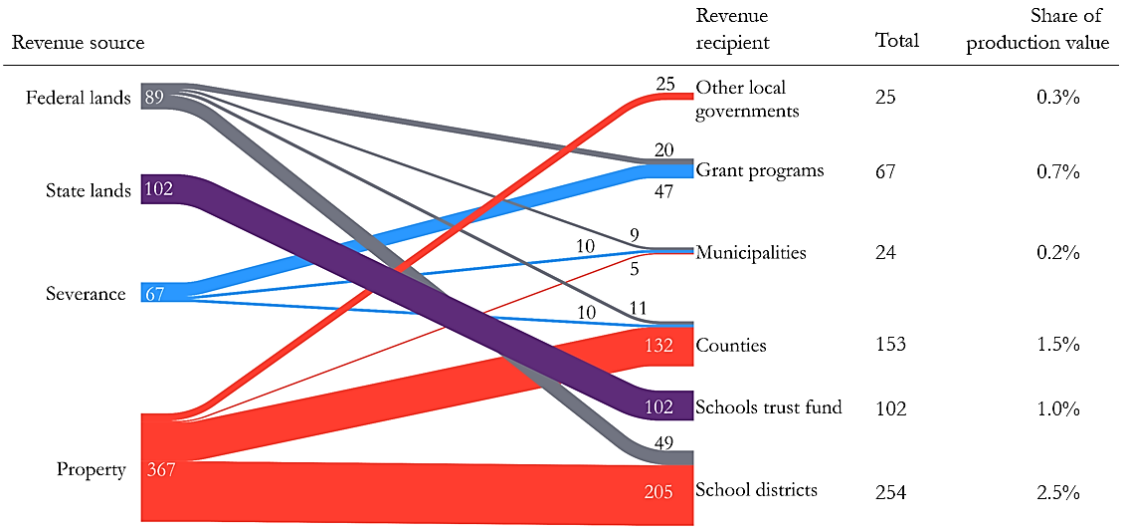
Local government revenue from oil and gas production



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About this report

This report is one in a series produced by the authors on shale public finance, supported by the Alfred P. Sloan Foundation. The Shale Public Finance project is examining the financial implications for local governments associated with increased domestic oil and gas production, largely from shale resources. Other reports have examined local government fiscal impacts from this activity in every major oil and gas producing U.S. state, oil- and gas-related revenue collection and allocation in those states, and case studies of specific regions. For more information, to view interactive maps showing some of our key findings, or to be notified when new publications are released, visit http://energy.duke.edu/shalepublicfinance.

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Oil and gas revenue allocation to local governments in the United States

Daniel Raimi and Richard G. Newell*

Abstract

Oil and gas production generates substantial revenue for state and local governments. This report examines revenue from oil and gas production flowing to local governments through four mechanisms: (i) state taxes or fees on oil and gas production; (ii) local property taxes on oil and gas property; (iii) leasing of state-owned land; and (iv) leasing of federally owned land. We examine every major oil- and gas-producing state and find that the share of oil and gas production value allocated to and collected by local governments ranges widely, from 0.5 percent to more than 9 percent due to numerous policy differences among states. School districts and trust funds endowing future school operations tend to see the highest share of revenue, followed by counties. Municipalities and other local governments with more limited geographic boundaries tend to receive smaller shares of oil and gas driven revenue. Some states utilize grant programs to allocate revenue to where impacts from the industry are greatest. Others send most revenue to state operating or trust funds, with little revenue earmarked specifically for local governments.

Key Words: Shale gas, tight oil, severance tax, property tax, resource taxation, local public finance, revenue sharing, hydraulic fracturing

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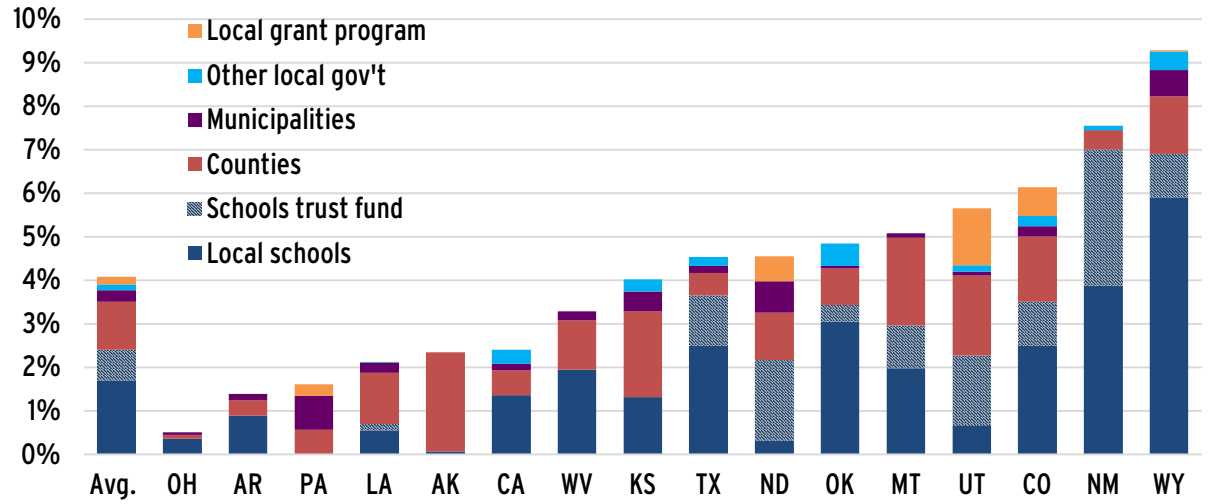
1. Report summary

Increased oil and gas production has raised substantial revenues for governments across the United States. This report describes key sources of oil and gas revenues for local governments in every major producing state: Alaska, Arkansas, California, Colorado, Kansas, Louisiana, Montana, North Dakota, New Mexico, Ohio, Oklahoma, Pennsylvania, Texas, Utah, West Virginia, and Wyoming. States generate revenue from oil and gas production through taxes and fees, as well as from leases on state- or federally-owned land. This revenue may or may not be allocated to local governments, which typically experience increased service demands associated with industry activity. Local governments in most states generate revenue directly from property taxes on oil and gas property, though property tax bases and rates vary widely between states and localities.

Figure 1.1 presents revenue flows to local governments from oil and gas production as a percentage of total oil and gas production value in fiscal year (FY) 2013. For example, if the value of all oil and gas produced in a state in FY 2013 was $100 and local governments received $2 through the sources covered in this report, the figure would show 2 percent. Local government revenue ranged from roughly 0.5 percent to more than 9 percent of total production value, with substantial variation across states. Figure 1.1 includes revenue flowing to local governments through severance taxes or impact fees, local ad-valorem taxes on oil and gas property, and leases of state and federal land. Due to limited data and methodological issues, it does not include revenue from local government land leases, sales tax associated with increased economic activity, or corporate income taxes from the oil and gas industry (which typically flow to state funds).

Figure 1.1 Local government share of oil and gas production value in FY2013



Notes: "Counties" refers to Boroughs in AK and Parishes in LA. "Municipalities" includes townships. This figure shows local government revenues from local property taxes on oil and gas, state allocations of severance taxes, impact fees, and leases of state and federal lands. "Schools trust fund" refers to flows into permanent funds that support future operations. "Local grant program" refers to allocations to local governments via grants or loans. "Other local gov't" refers to special districts such as sewer and water authorities. The average is a simple average across all 16 states.

On average, local schools see the largest share of revenue (~2.5 percent), with school districts benefiting through local property taxes and school trust funds receiving revenue from state or federal oil and gas leases. Most western states allocate revenue from state lands to school trust funds established through land grants from the federal government during westward expansion of the continental United States (Souder & Fairfax 1996). Schools in CO, OK, NM, TX, and WY collect the largest share (4 to 7 percent), while schools in LA, OH, and PA receive relatively little direct revenue. This does not necessarily imply that these states are underfunding schools. Each state funds school operations through a range of sources, and these states rely more heavily on sources other than the oil- and gas-related revenues described in this report.

Among county governments, those in AK, CO, KS, MT, and UT receive the largest share of revenue (1.5 to 2 percent), while counties in AR, CA, NM, OH, PA, and TX receive smaller shares (<0.6 percent). Counties in most states collect the bulk of their revenue through ad-valorem taxes on oil and gas reserves, production, and/or related equipment. In states where localities cannot tax these sources as property (MT, ND, and PA), revenue flows to counties primarily through state-levied taxes or impact fees.

The wide variation in revenues for schools and counties is largely due to three factors: (i) local governments in different states apply their property tax mill levies to different tax bases, while some do not tax oil and gas property at all; (ii) local governments apply a wide range of property tax rates to the value of oil and gas property; and (iii) allocations from the state level to school districts and counties vary substantially.

Municipalities and other local governments tend to collect a smaller share of revenue from oil and gas production than counties and school districts (<0.5 percent in most cases). Typically, municipalities rely heavily on sales taxes (not included here), which can be indirectly affected through population growth or changes in economic activity associated with oil and gas production. Additionally, municipalities tend to be smaller and more densely populated than counties or school districts. As a result, less oil and gas production occurs within their borders, reducing the availability of property tax revenues. Much of the oil and gas revenue flowing to municipalities passes through the state level, often—but not always—allocated according to local production levels. The states with the highest municipal revenue shares are KS, ND, PA, and WY (0.5 to 0.8 percent).

Grant programs play a significant role in CO, ND, PA, and UT, allocating state-collected revenue to local governments through a competitive grant process. Grant programs offer flexibility and, in principle, allow states to direct revenues to where they are most needed. However, grant programs must balance this discretion with the risk of giving an advantage to local governments that have more resources and skills in grant-writing, along with the potential for other forces that could direct spending away from those communities with the greatest need.

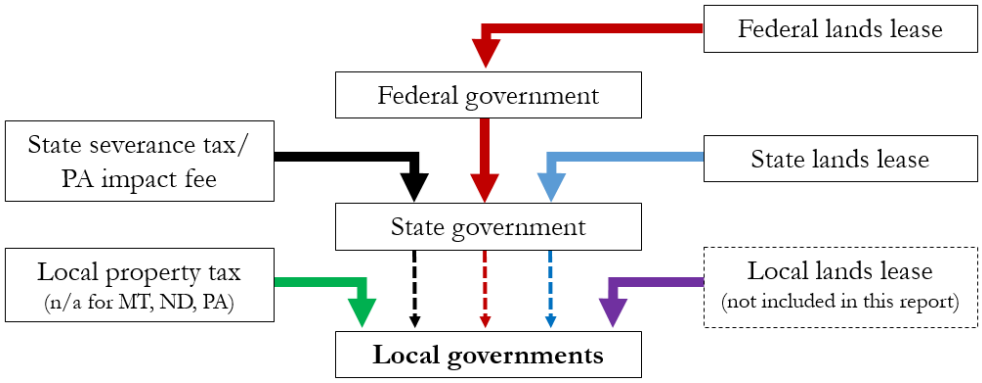
1.1 Local government revenues associated with oil and gas production

Oil and gas production generates revenue for local governments through a variety of sources. Fifteen of the 16 states we examine impose some type of tax on the value or volume of oil and gas produced (often referred to as a severance tax), while one (PA) imposes an impact fee on each "unconventional" well drilled in the state. Revenue from these mechanisms is either retained by the state or shared between the state and local governments according to a variety of formulae.

Property taxes are another leading source of revenue for local governments experiencing oil and gas development, especially counties and school districts. Most states allow local governments to levy ad-valorem property taxes on oil and gas property, including the oil and gas produced and/or the value of reserves. Alaska and Louisiana allow local governments to levy property taxes only on exploration and production equipment such as rigs and wellheads. North Dakota, Montana, and Pennsylvania do not allow local governments to levy property taxes on oil and gas reserves, production, or equipment. Our analysis does not include property taxes on oil and gas transportation or refining infrastructure. We make an exception for Alaska by including transportation property, which is dominated by the Trans-Alaska Pipeline System, which carries crude oil from the producing North Slope to shipping terminals in the south.

Along with taxes and fees, governments generate revenue by leasing public land for oil and gas production. These revenues arrive in the form of leasing bonuses, which companies pay for the right to explore for oil and gas; royalties, which are paid based on the value of oil and gas produced from those lands; and rents, which are paid for siting equipment or other property on the surface. All 16 states we examine generate revenue from leases on state lands (though we were unable to obtain complete revenue data from AR and OH), and all states other than PA receive substantial revenue (>$50,000/year) from production on federal lands within their state borders. Figure 1.2 illustrates the revenues we include in this report.

Figure 1.2 Major oil and gas production-related revenues for local governments



1.2 Consideration of other revenues and local factors

This report does not include corporate income taxes, which typically flow to state operating funds, nor does it include revenues from leasing local government land, as these data are not available on a statewide basis for any of our 16 states. We also do not include local sales tax revenue, which can be affected by economic activity associated with oil and gas development.

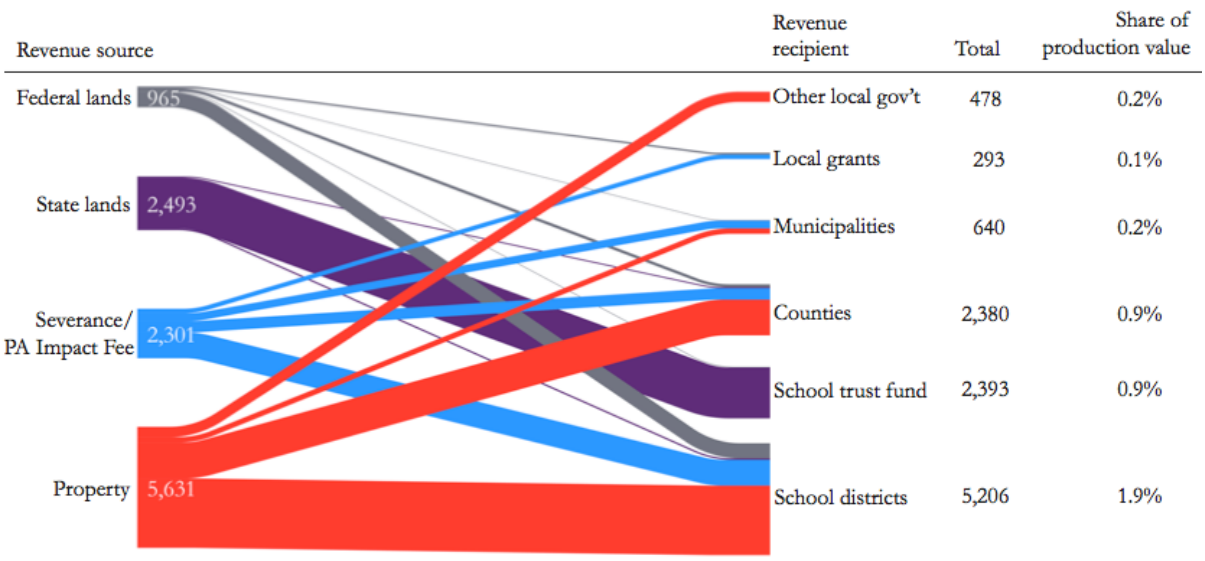
The information presented in this report should be considered alongside local factors and other government revenues. For example, the municipal share of revenue for most states in Figure 1 appears small relative to school districts and counties. Many counties and school districts generate large revenues from oil and gas property taxes, which are captured by our methodology. Municipalities often rely more heavily on sales taxes, which are not captured by our methodology but are influenced by economic activity associated with the oil and gas industry.

Indeed, a low percentage figure does not necessarily mean that local governments require more revenue, nor does a high percentage necessarily mean that local governments are receiving adequate revenue to manage new service demands associated with industry activity. As we describe in previous reports (Newell & Raimi 2015b, a), a variety of factors, including revenue from other sources (e.g., sales taxes or lease revenues from local lands), existing infrastructure capacity (e.g., adequacy of roads and other infrastructure), local labor force conditions (e.g., whether the local government struggles to compete for scarce labor), and the extent of cooperation with industry (e.g., whether operators repair road damage caused by their activities), all play a role in local government's ability to manage service demands associated with oil and gas production.

1.3 Summary of revenue allocation and findings

In FY 2013, local governments in the 16 states we examine received roughly $11.6 billion from four key sources: property taxes on oil and gas property (~$5.6 billion), oil and gas leases on state lands (~$2.5 billion), state severance taxes (~$2.3 billion) and federal oil and gas leases (~$1 billion). These sums represent roughly 4.3 percent of the oil and gas revenue produced in these states over the same period (~$270 billion). Figure 1.3 shows the sources and destinations of these revenues along with the share of production value received by different levels of local government.

Figure 1.3 Total oil and gas revenues for local governments in 16 states ($, millions)



In the following section, we provide state-level estimates of cumulative oil and gas production value in FY 2013 (e.g., Table 1.1). Next, we show revenue that was either collected by or allocated to local governments from oil and gas production (e.g., Figure 1.4). To allow for comparison between states, we divide the revenue allocated to each level of local government by the total value of production of all oil and gas within that state for FY 2013. Results are shown in the final row of the figure for each state (e.g., Figure 1.4), and aggregated in Figure 1.1 above. Detailed data and sources are provided in Section 3 and Appendix A.

1.3.1 Alaska

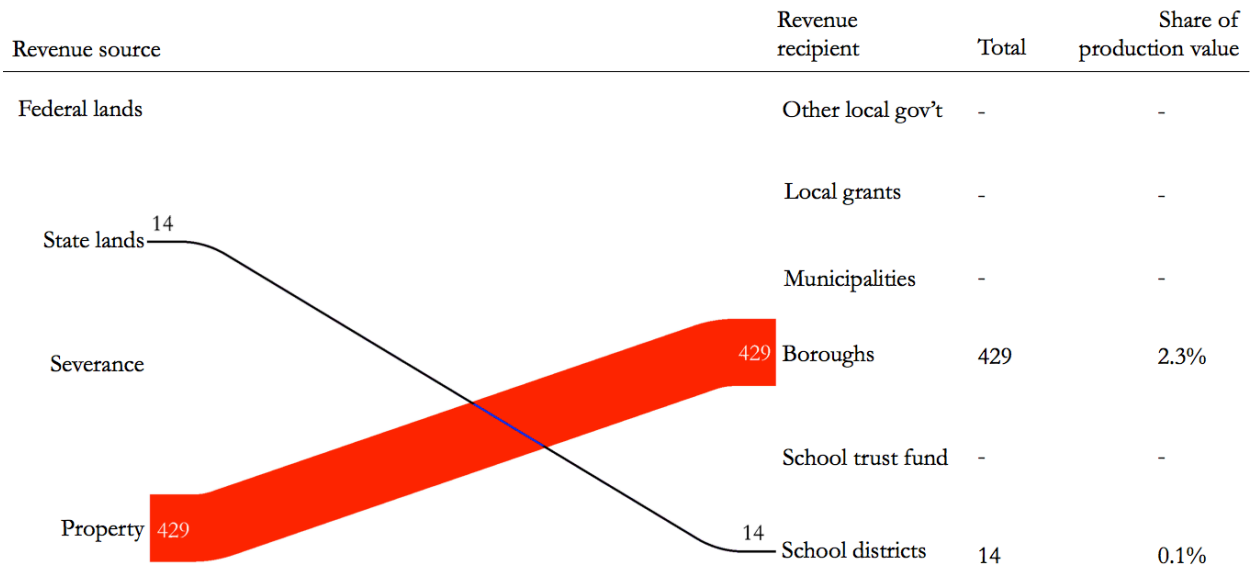
Direct local government revenue from oil and gas production in Alaska comes almost exclusively through Borough property taxes on exploration, production, and transportation property. This includes the Trans-Alaska Pipeline System, which provides an important part of the tax base for a variety of local governments in Alaska. While local governments receive a relatively small share of oil and gas revenue directly, the state of Alaska generates more than 90 percent of its general fund revenue from taxes on oil and gas production, corporate income, and other industry-driven sources (Alaska Department of Revenue 2014). Although these revenues are not allocated to local governments according to formulae, the state general fund supports a variety of local government services through the annual budget process.

Table 1.1 Alaska FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
186.1	$94.97	343.7	$3.44	$18.9

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on Henry Hub.

Figure 1.4 Alaska FY 2013 local government revenue from oil and gas production ($million)



Note: Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

1.3.2 Arkansas

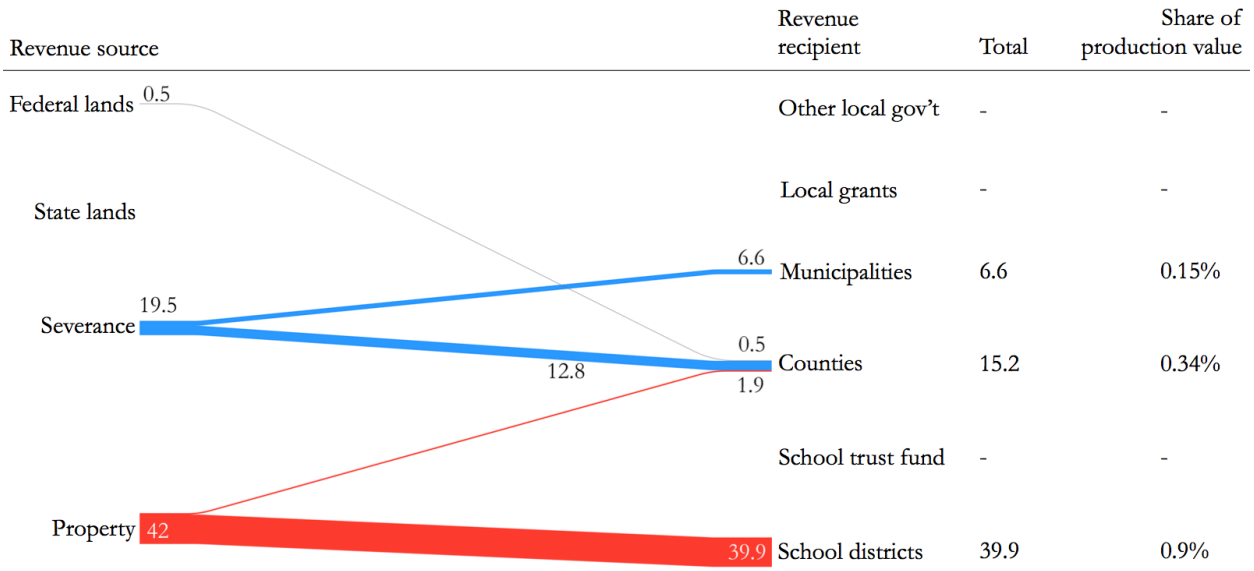
Property taxes are the leading oil- and gas-related revenue source for local governments in Arkansas. School districts are by a wide margin the leading recipients of these revenues, with counties receiving a relatively small sum. A smaller share of revenue flows from severance taxes and similar mechanisms to counties and municipalities through "aid funds," which are shared equally by counties and according to population by municipalities. Roughly 25 percent of revenue generated by oil and gas leases on federal lands also flows to the county aid fund.

Table 1.2 Arkansas FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
6.6	$88.21	1,149	$3.36	$4.4

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on Perryville Hub via Bloomberg.

Figure 1.5 Arkansas FY 2013 local government revenue from oil and gas production ($million)



Note: State lease data were not available from FY 2013. For reference, in FY 2012 roughly $800,000 flowed from state government leases to various state agencies, with no revenue flowing directly to local governments. Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

1.3.3 California

Local governments in California receive direct revenue from oil and gas activity exclusively through ad-valorem property taxes (some local governments also generate substantial revenue from leases on public land, but statewide data are not available). Properties are valued based on the market value of the proved reserves underground, along with the value of surface equipment (CA Code of Regulations 2015). Due to a ballot initiative passed in 1978, the assessed value of each property may not rise by more than 2 percent each year unless that property changes ownership or new construction occurs on the property. Most property taxes flow to school districts and counties, along with a smaller share to special districts and municipalities.

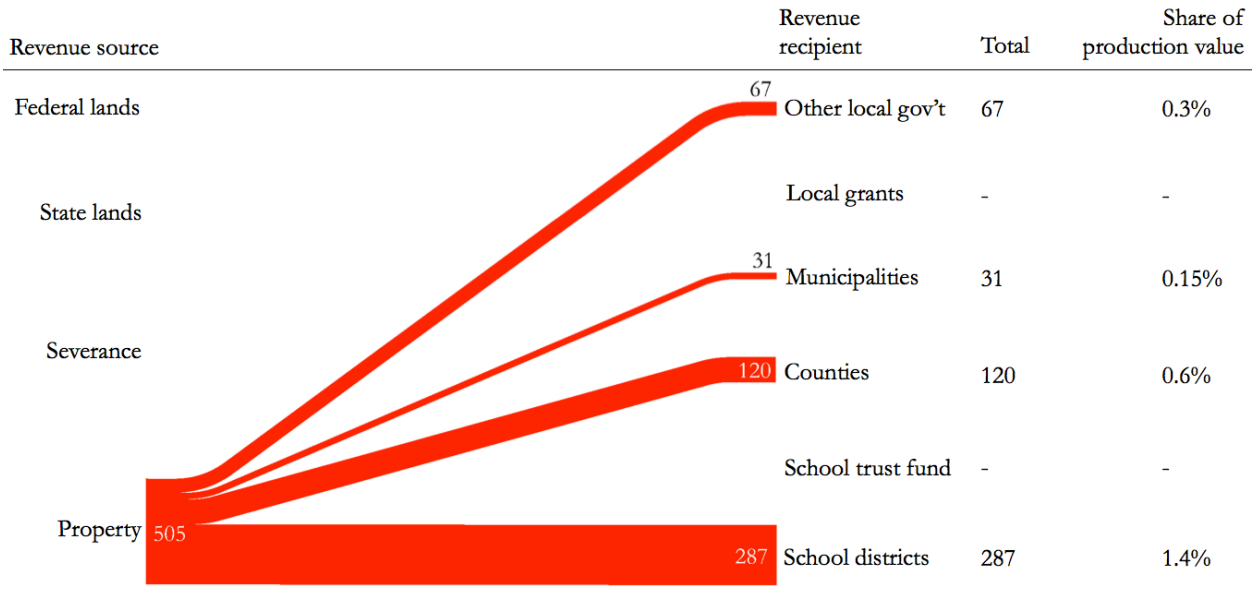
We also note that the state levies a small oil and gas production assessment, which in FY 2016 stood at $0.32 per barrel of oil or 10,000 feet of natural gas, and supports the Oil and Gas Division of the California Department of Conservation (CA Department of Conservation 2015).

Table 1.3 California FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
197.3	$102.13	249.9	$3.52	$21.0

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on SoCal Border Hub via Bloomberg.

Figure 1.6 California FY 2013 local government revenue from oil and gas production ($million)



Note: Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

1.3.4 Colorado

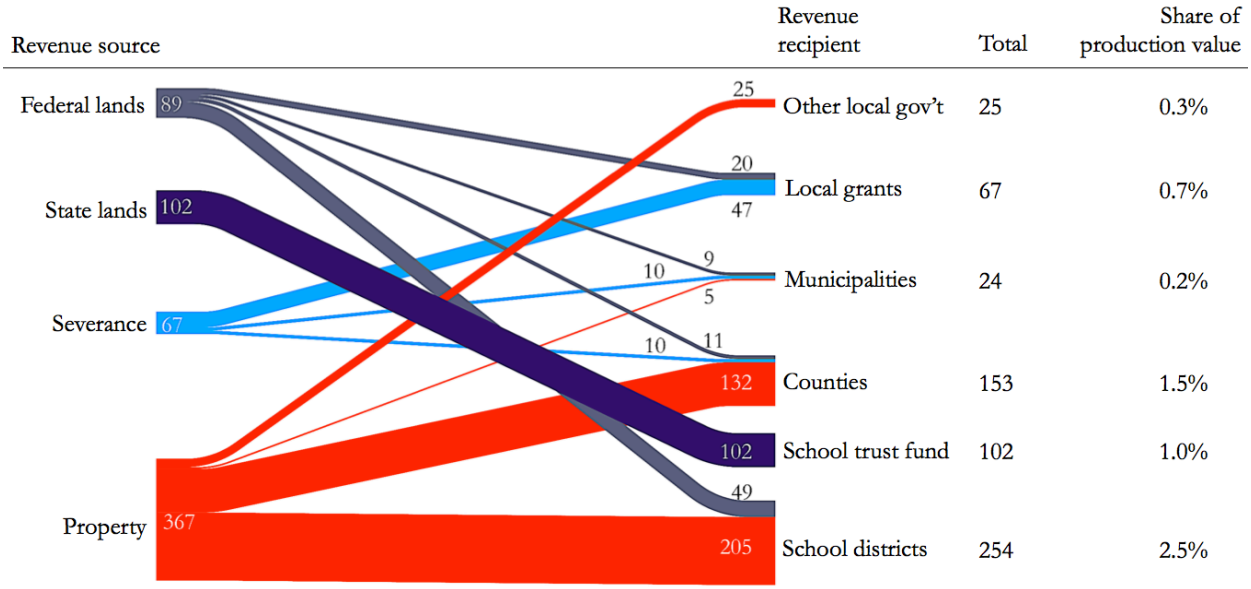
Colorado local governments receive more revenue directly from oil and gas production than in most other states. Property taxes are the leading source, followed by allocations of revenues from state and federal lands, along with allocations of revenue from the state's severance tax. Allocations from the state level are apportioned based primarily on levels of industry activity, with most revenue allocated through the state's Department of Local Affairs (DOLA). DOLA also administers a state grant program, which awards grants for infrastructure and other needs to local governments impacted by the industry (Colorado Department of Local Affairs 2014).

Table 1.4 Colorado FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
51.4	$84.62	1,190	$3.31	$10.2

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on White River Hub via Bloomberg.

Figure 1.7 Colorado FY 2013 local government revenue from oil and gas production ($million)



Note: Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

1.3.5 Kansas

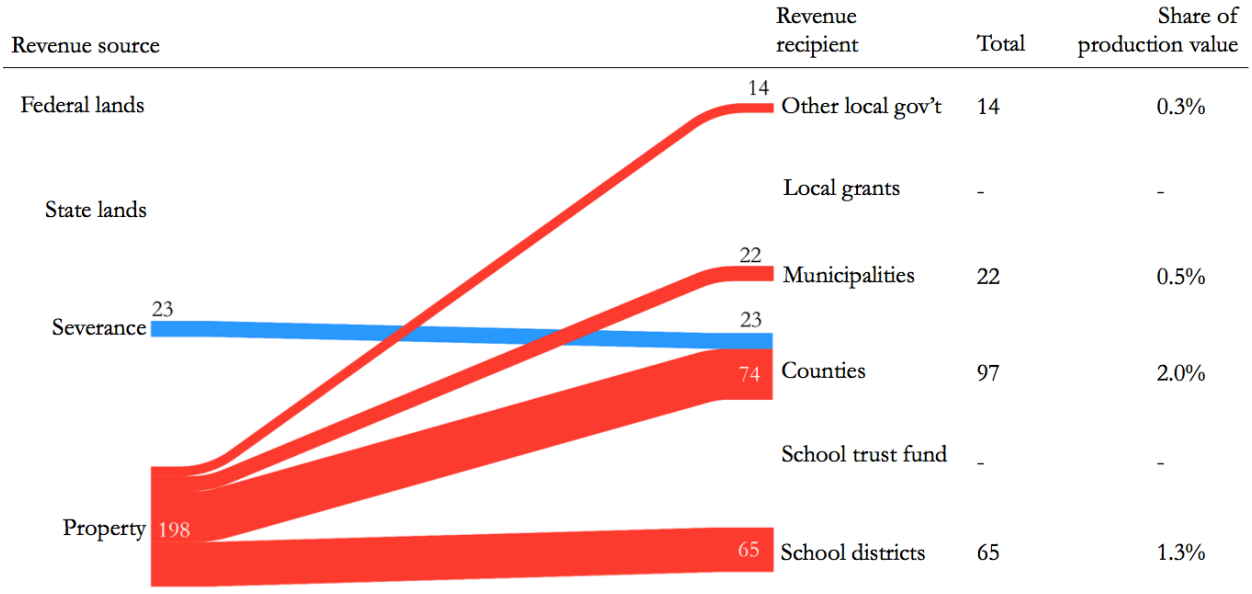
Local governments in Kansas receive revenue from oil and gas production primarily through ad-valorem property taxes. The value of these properties is assessed annually based largely on the price of oil and gas as of January 1 of each year (Kansas Department of Revenue 2013a). This assessment process can exacerbate revenue volatility for local governments, as commodity prices on any given day may be substantially higher or lower than a longer-term average. The state also levies a severance tax and smaller conservation fee, with a portion of the severance tax flowing to county governments based on production levels.

Table 1.5 Kansas FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
45.3	$85.98	292.0	$3.52	$4.9

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on Chicago CityGate via Bloomberg.

Figure 1.8 Kansas FY 2013 local government revenue from oil and gas production ($million)



Note: Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

1.3.6 Louisiana

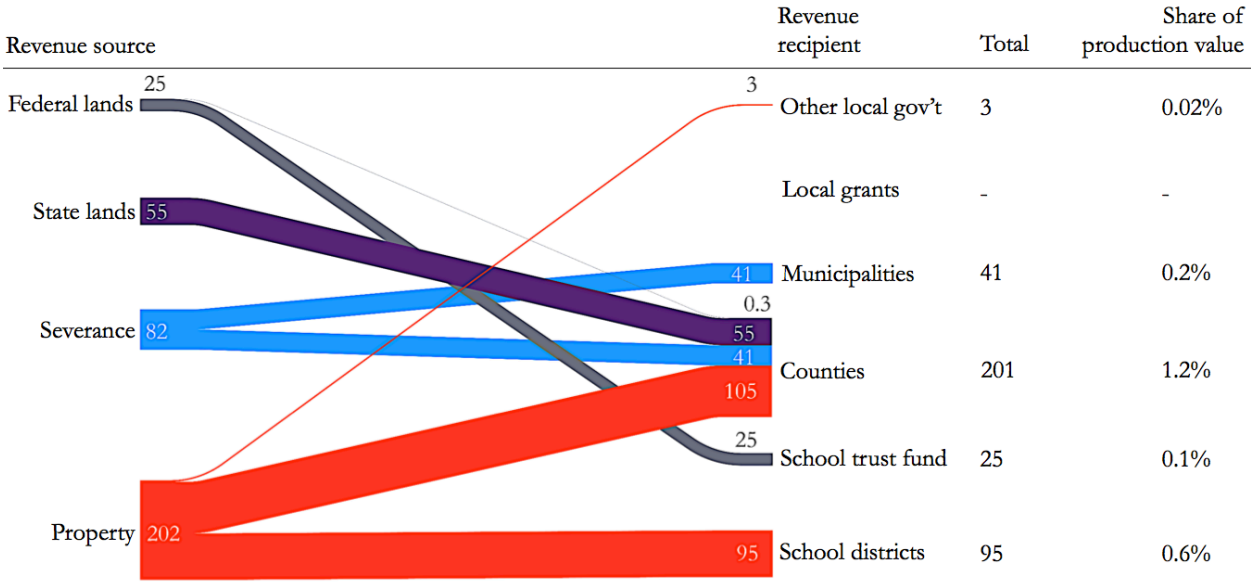
Louisiana local governments raise oil and gas revenue from a variety of sources. Parishes (which perform similar duties to counties) collect the largest share of revenue through a combination of property taxes on oil and gas surface equipment, state land leases, severance taxes, and a very small share of revenue from federal leases in the Gulf of Mexico. School districts collect revenue from property taxes, and a portion of funds from federal oil and gas leases flows to a state trust fund endowing school operations. Municipalities are allocated a portion of the state severance tax, and other local governments collect a small share of oil and gas property taxes.

Table 1.6 Louisiana FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
71.6	$104.67	2,757	$3.48	$17.1

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on reported price via LA Dept. of Natural Resources (2013).

Figure 1.9 Louisiana FY 2013 local government revenue from oil and gas production ($million)



Note: Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

1.3.7 Montana

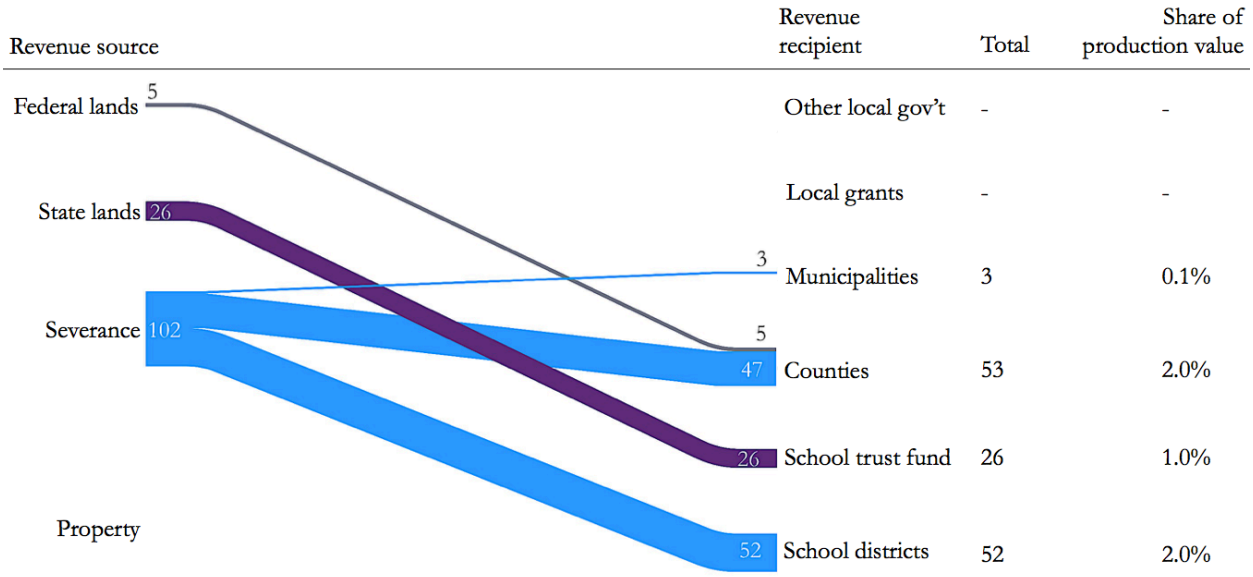
Local governments in Montana cannot apply property taxes to oil and gas property. Instead, the state government allocates a substantial portion of severance tax revenue to the local level, with a slightly larger share flowing to school districts relative to counties. Municipalities also receive a small portion of severance tax revenues. Oil and gas lease revenue on state lands supports a trust fund for school operations, and a small share of revenue from federal lands goes to county governments.

Table 1.7 Montana FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
28.5	$84.47	63.5	$3.31	$2.6

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on White River Hub via Bloomberg.

Figure 1.10 Montana FY 2013 local government revenue from oil and gas production ($million)



Note: Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

1.3.8 New Mexico

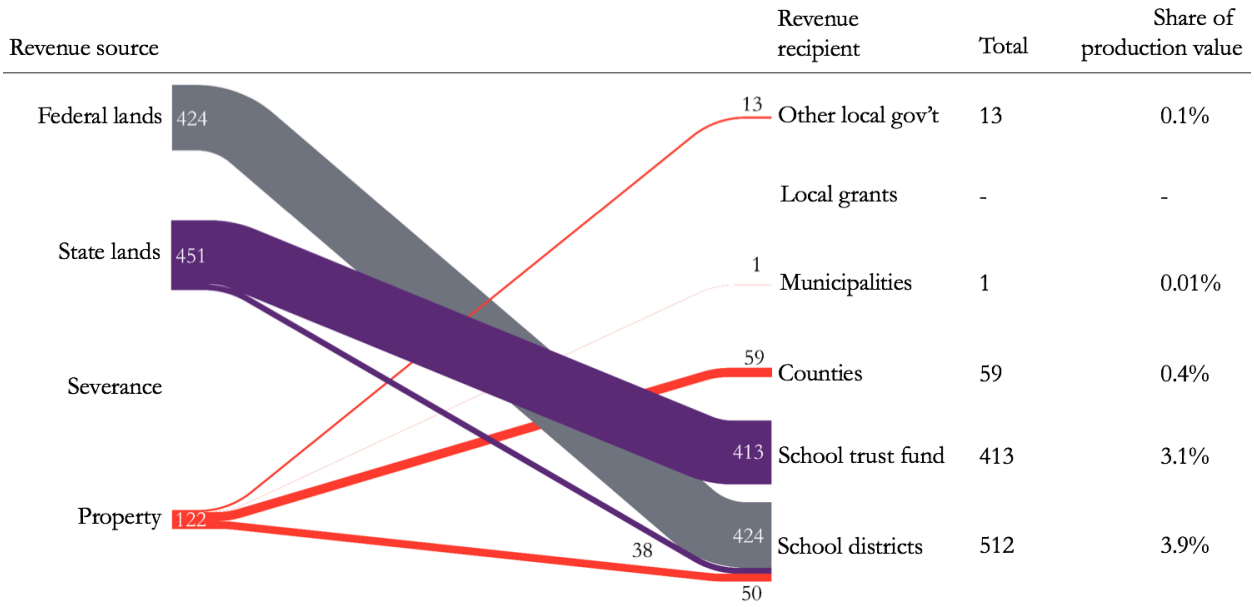
Local governments in New Mexico receive the second largest share of revenue from oil and gas production in our assessment, with most revenue flowing to local education. State and federal land leases are the leading revenue source, with federal leases supporting current school operations and state leases primarily endowing a trust fund for future expenditures. School districts and counties also collect substantial revenues from property taxes on oil and gas production and equipment, with other local governments and municipalities collecting a small share.

Table 1.8 New Mexico FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
93.1	$85.55	1,199.0	$3.52	$13.2

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on Blanco, NM Hub via Bloomberg.

Figure 1.11 New Mexico FY 2013 local government revenue from oil and gas production ($million)



Note: Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

1.3.9 North Dakota

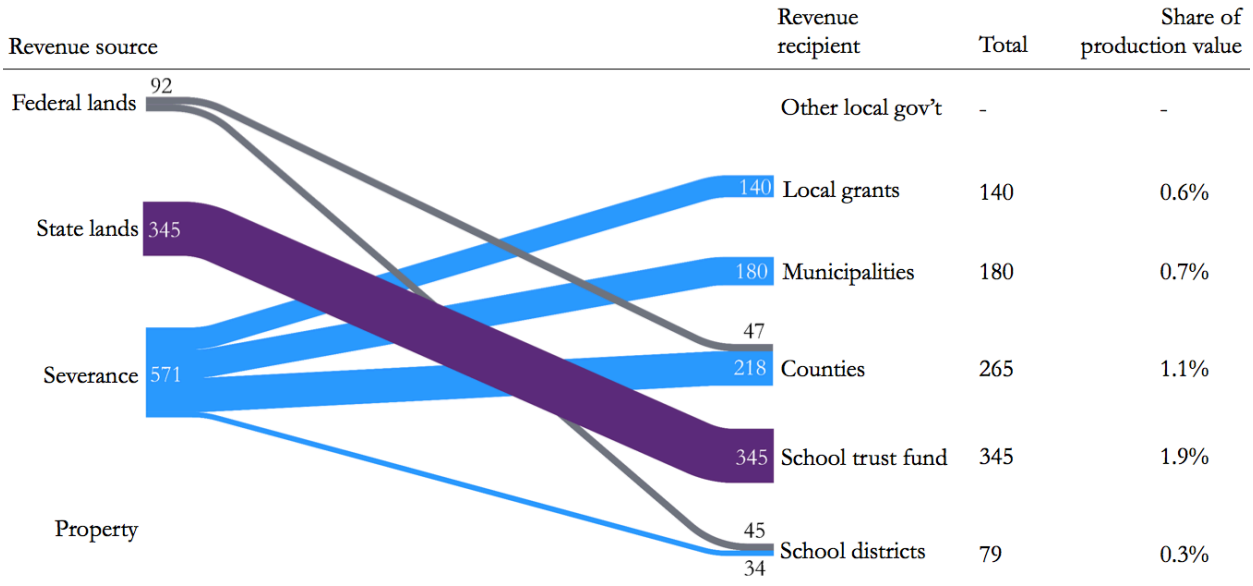
To help local governments manage rapid population growth, North Dakota's legislature adjusted its revenue allocation formulas in 2015 to send a larger share of revenue to the local level (ND State Legislature 2015b, a).[1] Figure 1.12 reflects these changes, and applies the current allocation formula to production and revenue data from FY 2013. Revenue from the oil and gas production tax (one of two severance taxes levied by the state) is shared between local governments in the Bakken region, with county and municipal governments seeing the largest share, along with a state-administered grant program that supports local infrastructure and affordable housing projects. State leases endow a school trust fund, and revenue from federal leases flows directly to counties and school districts.

Table 1.9 North Dakota FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
276.7	$86.28	204.3	$3.31	$24.6

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on White River Hub via Bloomberg.

Figure 1.12 North Dakota FY 2013 local government revenue from oil and gas production ($million)



Note: Allocations to local governments shown here differ from actual FY 2013 values because we apply the most recent (2015) allocation formulas to revenue collected in FY 2013. See main text for details. Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

[1] It also sent a one-time "surge" of funding to the region through ND 2015 Senate Bill 2103.

1.3.10 Ohio

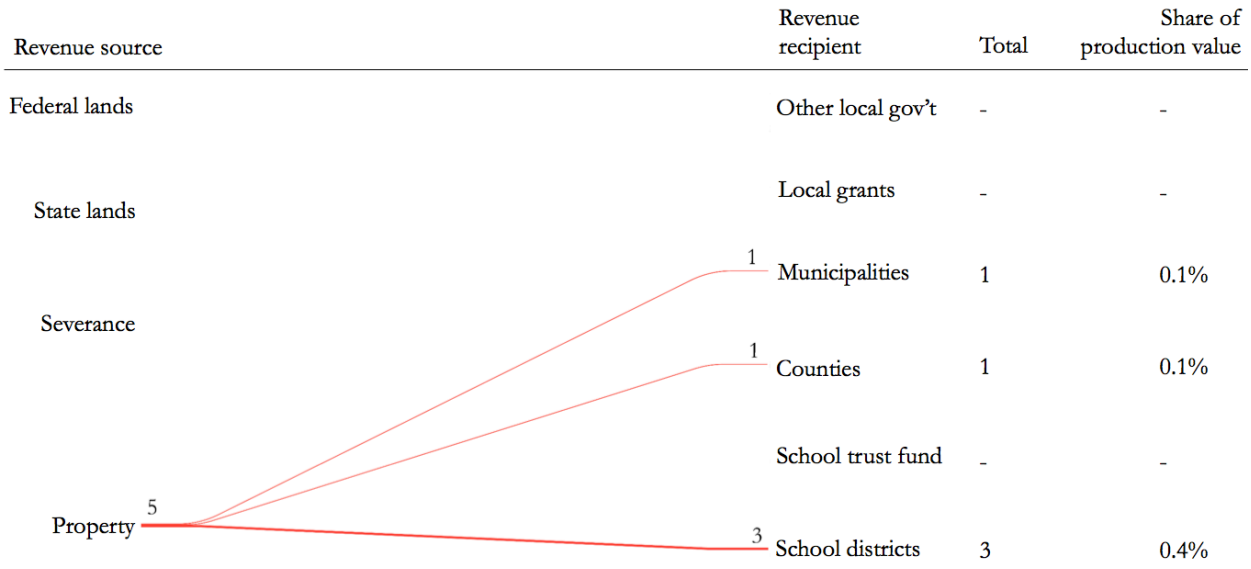
Local governments in Ohio receive the smallest share of revenue from oil and gas production across the 16 states examined in this report. Property taxes on oil and gas property generated roughly $5 million dollars in FY 2013, with most revenue flowing to school districts and smaller shares to counties and municipalities (primarily townships). These revenues have surely grown since that time, as production from the Utica shale formation has grown rapidly from 2013 through 2015. Revenue from the state's small severance tax, along with revenue from oil and gas leases on state and federal lands, does not flow to the local level.

Table 1.10 Ohio FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
6.0	$90.71	108.5	$3.39	$0.9

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on Dominion South Hub via Bloomberg.

Figure 1.13 Ohio FY 2013 local government revenue from oil and gas production ($million)



Note: Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

1.3.11 Oklahoma

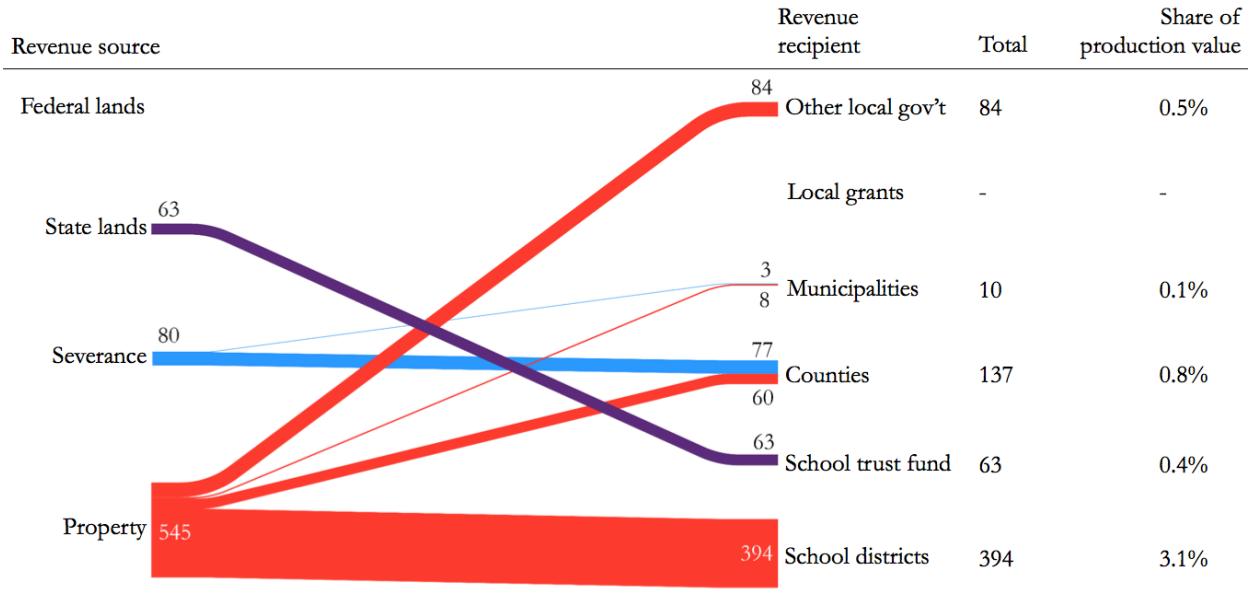
Property taxes are the leading oil- and gas-related revenue source for Oklahoma local governments, with most revenue flowing to school districts. Leases on state land also support schools by endowing a trust fund. A severance tax (called the Gross Production Tax, or GPT) also provides revenue for county governments. The state offers reduced tax rates for horizontally drilled wells, which many local officials perceive to be reducing revenue flowing to the local level. However, this is not the case according to statute (68 OK Statutes §1001). While the state tax rate ranges from 1 to 7 percent of the value of oil and gas produced, the share allocated to local governments adjusts to keep local revenues relatively stable, as shown in Table 1.12.

Table 1.11 Oklahoma FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
103.4	$88.26	2,083.4	$3.31	**$16.5**

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on Chicago CityGate via Bloomberg.

Figure 1.14 Oklahoma FY 2013 local government revenue from oil and gas production ($million)



Note: Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

Table 1.12 Hypothetical OK Gross Production Tax Revenue Allocation (68 OK Statutes §1001)

Oil production (bbl)	Oil price ($/bbl)	State GPT rate	Revenue	County share	County revenue
100	$100	7%	$700	7%	$49.98
100	$100	1%	$100	50%	$50.00

1.3.12 Pennsylvania

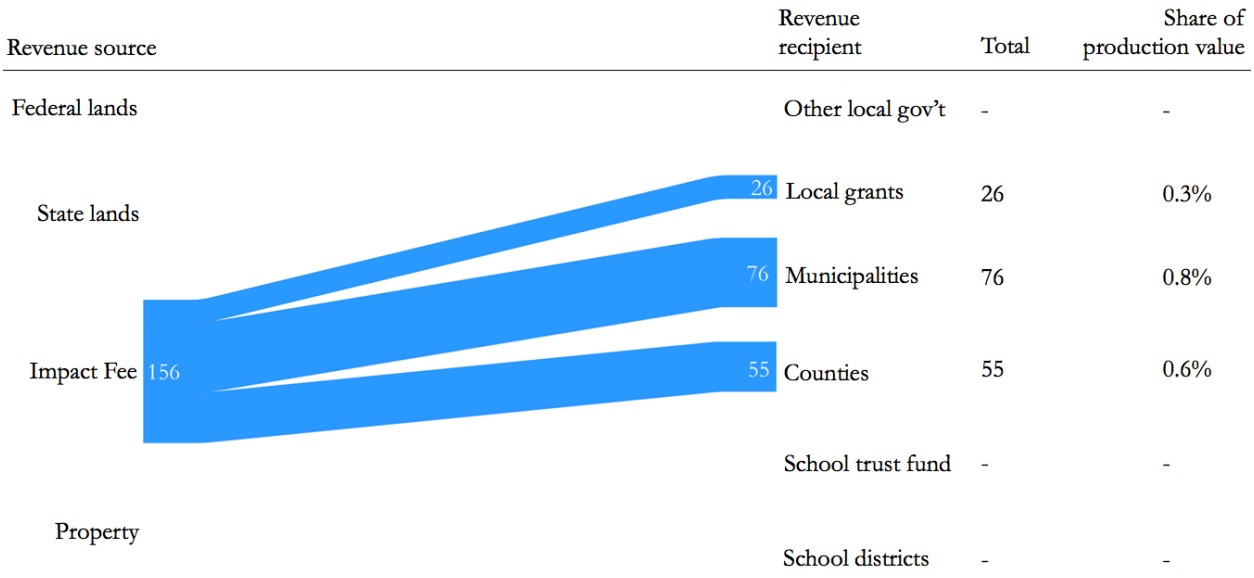
Pennsylvania does not levy a severance tax nor does it allow local governments to apply their property taxes to oil and gas property. Instead, the state imposes an "Impact Fee" on each unconventional (i.e., shale) well drilled in the state. It then returns roughly 60 percent of those revenues to local governments based primarily on levels of drilling activity. Municipalities (including townships, which maintain rural road networks) see the largest share of revenue, followed by counties. The impact fee also supports a grant program that awards funds for infrastructure and affordable housing projects in regions affected by shale development.

Table 1.13 Pennsylvania FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
4.5	$86.63	2,742	$3.39	**$9.7**

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on Dominion Hub via Bloomberg.

Figure 1.15 Pennsylvania FY 2013 local government revenue from oil and gas production ($million)



Note: Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

1.3.13 Texas

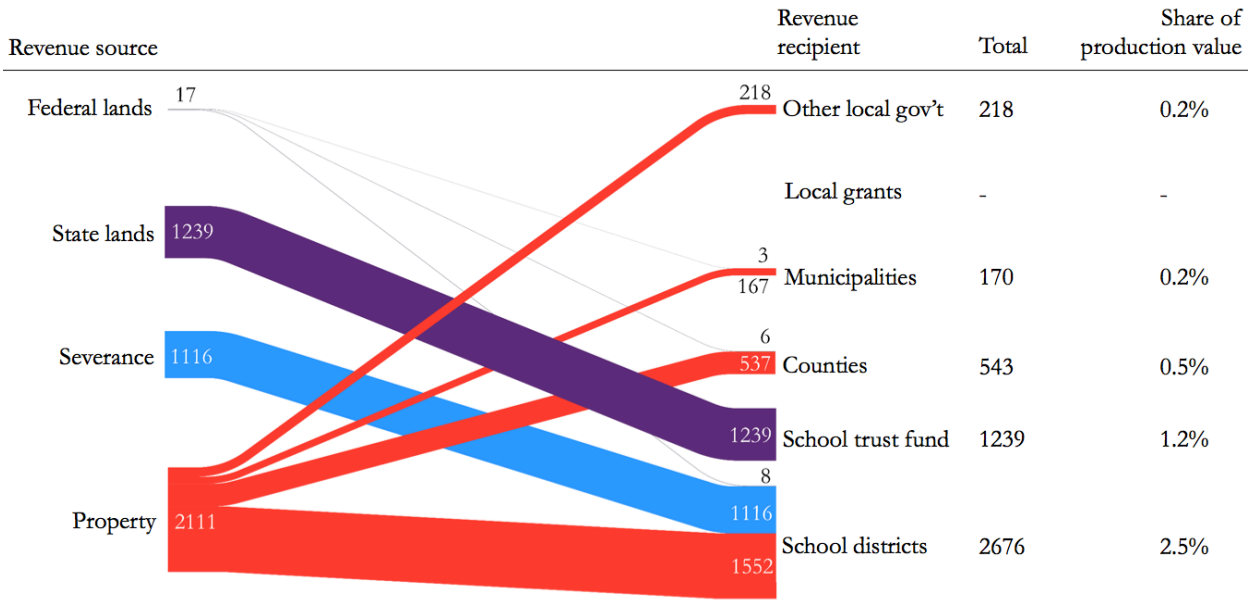
Texas, by far the largest producer of oil and natural gas in the United States, allocates a substantial share of production revenue to local governments. Most revenue flows to schools directly from property and severance taxes, or to school trust funds through oil and gas leases on state land. Property taxes on oil and gas property also provide substantial revenue for counties, municipalities, and other local governments. Oil and gas leases on federal land account for a relatively small amount of revenue flowing to schools, counties, and municipalities.

Table 1.14 Texas FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
860.6	$93.68	7,483	$3.52	$107.0

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on Katy Hub via Bloomberg.

Figure 1.16 Texas FY 2013 local government revenue from oil and gas production ($million)



Note: Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

1.3.14 Utah

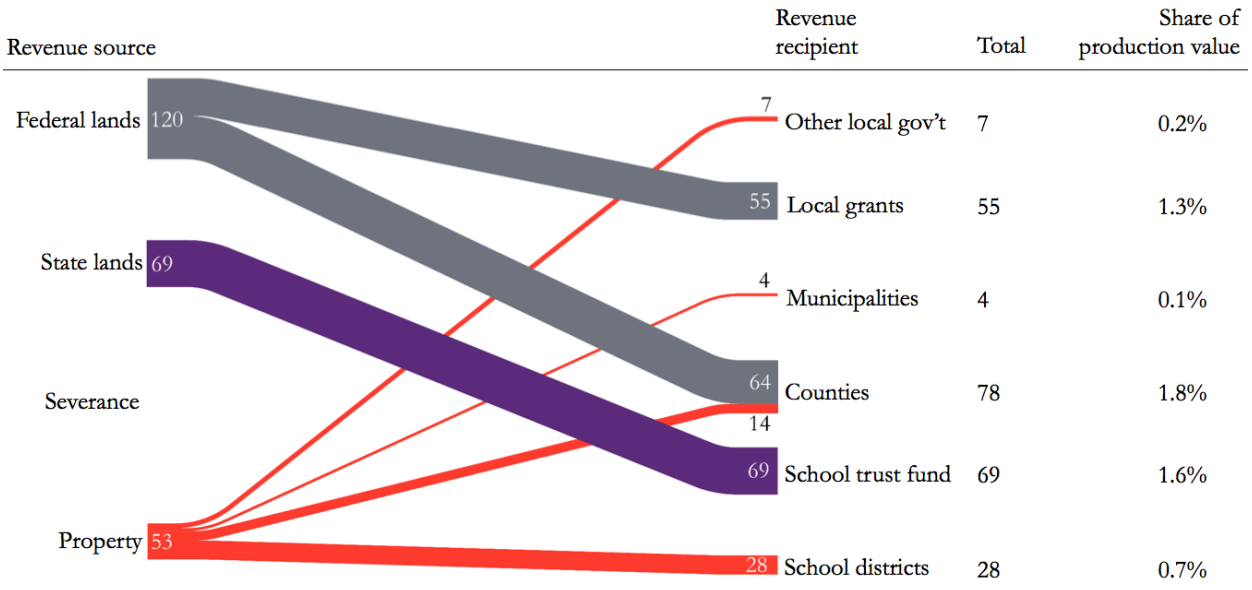
Most oil- and gas-related revenue for local governments in Utah flows from leases on state and federal lands. Federal leases generate the largest share of revenue for local governments, distributed directly to counties and special government districts that work closely with counties to provide similar services such as road construction and repair. Federal leases also support a state-administered grant program that allocates grants and low-interest loans primarily to local governments in oil- and gas-producing regions. As in most other western states, revenue from state land leases endows a school trust fund. Finally, property taxes on oil and gas property provide direct revenues for school districts, counties, and other local governments.

Table 1.15 Utah FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
32.3	$80.27	480.5	$3.31	$4.3

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on White River Hub via Bloomberg.

Figure 1.17 Utah FY 2013 local government revenue from oil and gas production ($million)



Note: Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

1.3.15 West Virginia

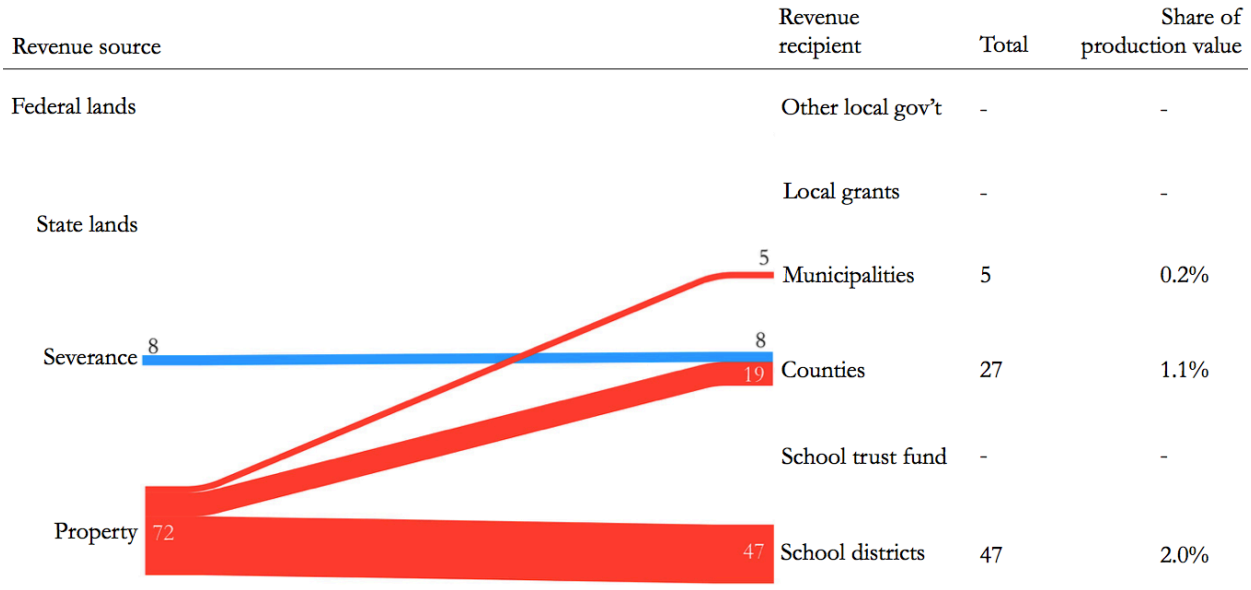
Property taxes provide the leading source of oil- and gas-related revenue for local governments in West Virginia, with school districts as the leading recipients, followed by counties and municipalities. Natural gas production from the Marcellus formation has increased significantly since FY 2013, and more recent data would show larger total amounts of property taxes collected by each jurisdiction. Severance tax revenues from natural gas production have also grown since FY 2013, and a modest share of those revenues are directed to counties, though not specifically to school districts in regions where production is greatest. The state government collects modest revenue from federal and state lands, but does not allocate that revenue directly to the local level.

Table 1.16 West Virginia FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
59.9	$86.17	607.9	$3.39	$2.4

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on Dominion South Hub via Bloomberg.

Figure 1.18 West Virginia FY 2013 local government revenue from oil and gas production ($million)



Note: Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

1.3.16 Wyoming

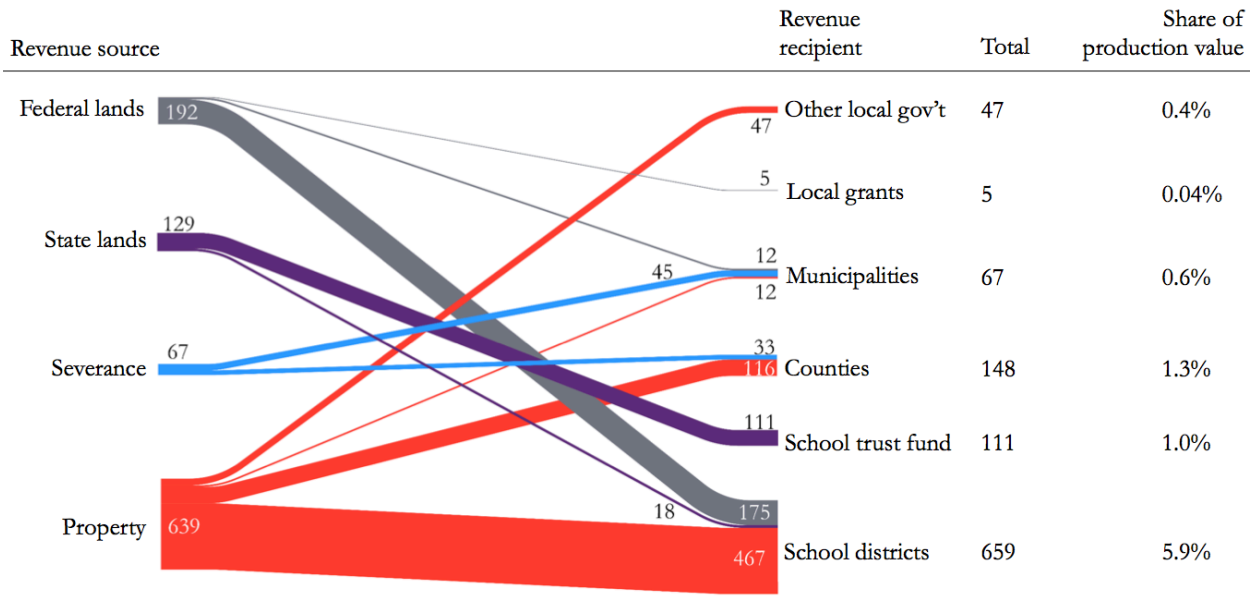
Local governments in Wyoming receive a larger share of revenue from oil and gas production than in any other major producing state. Revenue is generated from a variety of sources, led by property taxes, which flow primarily to school districts. Oil and gas property taxes also provide a relatively large share of revenue for counties and other local governments in the producing regions of the state. Federal leases primarily support school districts, with a smaller share flowing to municipalities and a small local government grant program. State leases generate revenue primarily for a school trust fund, with a small share funding current school operations. Finally, a portion of the state severance tax flows to counties and municipalities. However, severance tax allocations to municipalities are based exclusively on population, which means that funds flow to population centers, most of which are far from the oil- and gas-producing regions of the state.

Table 1.17 Wyoming FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
60.0	$79.96	1,919	$3.32	$11.2

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on Opal Hub via Bloomberg.

Figure 1.19 Wyoming FY 2013 local government revenue from oil and gas production ($million)



Note: Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

2. Introduction and background

Local governments have been affected in a variety of ways by the recent surge in oil and gas production in the United States, with important implications for the public. Local government services such as education, infrastructure, and public safety play a large role in the daily lives of residents. The value of these public goods can be demonstrated through increased residential property values in jurisdictions with higher-quality public services (e.g., Oates 1969; Brasington 2002; Mathur 2008; Nguyen-Hoang & Yinger 2011).

For local governments planning for the provision of these services, one of the central challenges for managing fiscal issues in the context of oil and gas production is how to plan for contingencies where prices, technologies, or other factors lead to substantial increases or decreases in activity (sometimes referred to as "boom and bust" cycles). Local officials face decisions on large public investments with the understanding that future oil and gas activity may change rapidly and unpredictably, with potentially large effects on revenues.

This leads to the question of whether fiscal policies should focus on managing current needs or saving to mitigate any impact of future shortfalls. In all likelihood, the answer involves some combination of these strategies, but will vary from state to state and even city to city. For states and local governments heavily reliant on the oil and gas industry for revenue (such as Alaska, Wyoming, or more recently North Dakota), state trust funds have been a common tool to prepare for future lean years. For regions with a more diversified economic base (such as California, Ohio, or Pennsylvania), decreased oil and gas activity may lead to relatively minor government revenue declines, and policy tends to lean toward managing the fiscal impacts of today.

In addition, the types of demands for local governments may change over time. For example, new production in parts of Pennsylvania or North Dakota, where relatively little oil and gas activity had occurred in recent decades, meant that much of the oil and gas workforce in these regions initially came from out of state. These more transient workers would tend not to be accompanied by school-aged children, limiting new school funding needs. However, if activity continues for a period of years and more permanent housing options become available, workers may relocate permanently with their families, increasing the demand on local schools.

Local governments may have limited influence regarding the fiscal policies that ultimately affect their ability to provide services. State-level policymakers often determine the timing of and extent to which local governments receive revenue from natural resource development. If state policymakers do not fully understand the near-term and potential long-term issues facing local governments, it could lead to policies that fail to meet the fiscal needs of local communities.

This report focuses on whether near-term revenues have adequately met the near-term needs of local governments experiencing substantial oil and gas development. A related strain of research has addressed, and continues to investigate, the longer-term economic implications of oil and gas development for communities (e.g., Freeman 2009; James & Aadland 2011; Allcott & Keniston 2014; Brown 2014; Haggerty *et al.* 2014; Jacobsen & Parker 2014; Weber 2014).

The remainder of this section provides background on natural resource taxation issues at the national level, an examination of recent work on state-level policy design, and a description of data sources and methods. Section 3 shows how oil and gas revenue was allocated to local governments in FY 2013, with an overview of the relevant policy mechanisms for each state. Section 4 concludes.

2.1 Background

A wide body of literature has focused on understanding fiscal policy toward natural resource extraction. Much of this work focuses on fiscal regimes for nations seeking to incentivize natural resource production while also achieving broader economic and development goals. Policy design in this context centers on national-level issues, and typically focuses on scenarios where governments, not private citizens, are the holders of mineral rights (e.g., Khelil 1995; Tordo 2007; International Monetary Fund 2010; Agalliu 2011). Much of this work refers to the "government take," a metric commonly represented as the sum of direct revenue for governments as a percentage of cash flow from an oil and gas well, project, or operator. This typically includes lease or concession payments, royalties, corporate income or profits taxes, production sharing agreements, revenues to national oil companies, and other sources. Government take estimates generally do not include indirect or induced revenues such as sales or personal income taxes affected by oil and gas activity.

Assessing local government revenue from oil and gas production requires a modified approach. Because local governments only receive a portion of total government revenue from oil and gas projects, our analysis does not reflect the total government take. In many cases, tax or leasing revenues pass through one or more levels before eventually flowing to local governments. Local governments often have limited control regarding the mechanisms deployed to raise revenue from oil and gas development. Our analysis therefore does not center on the optimal method(s) of taxation (see e.g., Conrad & Hool 1981), but rather the local public revenue outcomes of existing policies.

Some work in the late 1970s and 1980s examined local government fiscal issues associated with energy development. That research generally found that state fiscal policies toward energy development can have a substantial effect on local government finances, and highlighted the challenges faced by geographically isolated local governments, especially municipalities (e.g., Gray 1977; Toman *et al.* 1977; Leistritz *et al.* 1981; Hecox 1984).

More recent analyses have assessed fiscal treatment of the oil and gas industry at the state and provincial level in the United States and Canada (e.g., Kunce & Morgan 2005; Chakravorty *et al.* 2011; Kepes *et al.* 2011; Ernst & Young LLP 2012; Headwaters Economics 2012; Brown 2013; Colorado Legislative Council Staff 2014; Pennsylvania Independent Fiscal Office 2014; Rabe & Hampton 2014; Weber *et al.* 2015).

Our report differs in several ways from these recent analyses. First, we show in detail how revenue flows to different levels of *local* government, rather than assessing state government revenues. Second, we include revenue from additional sources, notably local government property taxes and leasing of state and federal lands. Third, we evaluate revenue generated by production from both oil and gas resources, while many analyses focus exclusively on either oil or natural gas. Fourth, our analysis looks at oil and gas production statewide for each state, while other analyses have approached the topic by looking at the tax revenue streams generated by a single hypothetical well.

Finally, this report does not address the costs incurred by local governments associated with oil and gas development. We address this in two companion reports (Raimi & Newell 2016; Newell & Raimi 2015b), where we find that for most local governments, oil and gas development—whether new or longstanding—has a positive effect on local public finances. However, effects can vary substantially due to a variety of local factors and policy issues. For some local governments, particularly those in rural regions experiencing large increases in development, revenues have not kept pace with rapidly increased costs and demand for services, particularly on road repair.

2.2 State-level policy design issues

Increased oil and gas production in the United States has generated substantial interest in fiscal policy towards natural resource extraction. Major revisions to state oil and gas tax policies have been made in recent years in a number of states with shale resources (Rabe & Hampton 2014), and debate over the issue continues. States sometimes compete for oil and gas investment, seeking to grow their economies and provide local employment opportunities, although evidence suggests state oil and gas taxation plays a relatively minor role in such investment decisions.[2] States making revisions to their tax policies often seek to balance attracting investment with the generation of revenue for government services. Since most states share oil and gas revenues with local authorities, changes in state-level fiscal policy will in most cases affect revenues available for local governments.

[2] Existing literature suggests that state oil and gas production taxes tend to play a relatively minor role in investment decisions (Agalliu 2011; Chakravorty *et al.* 2011; Gülen *et al.* 2013). Other factors, such as resource characteristics, commodity prices, and drilling costs tend to play larger roles.

Relevant analyses of state fiscal policy have primarily focused on severance taxes or, in the case of Pennsylvania, impact fees. However, focusing solely on severance taxes or impact fees presents a limited picture of how oil and gas revenue flows to local (and state) governments. Other revenue sources such as government oil and gas leases and local property taxes can generate as much or more revenue than state-level taxes.

In addition, the nuances of state revenue allocation formulae can play a central role in shaping whether local governments receive adequate revenue to manage oil- and gas-related growth. For example, a substantial share of severance tax revenue in Wyoming is directed toward municipal governments. However, this revenue is apportioned based solely on population, meaning that small cities and towns in regions with heavy drilling activity receive less revenue than larger population centers which may have no oil and gas development.

2.3 Data and methods

This report relies primarily on data from state and federal government agencies, along with a small amount of proprietary natural gas pricing data, to assess the total value of oil and gas production for 16 states in fiscal year (FY) 2013.[3] We then show what share of that total production value went to local governments through severance taxes or impact fees, property taxes on oil and gas property, and leases of state and federal land.

For each state, monthly oil and gas production data are from the U.S. Energy Information Administration (U.S. EIA). To assess the value of production, we multiply these volumes by an estimated average oil and gas price received by the producer. For Louisiana, these oil and gas prices are from the Louisiana Department of Natural Resources (Louisiana Department of Natural Resources 2013). In all other states, for oil we use the monthly crude oil first purchase price from the U.S. EIA[4], and for gas we use regional prices at a variety of natural gas market hubs. The U.S. EIA does not currently report state-level natural gas wellhead prices.

Next, we calculate revenue allocated to different levels of local government. This requires data describing revenue generated through state-level oil and gas severance taxes or impact fees, local property taxes on oil and gas property, and lease revenue from state and federal lands. As noted above, revenue data from local government leases were not available on a statewide basis for any major producing state.

[3] All states in our sample with the exception of Texas define their 2012 fiscal year as running from July 1, 2012, through June 30, 2013. Texas' fiscal year runs from September 1, 2012, through August 31, 2013. As a result, the data used to calculate oil and natural gas prices for Texas' production are slightly different than in other states.

[4] U.S. Energy Information Administration. Domestic Crude Oil First Purchase Prices by Area. Available at http://www.eia.gov/dnav/pet/pet_pri_dfp1_k_m.htm.

To determine the amount that flows to each level of government, we rely on two primary sources. Where available, we reference reports from state and local government agencies that document allocations from each revenue stream in FY 2013. In most states, the allocations of those revenues to local governments are available through various budgetary reports. Where it is not provided, we rely on the relevant state statutes to estimate FY 2013 allocations to local governments. In addition, for North Dakota we update the allocation based on 2015 state legislation that significantly changed allocation formulas.

One state (North Dakota) has made substantial updates to its oil and gas revenue allocation formulas since FY 2013. To reflect these changes, we apply the most recent revenue allocation formula to revenue collected by the state government in FY 2013. As a result, the allocations to local governments shown for North Dakota do not reflect actual FY 2013 values, but instead represent what would have flowed to local governments in that year had the most recent revenue policies been in place. For details, see Section 3.9.

For local government property taxes, state-level policies and reporting vary. Of the 16 states we examined, 11 (AR, CA, CO, KS, NM, OH, OK, TX, UT, WV, and WY) allow local governments to apply their local property tax rate to the assessed value of oil and gas production and/or reserves, along with the surface equipment associated with exploration and production such as rigs, wellheads, and other equipment. For these states, we gathered tax rates in FY 2013 for each county, school district, municipality, and special district. We then gathered the assessed value of oil and gas production property for each county within the state. To estimate revenue for counties, we applied the local property tax rate to the assessed value of oil and gas production property within each county. For municipalities, school districts, and special districts, we applied the average rate within each county to the assessed value of oil and gas production within each local government jurisdiction. To ensure that our methodology was sound, we crosschecked these estimates against data from several counties in each state. These crosschecks validated the approach. For one state (WY), we gathered summary data on total local government taxes levied on oil and gas property for school districts, counties, municipalities, and other local governments.

Two states (AK and LA) do not allow local governments to levy property taxes on oil and gas production or reserves, but do allow those states to tax equipment such as wellheads, rigs, and other surface equipment associated with production. We estimate revenues from those sources using the methods described above.

For most states, we do not include tax revenue from processing/refining infrastructure or transportation infrastructure such as interstate pipelines and compressor station. Because our focus is on the effect of oil and gas *production* activities on government revenues, we exclude pipelines (with one exception), as they are often associated with transmission and distribution, rather than

production of oil and natural gas. Similarly, we exclude processing and refining infrastructure, which is often located hundreds of miles from or in different states than oil and gas production centers.

However, we make an exception for the Trans-Alaska Pipeline System (TAPS), which provides substantial revenue for local governments in Alaska. This pipeline is entirely associated with crude oil production, does not cross state lines, and is assessed as a stand-alone item in Alaska's annual revenue reporting.

For revenue from oil and gas leases on state land, we collected data through relevant state agencies. In most cases, the allocation of this revenue to local governments is not explicitly described, so we rely primarily on statutes to estimate the revenue allocation. We collected data on revenue from oil and gas production on federal lands, along with the allocation of that revenue to state governments, from the federal Office of Natural Resource Revenues (ONRR), a division of the U.S. Department of Interior. Some states publish the allocation of federal lease revenue to local governments and others do not. Where states do not publish these data, we again rely on statutes to estimate allocations to local governments.

We present revenue allocation figures for counties, municipalities (including townships), and school districts, which show the revenue collected by or allocated to each level of local government. We also report oil and gas revenue flows into school trust funds, which are state-administered endowments. Interest earned from the principal of these endowments is allocated to school districts on an annual basis. The annual outflow from these trust funds does not reflect the amount flowing into the endowment in that year, but rather is determined by past flows into the endowment, as well as investment returns. We show the inflow, rather than the outflow for these endowments.

Our next category, grant programs, refers to funds that are set aside by the state government to support local governments through grants and/or low-interest loans. For example, Pennsylvania sets aside a portion of its impact fee revenue to fund local government projects to alleviate housing shortages associated with Marcellus shale-driven population growth. These funds are typically awarded as grants to local authorities. We distinguish grant programs from other categories because awards vary substantially from year to year and do not reflect a consistent allocation to any one type of local government.

Finally, we report data for other local governments, which show revenue that flows to special districts such as sewer and water districts, hospital districts, or airport authorities. These revenues are found most commonly in states where special districts levy property taxes on oil and gas production and/or reserves within their borders.

2.4 Other taxes and broader policy context

As noted above, this report does not reflect the effective tax rate or the "government take" on the oil and gas industry. Although a number of recent reports use terms such as "effective severance tax rate" for a range of states, we choose not to do so here. Any discussion that focuses only on production taxes inevitably leaves out a range of additional policy factors that are important to understand the broader fiscal context in which oil and gas companies operate. In particular, oil and gas producers in most states pay state corporate income taxes, which can have a major effect on the overall effective tax rate on oil and gas production in a given state.

More broadly, the climate for oil and gas investment depends on a suite of factors including landowner royalty rates, policy stability, characteristics of the resource, the desired rate of return, and proximity to markets and infrastructure (Agalliu 2011; Fraser Institute 2014). Policymakers may consider each of these issues when developing fiscal policies related to the oil and gas industry.

In part due to these complexities, we do not present figures for state-level government revenue generated by oil and gas production. Instead, we focus exclusively on the government revenues generated by oil and gas production that flow to local governments. Corporate income taxes are not included here because these revenues generally flow to state funds.

2.5 Scope of this report

2.5.1 Consideration of other revenues and local factors

The data presented in this report should be considered alongside a suite of other local factors and government revenues. For example, the municipal share of revenue for most states in Figure 1 appears small relative to school districts and counties. This is due to the fact that many counties and school districts generate large revenues from oil and gas property taxes, which are captured by our methodology. Municipalities, on the other hand, often rely more heavily on sales taxes, which are not captured by our methodology but are influenced by economic activity associated with the oil and gas industry.

In addition, local (and state) governments rely to varying degrees on oil- and gas-related revenue streams to fund operations. In some states, such as Wyoming, local and state governments rely heavily on revenue directly tied to oil and gas production and less heavily on other revenue sources such as corporate or personal income taxes (Tax Foundation 2015). These states will tend to show larger shares of revenue collected by (or allocated to) local governments from oil- and gas-related sources. In other states, revenues generated directly by oil and gas production play a smaller role in funding local government operations.

Indeed, a low percentage as shown in Figure 1 does not necessarily mean that local governments require more revenue, nor does a high percentage necessarily mean that local governments are receiving adequate revenue to manage service demands associated with oil and gas production. A variety of additional factors, including revenue from other sources (e.g., sales taxes or lease revenues from local lands), existing infrastructure capacity (e.g., adequacy of roads and other infrastructure), local labor force conditions (e.g., whether the local government struggles to compete for scarce labor), and the extent of cooperation with industry (e.g., do operators repair road damage caused by their activities?), all play a role in local government's ability to manage service demands associated with oil and gas production.

2.5.2 Major taxes not included in this report

This report does not describe indirect or induced revenues associated with oil and gas development. The oil and gas industry supports jobs, which generates substantial income tax revenue for state governments and, in some cases, local governments. Oil and gas companies and the workers they employ use their earnings to purchase goods and services, which generates further revenues for local and state governments in the form of sales, use, and gross receipts taxes. This economic activity in turn supports other jobs and purchases. Economists sometimes use "multipliers" to estimate the indirect and induced impacts of a given sector. These multipliers are then used in economic models that simulate a region's economy, allowing researchers to estimate the total economic contribution of the sector (e.g., National Petroleum Council 2011; IHS 2013).

We do not undertake such an analysis here, although others have conducted analyses utilizing these techniques along with more direct measurements of economic impacts (e.g., Booz Allen Hamilton 2008; Kelsey *et al.* 2012; Oyakawa *et al.* 2012; Univ. of AR Center for Business and Economic Research 2012; Bangsund & Hodur 2013; Lewandowski & Wobbekind 2013; Tunstall & Oyakawa 2013; Tunstall *et al.* 2013; Mason *et al.* 2014; Kelsey & Hardy 2015). A diverging view of regional economic effects of oil and gas development is offered by Christopherson (2015).

3. Local government oil and gas revenue in 16 states

State governments collect revenue from oil and gas production through taxes, fees, or lease revenues and allocate at least some of that revenue to local governments. In most states, local governments tax oil and gas production directly through property taxes.

In this section, we provide estimates for cumulative oil and gas production value in FY 2013 (e.g., Table 3.1). Next, we show revenue that was either collected by or allocated to local governments from oil and gas production (e.g., Figure 3.1). To allow for comparison between states, we divide the revenue allocated to each level of local government by the total value of production of all oil and gas within each state for FY 2013. Results are shown in the final row of the figure for each state (e.g., Figure 3.1). Detailed data and sources are provided in Appendix B.

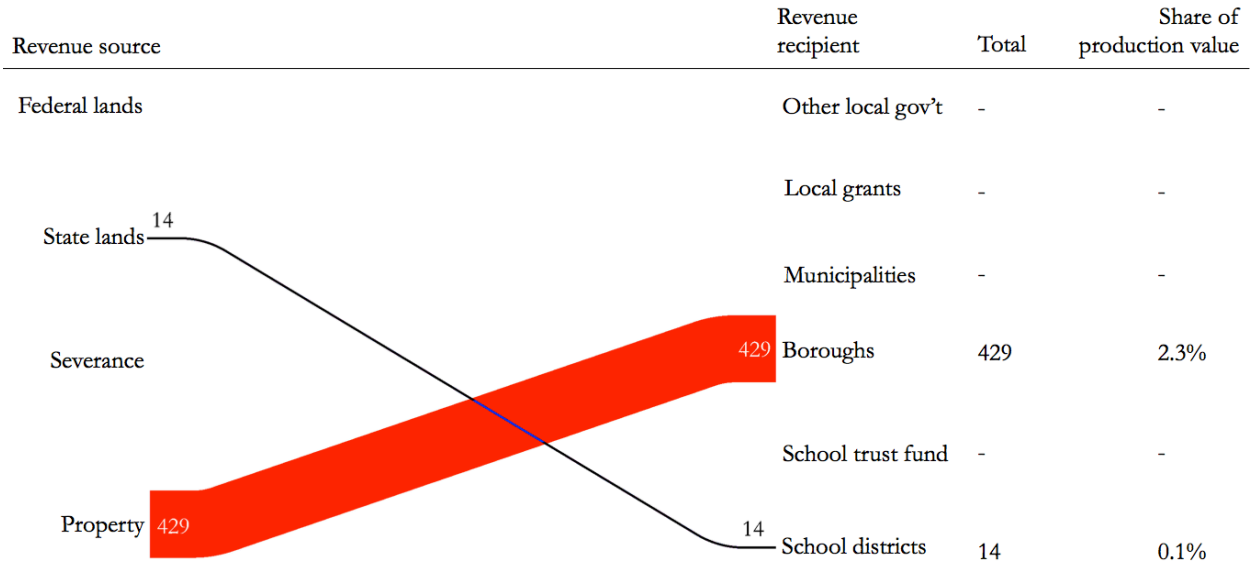
3.1 Alaska

Table 3.1 Alaska FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
186.1	$94.97	343.7	$3.44	$18.9

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on Henry Hub.

Figure 3.1 Alaska FY 2013 local government revenue from oil and gas production ($million)



Note: Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

Most local government revenue from oil and gas production in Alaska flows to boroughs in the form of property taxes. The vast majority of the $429 million in property tax revenue shown above flows to the North Slope Borough, home to the state's largest producing oilfields including Prudhoe Bay. A smaller share of revenue is collected by borough governments surrounding the Cook Inlet, which lies just south of Anchorage. Fourteen million dollars in revenue from state lands flowed in FY 2013 to various school districts.

Borough governments are unique in our survey, as they provide a wide range of services that, in other states, are provided by separate local government entities. For example, boroughs oversee school operations for students within their borders (however, some school districts operate independently of boroughs). Boroughs also provide services such as road construction and repair, utilities, waste disposal, and other services often provided in other states by municipalities.

3.1.1 State production taxes and fees

Alaska has updated its oil and gas production tax (A.S. § 43.55) often, with the most recent changes taking effect in 2014. That change increased the nominal production tax rate to 35 percent of the net revenue for oil and gas companies, but added a variety of exemptions and deductions. There are 14 major policies that can reduce tax liability for producers, and due to their complexity and space limitations, we do not detail them here. For details, see the statute or a summary provided by the Alaska Department of Natural Resources, Oil and Gas Division: http://dog.dnr.alaska.gov/programs/FinancialIncentives.htm. In FY 2013, the production tax raised $3,972,676,016.

The state collects a Conservation Surcharge (A.S. § 43.55 Article 2), which levies a $0.01 per barrel tax on oil produced within the state, along with an Additional Conservation Surcharge (A.S. § 43.55 Article 3), which levies $0.04 per barrel. These surcharges raised $7,797,770 in FY 2013.

Finally, Alaska levies a state property tax on oil and gas exploration, production, and transportation equipment. While many states levy property taxes on midstream oil and gas equipment such as pipelines and refineries, Alaska is the only state in our survey that levies such taxes on exploration and production equipment. This tax raised $99,282,078 in FY 2013 (Alaska Department of Revenue 2014).

3.1.1.1 Allocation of those revenues

In FY 2013, $3,902,881,465 of the state production tax revenue (98 percent) flowed to the state general fund, with $69,794,551 (two percent) flowing to the Constitutional Budget Reserve Fund.

The conservation surcharges are allocated entirely to the Oil and Gas Hazardous Substance Release Prevention and Response Fund.

The state property tax is allocated according to the same formula as the production tax, with 98 percent ($99,260,956) flowing to the state general fund, and 2 percent ($21,122) flowing to the Constitutional Budget Reserve Fund (Alaska Department of Revenue 2014).

3.1.2 Local production taxes and fees

Alaska local governments may apply their property taxes to oil and gas exploration, production, and transportation equipment. In FY 2013, this source raised $429,347,706 for local governments (Alaska Department of Revenue 2014).

3.1.2.1 Allocation of those revenues

Most property taxes on oil and gas equipment are collected by the North Slope Borough, where the vast majority of production occurs. In FY 2013, the North Slope Borough government collected roughly $332 million in property taxes, 98 percent of which came from oil and gas property (North Slope Borough 2014).

3.1.3 Revenue from state and federal lands

In FY 2013, the state reported combined state and federal lease revenues of $2,806,876,137 (they do not separate the two categories and we were not able to obtain the relevant data). However, most oil and gas production in Alaska occurs on state government land, and federal oil and gas leases provided just $19 million in FY 2013 (Office of Natural Resource Revenue 2015), roughly 0.7 percent of total leasing revenue (Alaska Department of Revenue 2014).

3.1.3.1 Allocation of those revenues

In FY 2013, roughly 63 percent of state and federal lease revenue ($1,770,222,502) flowed to the state general fund, 0.5 percent ($14,116,607) to the School Fund, which funds current school operations, and 6.4 percent ($180,692,568) to the Constitutional Budget Reserve Fund. The remaining 30 percent ($841,349,770) flowed to the Alaska Permanent Fund, an endowment that distributes an annual dividend (cash payment) to all Alaska residents (Alaska Department of Revenue 2014).

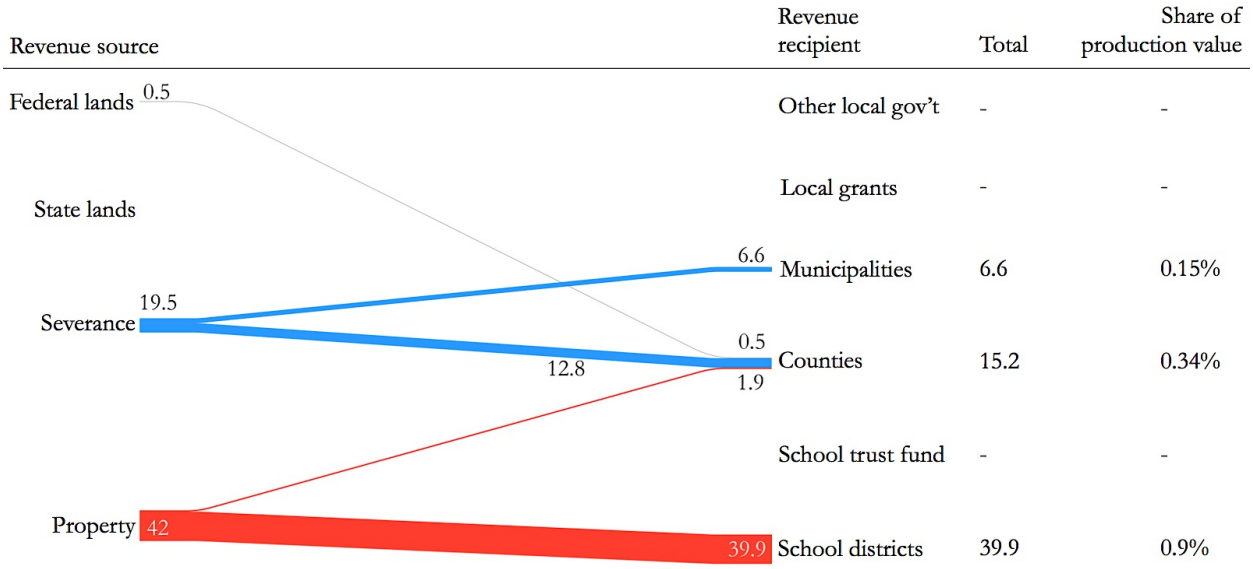
3.2 Arkansas

Table 3.2 Arkansas FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
6.6	$88.21	1,149	$3.36	$4.4

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on Perryville Hub via Bloomberg.

Figure 3.2 Arkansas FY 2013 local government revenue from oil and gas production ($million)



Note: Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding. *State lease data were not available from FY 2013. For reference, in FY 2012 roughly $800,000 flowed from state government leases to various state agencies, with no revenue flowing directly to local governments.

3.2.1 State production taxes and fees

Arkansas levies an Oil Excise Tax based on 5 percent of the market value of oil produced, declining to 4 percent for stripper wells (wells producing 10 barrels per day or less) (AR Code Annotated § 26-58-111). Revenue from this source was $25,548,303 in FY 2013.

The state also applies an Oil Assessment of 25 mills (0.025 percent) per barrel plus an additional $0.02 per barrel (AR Code Annotated § 26-58-301 through 26-58-303). This tax raised $14,677,749 in FY 2013.

For natural gas, the state applies a nominal severance tax rate of 5 percent to the market value of natural gas produced, with exemptions that affect shale wells, including a 1.5 percent rate for the first 24 months of production from "New Discovery" wells and a 1.5 percent rate for 36

months of production from "High Cost" wells. "Marginal" (low-producing) gas wells pay 1.25 percent (AR Code Annotated § 26-58-111). The severance tax raised $50,662,974 in FY 2013.

Revenue data from the AR Department of Financial Administration (2015)

3.2.1.1 Allocation of those revenues

The oil excise tax is allocated as follows: Three percent of the initial total to the general revenue fund account. Of the remainder, 75 percent is allocated to the state treasury fund account and the remaining 25 percent goes to the county aid fund (AR Code Annotated §26-58-124), which is shared evenly among Arkansas' 75 counties.

The oil and gas assessment tax is allocated to the Arkansas Museum of Natural Resources and for the payment of interest and principal on bonds issued by the Arkansas Oil and Gas Commission and the Arkansas Pollution Control and Ecology Commission.

The natural gas severance tax is allocated as follows: Five percent of the initial total is allocated to the state general fund. Three percent of the remaining balance is allocated to the Constitutional Officers Fund and the State Central Services Fund. Up to $2.5 million is then allocated to the Gasoline Tax Refund Fund, based on a determination made by the director of the Arkansas Division of Financial Administration. The remaining balance is allocated as follows: 15 percent to the County Aid Fund (shared equally between all counties), 15 percent to the Municipal Aid Fund (shared according to population), and 70 percent to the State Highway and Transportation Department Fund (AR Code Annotated § 26-58-124).

3.2.2 Local production taxes and fees

Local governments in Arkansas apply their property tax rate to the value of mineral estates, which includes oil and gas property. Only producing properties are included in this assessment (AR Code Annotated § 26-26-1110). In FY 2013, we estimate that a total of roughly $44 million in property taxes from oil and gas property were levied by local governments based on property values and millage rates obtained online from the AR Assessment Coordination Division via http://www.arkansas.gov/acd/state_values_rates/county/2013_County_Assessed_Values.pdf.

3.2.2.1 Allocation of those revenues

The government that levies the tax retains the revenue.

3.2.3 Revenue from state lands

State lease data were not available from FY 2013. For reference, in FY 2012 roughly $800,000 flowed from state government leases to various state agencies, with no revenue flowing directly to local governments.

3.2.3.1 Allocation of those revenues

The state deposits 100 percent of the revenue generated from these leases into the state treasury, and all of those revenues are then allocated to the state agency that owns the leased land.[5]

3.2.4 Revenue from federal lands

Production on federal lands in FY 2013 generated $2,250,439 for the state of Arkansas, assuming a 49 percent allocation of federal revenue in that year based on revenue data from ONRR.

3.2.4.1 Allocation of those revenues

These revenues are allocated according to the formula described above for the state Oil Excise Tax.[6]

[5] Information provided via email by the office of the Arkansas Commissioner of State Lands.

[6] Ibid.

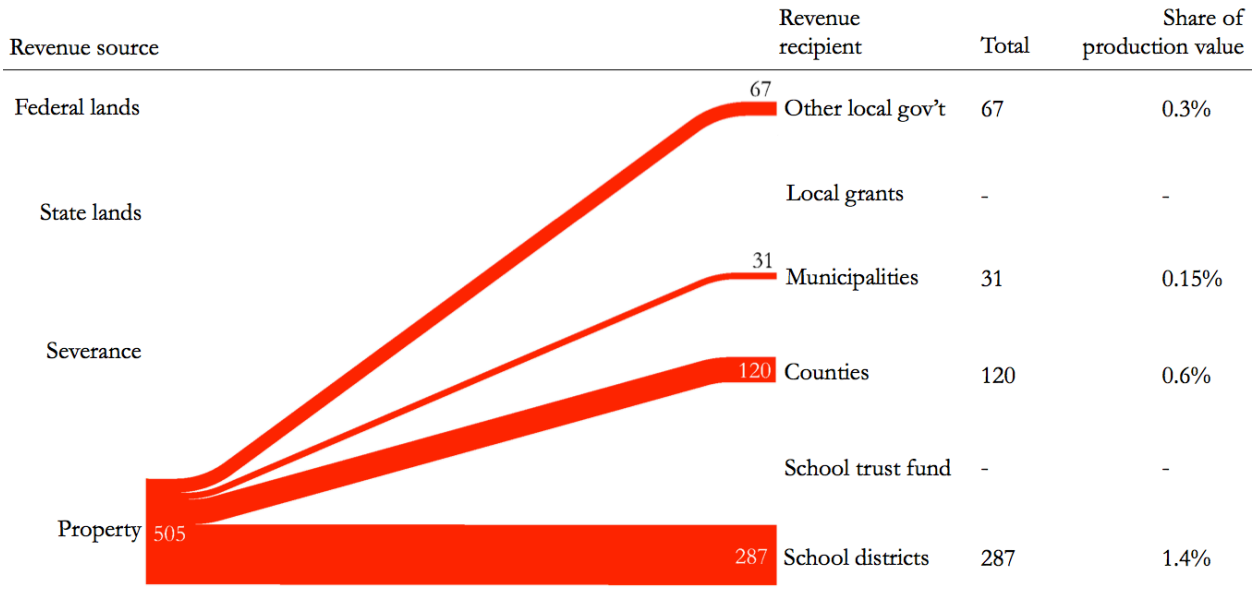
3.3 California

Table 3.3 California FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
197.3	$102.13	249.9	$3.52	$21.0

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on SoCal Border Hub via Bloomberg.

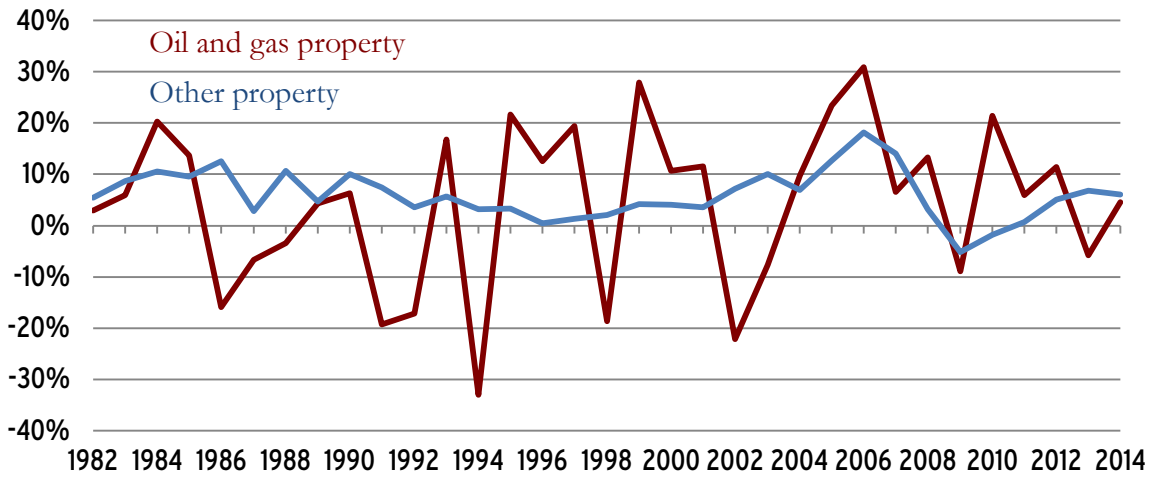
Figure 3.3 California FY 2013 local government revenue from oil and gas production ($million)



Note: Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

Although California is one of the nation's largest oil producers, the industry provides a relatively small portion of the tax base for most local governments. However, local governments in Kern County, where most of the state's oil production occurs, are heavily reliant on oil- and gas-related revenues. Because fluctuations in oil and gas prices can lead to substantial swings in oil and gas property valuations, these revenues can be far more volatile than other sources (Figure 3.4).

Figure 3.4 Annual change in Kern County property values



Data source: Kern County assessor's office. Provided via email.

Some municipalities within the state, particularly those in southern California such as Signal Hill and Long Beach, also assess a per-barrel tax on oil (but not natural gas) produced within their city limits. This revenue stream has been substantial for certain cities, though revenues have fallen steadily with production over the preceding decades. Because we were not able to collect data statewide on these types of assessments, we do not include them in our calculations. For reference, the cities of Long Beach and Signal Hill, neighbors of Los Angeles, respectively collect taxes of $0.48 and $1 per barrel of oil produced.

3.3.1 State production taxes and fees

California does not levy a severance tax on oil and gas production, but does apply an "Oil and Gas Production Assessment Fee" which is adjusted annually based on the price of oil and gas. For FY 2013 that fee was $0.1426683 per barrel of oil or 10,000 cubic feet of gas produced. By FY 2016, the assessment rate stood at roughly $0.32. (CA Department of Conservation 2015). In FY 2013, we estimate the assessment raised $63,812,535.

3.3.1.1 Allocation of those revenues

The Assessment Fee is used entirely to support the state's Division of Oil, Gas, and Geothermal Resources, housed within the Department of Conservation.

3.3.2 Local production taxes and fees

California local governments levy property taxes on oil and gas, administered by each county assessor's office. Assessment guidelines are provided in the CA Code of Regulations, Title 18, Division 1, Chapter 1, Subchapter 4, Article 4, Rule 468, and are available online through the state's Board of Equalization via http://www.boe.ca.gov/lawguides/property/current/ptlg/rule/468.html.

Precise data are not available on revenue raised from these properties. We estimate a total of roughly $505 million in property taxes levied on oil and gas property based on oil and gas property values provided via email and tax rates accessed online from the Board of Equalization.

3.3.2.1 Allocation of those revenues

The local government that levies the tax retains the revenue.

3.3.3 Revenue from state lands

Oil and gas leases on state land, including revenue collected from offshore operations near Long Beach, Santa Barbara, and other locations, generated $406,535,147 in FY 2013, as reported by the CA State Lands Open Government Platform: https://castatelands.opengov.com/transparency.

3.3.3.1 Allocation of those revenues

All revenue from oil and gas leases on state lands is deposited into the state's general fund.[7]

3.3.4 Revenue from federal lands

Based on oil and gas revenue data from California federal lands provided by ONRR, we estimate that the state received roughly $105 million in FY 2013.

3.3.4.1 Allocation of those revenues

All revenue from oil and gas leases on federal lands is deposited into the state's general fund.[8]

[7] Information provided via email from the office of the California State Lands Commission.

[8] Ibid.

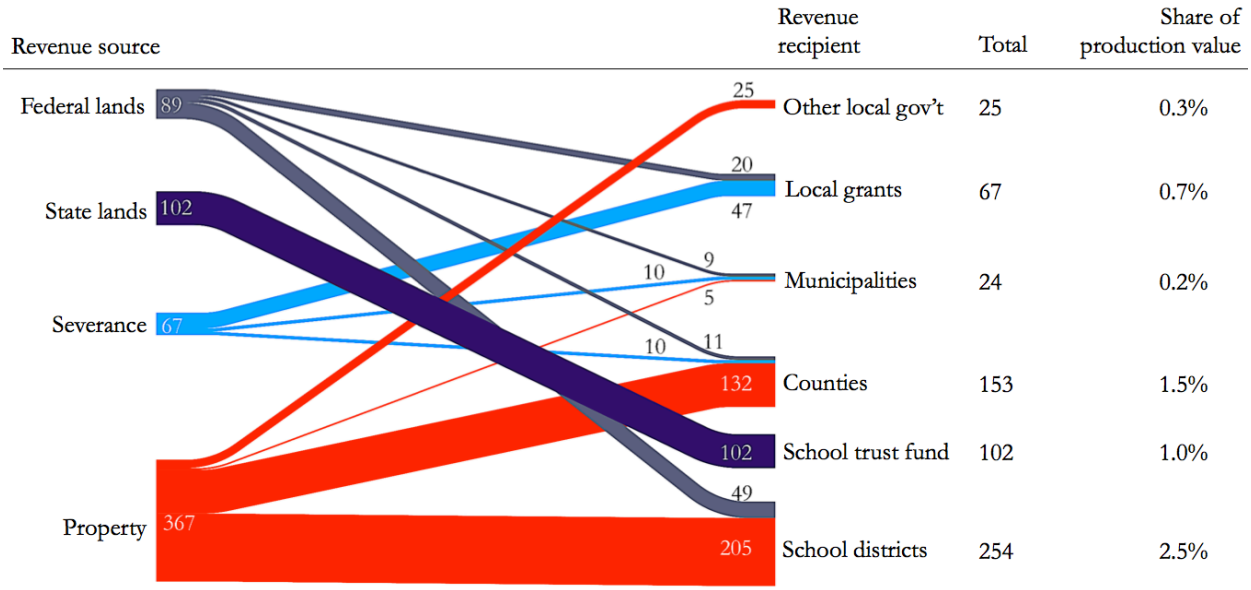
3.4 Colorado

Table 3.4 Colorado FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
51.4	$84.62	1,190	$3.31	$10.2

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on White River Hub via Bloomberg.

Figure 3.5 Colorado FY 2013 local government revenue from oil and gas production ($million)



Note: Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

The state government has in certain years withheld some or all of the revenues which are statutorily allocated to local governments. This occurred in multiple years during the 2000s, and press reports suggest that local government allocations may again be diverted in FY 2016 (Ashby 2015).

3.4.1 State production taxes and fees

Colorado levies two statewide taxes on oil and gas production. The first, called the "oil and gas severance tax," varies from two percent to five percent based on the total amount of revenue generated for the taxpayer by oil and gas production in that year. If a producer's annual revenue is less than $25,000, its tax rate is two percent. If its annual revenue is between $25,000 and $100,000, the rate is two percent plus $500. If its annual revenue is between $100,000 and $300,000, the rate is four percent plus $2,750. If its annual revenue is above $300,000, the rate is five percent plus

$10,750. Wells producing less than 15 bbl/day of oil or less than 90 mcf/day of gas are exempt from the severance tax (Colorado Revised Statutes §39-29-105).

Severance tax liability is reduced for most oil and gas producers based on the amount of ad-valorem property taxes a producer has paid to local governments. Specifically, producers can credit 87.5 percent of what they paid to local governments in property taxes on oil and gas production in the previous year against their current-year severance tax liability. For example, if a producer owes $1,000 to the state and has paid $1,000 in oil and gas property taxes to local governments in the previous year, it may credit $875 against its state liability and only pay taxes on $125 of its revenue from oil and gas production (Colorado Revised Statutes §39-29-105).

Colorado also levies an "oil and gas conservation tax," which applies 1.7 mills (0.17 percent) to the market value of oil and gas produced in the state (Colorado Revised Statutes §34-60-122).

These taxes together tax raised $136,083,569 in FY 2013 (Colorado Department of Revenue 2013).

3.4.1.1 Allocation of those revenues

The severance tax is allocated as follows: The first $1.5 million in annual revenues is deposited into the Innovative Energy Fund. Fifty percent of the remainder is allocated to the Severance Tax Trust Fund. The remaining 50 percent goes to the local government severance tax fund. The local government severance tax fund is allocated as follows: Seventy percent is allocated to the Department of Local Affairs to administer the Local Government Impact Grant program. The remaining 30 percent is allocated as follows: 55 percent direct distribution to counties and 45 percent direct distribution to municipalities (Colorado Revised Statutes §39-29-108).

The conservation tax is allocated to the state's Oil and Gas Conservation and Environmental Response Fund, which is responsible for monitoring oil and gas activities for compliance with applicable environmental laws. The balance of this fund is capped at $4 million (Colorado Revised Statutes §34-60-124).

3.4.2 Local production taxes and fees

Local governments in Colorado apply their property tax millage rate to 87.5 percent of the value of oil and gas produced from mineral estates. If secondary or tertiary recovery techniques were used in that production, the local governments apply their millage rate to 75 percent of the value of oil and gas produced (Colorado Revised Statutes §39-7-102). The average millage rates in Colorado in 2013 were 29.13 (2.913 percent) for school districts, 21.22 (2.122 percent) for counties, 13.13 (1.313 percent) for municipalities, and 2.68 (0.268 percent) for special districts.

3.4.2.1 Allocation of those revenues

The local government that levies the tax retains the revenues. As noted above, producers can claim 87.5 percent of the amount of local property taxes paid on oil and gas production in the previous year against their current year state severance tax liability.

3.4.3 Revenue from state lands

The Colorado State Land Board administers leasing and royalties on state-owned lands. In FY 2013, total revenues were $103,659,398 (Colorado State Land Board 2013).

3.4.3.1 Allocation of those revenues

All revenue from mineral production on state lands is allocated to a trust fund that finances public primary education capital projects (Colorado Revised Statutes §36-1-116).

3.4.4 Revenue from federal lands

Reported state government revenue were not available. Our estimates are as follows: In FY 2013, a total of $261,767,761 in government revenue was generated from mineral production on federal and tribal lands in Colorado. ONRR reports that a total of $129,661,230 was allocated to the state of Colorado that same year (tribes and tribal members also received allocations). Since 75.96 percent of total revenue from mineral production on Colorado federal lands came from oil and gas leases (the remainder came from other minerals), we estimate that federal oil and gas leases generated $98,489,347 for the state government in FY 2013.

3.4.4.1 Allocation of those revenues

Colorado's share of federal lease revenues is allocated as follows: 48.3 percent to the state Public School Fund (capped at $73.1 million per year), 10 percent to the Colorado Water Conservation Board (capped at $17 million per year), and 1.7 percent directly distributed to school districts (capped at $4 million per year). If there is any spillover from these funds (i.e., if 60 percent of total revenues were greater than the sum of the capped levels), that revenue is allocated to the Higher Education Mineral Lease Revolving Fund and the Higher Education Maintenance and Reserve Fund. In FY 2013, there was no spillover.

The remaining revenue (40 percent of the initial balance) is allocated as follows: Fifty percent is distributed directly to local governments based on the amount of production in their region, and 50 percent is allocated by the Colorado Department of Local Affairs through its Local Government Impact Grant program (Colorado Revised Statutes §34-63-102).

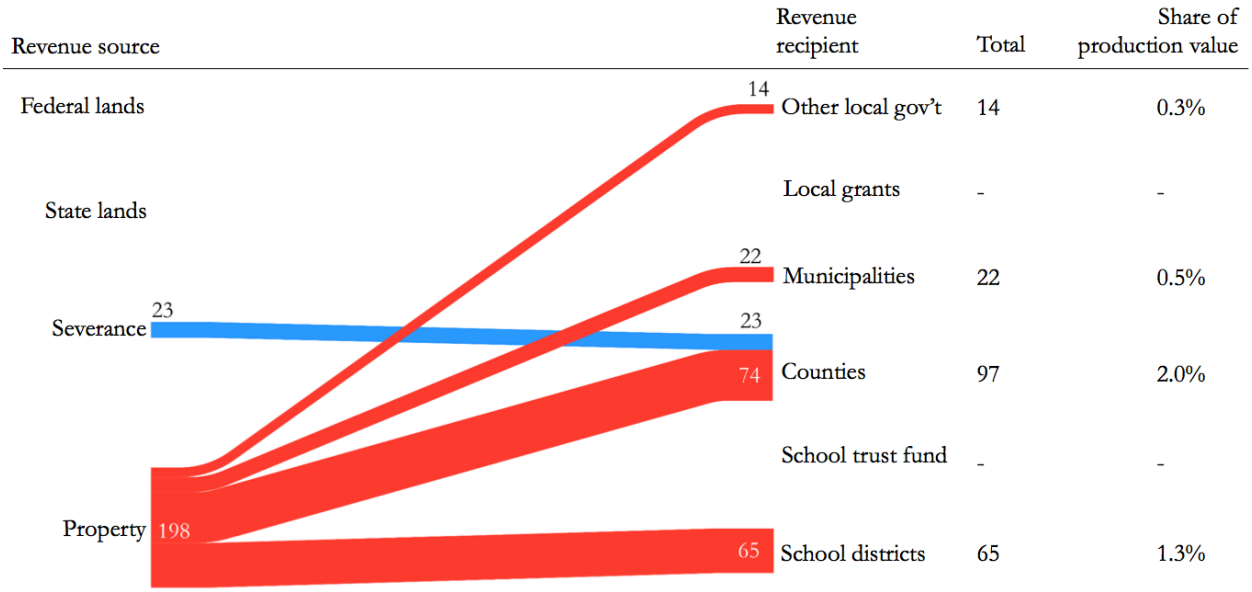
3.5 Kansas

Table 3.5 Kansas FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
45.3	$85.98	292.0	$3.52	$4.9

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on Chicago CityGate via Bloomberg.

Figure 3.6 Kansas FY 2013 local government revenue from oil and gas production ($million)



Note: Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

State severance taxes flow to counties through two funds: The Oil and Gas Valuation Depletion Trust Fund, and the County Mineral Production Tax Fund. The former is designed to provide revenue for county governments experiencing long-term declines in the value of their aging oil and gas reservoirs (a large portion of production in Kansas comes from stripper wells), while the latter is designed to assist in mitigating any negative fiscal impacts of current production.

Unlike most other states, counties receive a larger portion of oil and gas revenues than school districts due to higher property tax rates. Finally, Kansas generates revenue from oil and gas production on state and federal lands, but does not allocate that revenue to the local level.

3.5.1 State production taxes and fees

According to Kansas Statutes Annotated Section 79-42, the gross wellhead value of oil and gas produced is taxed at a rate of eight percent. However, there are a range of deductions and credits, as described below:

New production: There had been a 24-month exemption for all new production from 1983 through 2012, but that was eliminated by 2012 KS House Bill 2117, which limited the exemption to new oil pools producing less than 50 bbl/day. The exemption was eliminated for all new gas pools.

Ad-valorem tax credit: Oil severance taxpayers receive a 3.67 percent credit based on local ad-valorem taxes paid, and gas severance taxpayers receive a credit ranging from two to 3.67 percent depending on when production began.

Production enhancement: If the oil price is below $20/bbl or gas is below $2.50/mcf, incremental production from well enhancement (including workovers, refracs, enhanced oil recovery (EOR), etc.) is exempt for seven years.

Inactive wells: Producers receive a 10-year exemption for new production from any well inactive for three years or longer.

Gas exemptions: The following types of natural gas is exempt from the severance tax: Any reinjected gas used for EOR; any gas used on site; vented/flared/lost gas; if the well produces less than $87/day worth of oil and gas.

Oil exemptions: Wells producing the following volumes are exempt from the severance tax: Less than five barrels/day; less than six bbl/day if the oil price is below $16/bbl; less than eight bbl/day if the price is below $15/bbl; less than nine bbl/day if the price is below $14/bbl; less than 10 bbl/day if the price is below $13/bbl; incremental oil produced through tertiary production.

The state also levies an Oil and Gas Conservation Fee (KSA 55-143) of 91 mills (9.1 percent) per barrel of oil and 12.9 mills (1.29 percent) per mcf of gas.

In FY 2013, the severance tax raised $122,895,500 (Kansas Department of Revenue 2013b). We estimate that the Oil and Gas Conservation fee raised $7,886,225.

3.5.1.1 Allocation of those revenues

In FY 2013, 81 percent of the severance tax flowed to the state general fund. Twelve percent flowed to the oil and gas valuation depletion trust fund, which supports county governments experiencing declining oil and gas-related property tax revenue. The remaining 7 percent flows to the county mineral production tax fund based on production levels (Kansas Department of Revenue 2013b).

The state conservation fee allocates 20 percent of its revenue to the general fund, and the remaining 80 percent to the conservation fee fund, which flows to the Kansas Corporate Commission, which uses the revenue to support the well plugging assistance fund.

3.5.2 Local production taxes and fees

Local governments in Kansas apply their property tax rates to 25 or 30 percent of the value of production. The assessed value of production varies by crude gravity, and is adjusted each year based on a "market adjustment factor" that reflects anticipated price changes over the course of the year. However, the price estimate is made on January 1 of each year, and the unpredictable nature of commodity prices means that these values can vary widely from year to year. These values also vary for eastern and western Kansas. Very low producers are exempt from the property tax (Kansas Department of Revenue 2013a).

In FY 2013, the average total property tax rate in Kansas was 133.086 mills, ranging from a high of 223.045 in Smith County to a low of 86.565 mills in Coffey County. Based on relevant property values of oil and gas property (including surface equipment associated with production), and local government tax rates for school districts, counties, townships, and cities, we estimate that $175,469,348 in property taxes were levied on oil and gas property in FY 2013. All data were gathered from the Kansas Department of Revenue (Kansas Department of Revenue 2013c).

3.5.2.1 Allocation of those revenues

The local government that levies the tax retains the revenue.

3.5.3 Revenue from state lands

The state of Kansas received $555,365 from oil and gas leases on state lands in FY 2013.[9]

3.5.3.1 Allocation of those revenues

All revenues flow to the state general fund.[10]

3.5.4 Revenue from federal lands

ONRR reports that oil and gas leases generated $5,715,468 in FY 2013 in Kansas. We estimate that the state government received 49 percent of this total, or $2,800,579.

3.5.4.1 Allocation of those revenues

All federal lease revenues flow to the state general fund.[11]

[9] Data provided via email by the Kansas Department of Revenue on October 15, 2015.

[10] Ibid.

[11] Ibid.

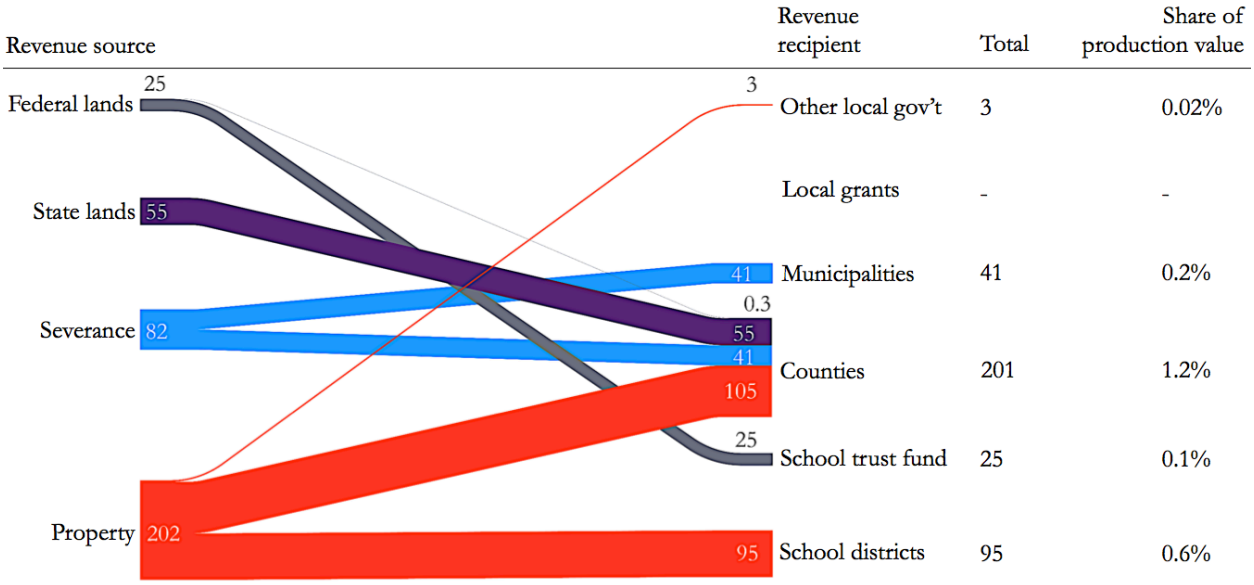
3.6 Louisiana

Table 3.6 Louisiana FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
71.6	$104.67	2,757	$3.48	$17.1

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on reported price via LA Department of Natural Resources (Louisiana Department of Natural Resources 2013).

Figure 3.7 Louisiana FY 2013 local government revenue from oil and gas production ($million)



Note: Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

3.6.1 State production taxes and fees

Louisiana levies several taxes on oil and gas production and provides a variety of incentives and deductions for certain production techniques. The state levies a severance tax of 12.5 percent on oil production, assessed on the posted field price minus transportation costs. This rate is reduced to 6.25 percent if the well produces less than 25 bbl/day, and 3.125 percent if the well produces less than 10 bbl/day. The severance tax for natural gas is based on volume and is adjusted annually. In FY 2013, the rate was $0.164/mcf. This rate is reduced to $0.013/mcf if the well produces less than 250 mcf/day. For associated gas produced from an oil well, the severance tax rate is $0.03/mcf.

The state's severance tax has a variety of incentives. Some major incentives are a zero percent severance tax rate for the first 24 months of production or until project costs are paid back from horizontal or deep (>15,000 feet) wells; a zero percent rate for the first five years of

production or until project costs are paid back from a previously inactive well; a zero percent rate for wells producing oil through tertiary recovery techniques, which remains in effect until all project costs associated with tertiary production have been paid off; and a 3.125 percent rate for oil production produced from a stripper well field (<10 bbl/day) using gravity drainage and horizontal drilling (Louisiana Revised Statutes §47:633).

The state also levies an "oilfield restoration fee" of $0.015/bbl produced and $0.003/mcf of natural gas produced.

In FY 2013, the severance tax raised $820,710,725 and the restoration fee raised $4,851,776 (Louisiana Department of Revenue 2013).

3.6.1.1 Allocation of those revenues

Five percent of severance tax collections are allocated to parishes where production occurred, with an annual cap of roughly $1 million per parish. An additional five percent of severance tax collections are allocated to municipalities in the regions where production occurred. The remainder of severance tax revenue is allocated to the state general fund[12] (Louisiana Revised Statutes §47:645).

The oilfield restoration fee is allocated to the Oilfield Site Restoration Program, which plugs abandoned wells and works to restore sites to pre-well conditions.[13]

3.6.2 Local production taxes and fees

Louisiana local governments cannot apply ad-valorem property taxes on oil and gas production or mineral values. However, they do levy property taxes on surface equipment associated with oil and gas production. Because this property is closely tied to production (unlike refineries or processing plants that may be located many miles from producing regions), we include it in this analysis.

In FY 2013, the average mill rate for parishes was 50.46, 38.33 for school districts, and 13.73 for municipalities. Coupled with assessed property values from oil and gas property, we estimate that local governments levied a total of $202,037,952 in property taxes on oil and gas property.

[12] The Louisiana State Constitution describes a different allocation formula in Article VII Part I Section 4. However, our analysis of parish and municipal government budgets indicate that this allocation formula has been superseded by subsequent legislation or rulemaking. Additionally, we conducted email interviews with the Louisiana Department of Treasury, which provided the allocation formula we show here.

[13] Louisiana Department of Natural Resources. For more details, see http://dnr.louisiana.gov/index.cfm?md=pagebuilder&tmp=home&pid=155#Background.

3.6.2.1 Allocation of those revenues

The government that levies the tax retains the revenue.

3.6.3 Revenue from state lands

In FY 2013, Louisiana generated $615,023,076 in revenue from bonuses, rents, and royalties on state-owned land (Louisiana Department of Natural Resources 2013).

3.6.3.1 Allocation of those revenues

All bonus, override royalty, and rental revenues totaled roughly $42 million and were deposited into the general fund. For royalties, 90 percent is deposited to the general fund (~ $494 million in FY 2013) and 10 percent to local governments based on the level of production (~ $55 million in FY 2013) (Louisiana Revised Statutes §47:645).

3.6.4 Revenue from federal lands

Oil and gas disbursements to Louisiana in FY 2013 for leasing, rents, royalties, and other revenues were $27,236,380.[14] Roughly $2.6 million of this revenue came from onshore leases and $24.6 million from offshore leases.

3.6.4.1 Allocation of those revenues

Federal onshore revenues are allocated according to the same formula as revenue from state lands. Federal offshore revenues are allocated to the Louisiana Education Quality Trust Fund and the Louisiana Quality Education Support Fund. Roughly half of annual expenditures of interest earned are spent on higher education, and the other half goes to local schools (Louisiana Revised Statutes §17:3801).

[14] Reported by the federal Office of Natural Resource Revenues.

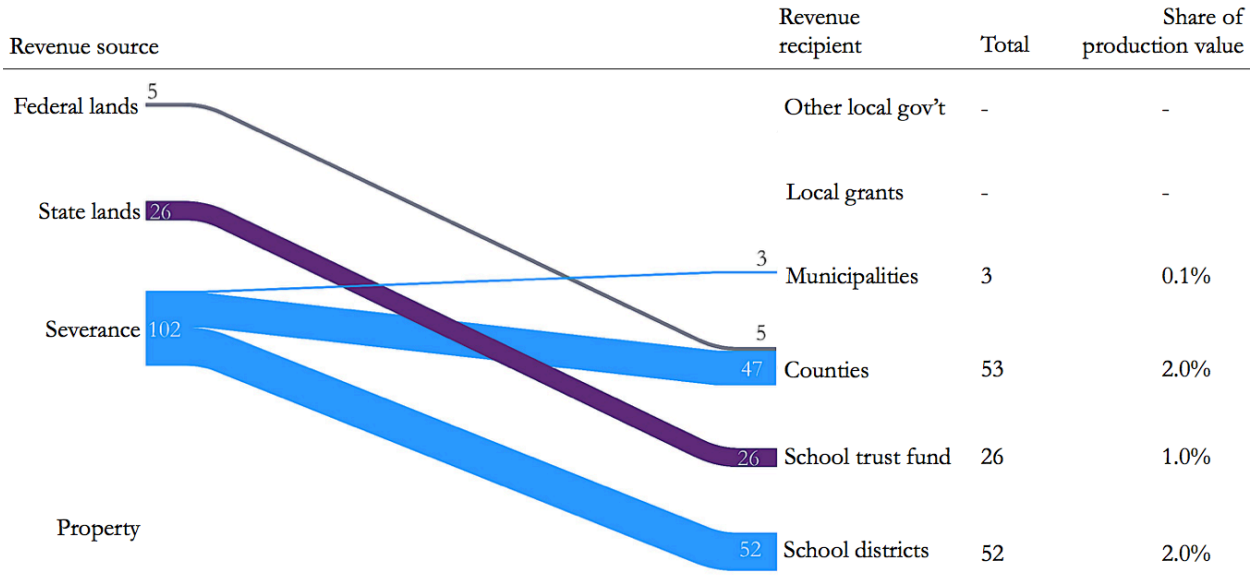
3.7 Montana

Table 3.7 Montana FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
28.5	$84.47	63.5	$3.31	$2.6

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on White River Hub via Bloomberg.

Figure 3.8 Montana FY 2013 local government revenue from oil and gas production ($million)



Note: Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

As we described in a previous report, municipalities in eastern Montana have struggled to manage costs associated with population growth driven by Bakken shale development (Newell & Raimi 2015b). In response, the state government has allocated one-time funds to manage impacts (Montana Governor's Office 2014), but there has been no change in the longer-term allocation formula as of this writing.

3.7.1 State production taxes and fees

Montana's oil and gas production taxes are levied at different rates for the working interest (typically an oil or gas company) and the non-working interest (typically a private landowner). The working interest pays nine percent of the value of oil or gas produced from wells drilled since 1999. For wells drilled before 1999, the working interest pays 12.5 percent of the oil value and 14.8 percent of the natural gas value. The non-working interest pays 14.8 percent of the oil and natural gas value regardless of when the well was drilled.

The working interest rate is subject to a variety of incentives. The following apply to the working interest rate only: 0.5 percent rate for the first 18 months of oil production from a new horizontal well; 0.5 percent for the first 12 months of oil production from a new vertical well; 0.5 percent for the first 12 months of gas production from a vertical or horizontal well; 8.5 percent for any incremental oil production using secondary recovery techniques if the price of West Texas Intermediate (WTI) crude oil is below $30; and 5.8 percent for any incremental oil production using tertiary recovery techniques if the price of WTI is below $30.

The working interest (but not the non-working interest) also pays reduced rates for low-producing wells. For oil wells that produce between three and 15 bbls/day, the rate is 5.5 percent if the WTI oil price is below $38. If production is less than three bbls/day and the WTI price is below $38, the rate is reduced to 0.5 percent. For natural gas production on wells drilled before 1999, wells that produce less than 60 mcf/day pay an 11 percent rate (Montana Code Annotated §15-36-304).

Montana also levies a "Privilege and License Tax" of 0.27 percent of the value of oil and gas (Montana Code Annotated §90-6-1001, §15-36-304(7)b).

In FY 2013, these two taxes combined to raise $213,229,045 (Montana Department of Revenue 2014).

3.7.1.1 Allocation of those revenues

Montana counties and school districts receive revenue from oil and gas production taxes based on the amount of revenue generated within the county multiplied by a percentage rate that varies based on local property tax rates. This revenue is shared roughly equally between county governments and school districts. For example, Richland County receives 47.47 percent of oil and gas production tax revenue generated within the county, while neighboring Roosevelt County receives 45.71 percent. Additional revenue is deposited into a local government Guarantee Fund (roughly 6 percent of the total), County Impact Fund (~0.32 percent), and State School Impact Fund (~0.06 percent).

After these allocations, 2.16 percent goes to the Natural Resources Projects state special revenue account, 2.02 percent goes to the Natural Resources Operations state special revenue account, 2.95 percent goes to the Orphan share account (which is designed to remediate environmental problems with orphaned oil and gas wells), 2.65 percent goes to the Montana University system, and the remainder goes to the state general fund (Montana Code Annotated §15-36-332).

The state's Privilege and License Tax is distributed to counties based on oil and gas production, and those counties allocate two-thirds to municipalities and retain the remaining one-third (Montana Code Annotated §15-36-304(7)b, §15-36-332(7)).

3.7.2 Local production taxes and fees

Montana local governments cannot apply ad-valorem property taxes on oil and gas production or property.

3.7.3 Revenue from state lands

In FY 2013, Montana generated $27,450,713 in revenue from bonuses, rents, and royalties on state-owned land (Montana Department of Natural Resources and Conservation 2013).

3.7.3.1 Allocation of those revenues

Most oil and gas revenue from state lands (~97 percent) goes to the Common Schools Trust Fund, a state endowment for the funding of primary education. Additional revenue goes to the University of Montana system, the state schools for the deaf and blind, the state reform school, a state public buildings account, veterans' home, and public land trust account (Montana Department of Revenue 2014).

3.7.4 Revenue from federal lands

We estimate that oil and gas disbursements to Montana in FY 2013 for leasing, rents, royalties, and other revenue was $21,193,383. ONRR reports that in FY 2013, oil and gas leases generated $43,251,801.22 on federal lands. We assume Montana received the standard 49 percent share of these revenues, as state records do not provide precise data. ONRR reports that roughly $36 million was allocated to Montana in FY 2013 from federal lands, but a large portion of these revenues are from coal leases.

3.7.4.1 Allocation of those revenues

Twenty-five percent of oil and gas revenue from federal lands is allocated to the counties where the mineral production took place via the state's Mineral Impact Account. The remainder is deposited into the General Fund (Montana Code Annotated §17-3-240 and §17-3-241).

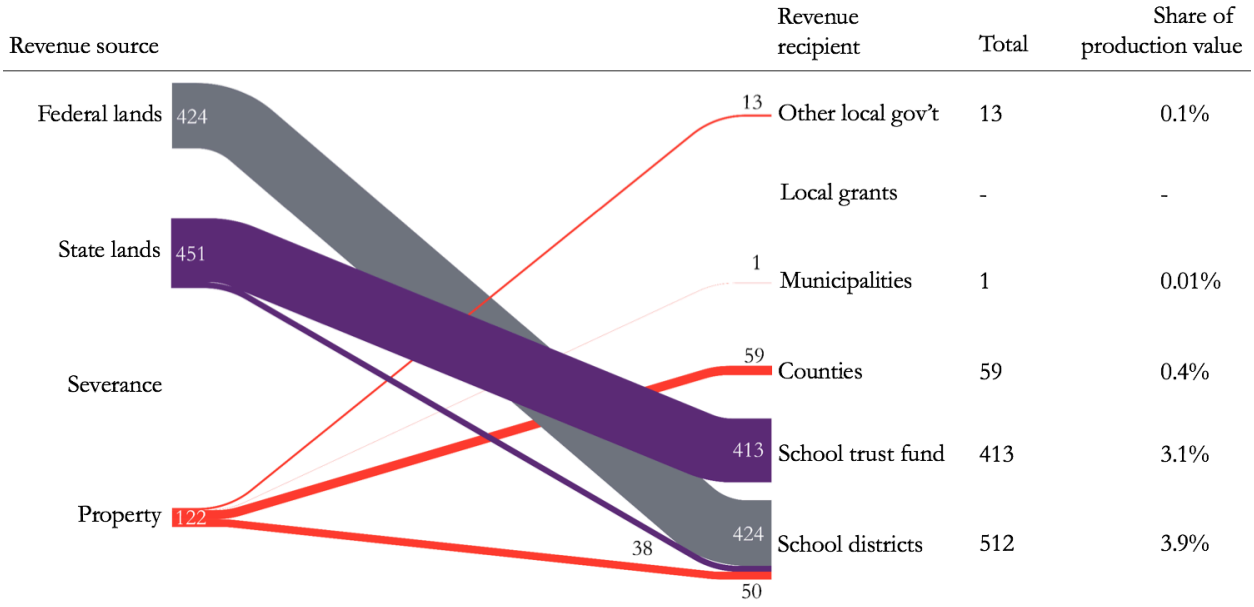
3.8 New Mexico

Table 3.8 New Mexico FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
93.1	$85.55	1,199.0	$3.52	$13.2

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on Blanco, NM Hub via Bloomberg.

Figure 3.9 New Mexico FY 2013 local government revenue from oil and gas production ($million)



Note: Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

3.8.1 State production taxes and fees

New Mexico levies three taxes on the value of oil and gas produced within the state. A severance tax of 3.75 percent applies to the taxable value of oil and gas produced, which excludes the value of transportation to market and royalties paid to state, federal, or tribal governments (7-29-4.1 New Mexico Statutes Annotated 1978).

Second is a conservation tax of 0.24 percent of the taxable value of oil, assuming the price of WTI is above $70/bbl. The rate drops to 0.19 percent if WTI falls lower (7-30-4.1 NMSA 1978).

The third tax is known as an "emergency schools tax," which levies 3.15 percent on oil and natural gas liquids and 4 percent on natural gas (NMSA 7-31-4.1 NMSA 1978).

In FY 2013, the severance tax raised $400,958,902, the conservation tax raised $20,774,799, and the emergency schools tax raised $379,899,020 (New Mexico Department of Finance and Administration 2013).

3.8.1.1 Allocation of those revenues

The severance tax is used to finance bonds for capital improvements such as highways and bridges. In certain years, a portion of severance tax revenues flows to a severance tax permanent fund, though none did in FY 2013 (roughly $125 million did in FY 2014).

The conservation tax is allocated to the general fund, where it is used to finance oil and gas conservation programs and other relevant programs.

The emergency schools tax flows to the state general fund.

3.8.2 Local production taxes and fees

Local governments may levy property taxes on the assessed value (generally 50 percent) of the taxable value of oil and gas produced within their borders (7-32-1 NMSA 1978). They may also levy property taxes on the assessed value (generally 9 percent) of equipment used at the production unit. In FY 2013, local governments levied $120,967,315 on the value of oil and gas produced and $26,904,573 on equipment (New Mexico Department of Taxation and Revenue 2014).

3.8.2.1 Allocation of those revenues

In FY 2013, 39.6 percent of these revenues flowed to counties, 33.5 percent to school districts, 11.7 percent to higher education, 9 percent to hospitals, 5.8 percent to state debt service, and 0.4 percent to municipalities (New mexico Department of Finance and Administration 2014).

3.8.3 Revenue from state lands

New Mexico generated roughly $543 million in royalties, rentals, bonuses, and interest from oil and gas leases on state land in FY 2013 (New Mexico State Land Office 2014a).

3.8.3.1 Allocation of those revenues

All royalties ($494 million) are allocated to the Land Grant Trust Fund. Of the revenue generated by the Trust Fund, 83.1 percent supports school districts, with the remainder supporting higher education and other purposes.

The Common Schools Fund receives 77.4 percent of rentals, bonuses, and interest payments to support current education expenditures for school districts. The remainder is divided between a range of state universities, hospitals, and other state lands where oil and gas leases are located (New Mexico State Land Office 2014b).

3.8.4 Revenue from federal lands

ONRR reports that $1,005,892,769 was generated from oil and gas leases on New Mexico federal lands in FY 2013, and the state government reports revenues from federal mineral leases of $459,631,161 (New Mexico Department of Finance and Administration 2013).

3.8.4.1 Allocation of those revenues

Roughly $424 million was allocated to the public school fund, which supports current expenditures on education, and the remaining $35 million flowed to the New Mexico Bureau of Mines and Mineral Resources at the NM Institute of Mining and Technology (New Mexico Department of Finance and Administration 2013).

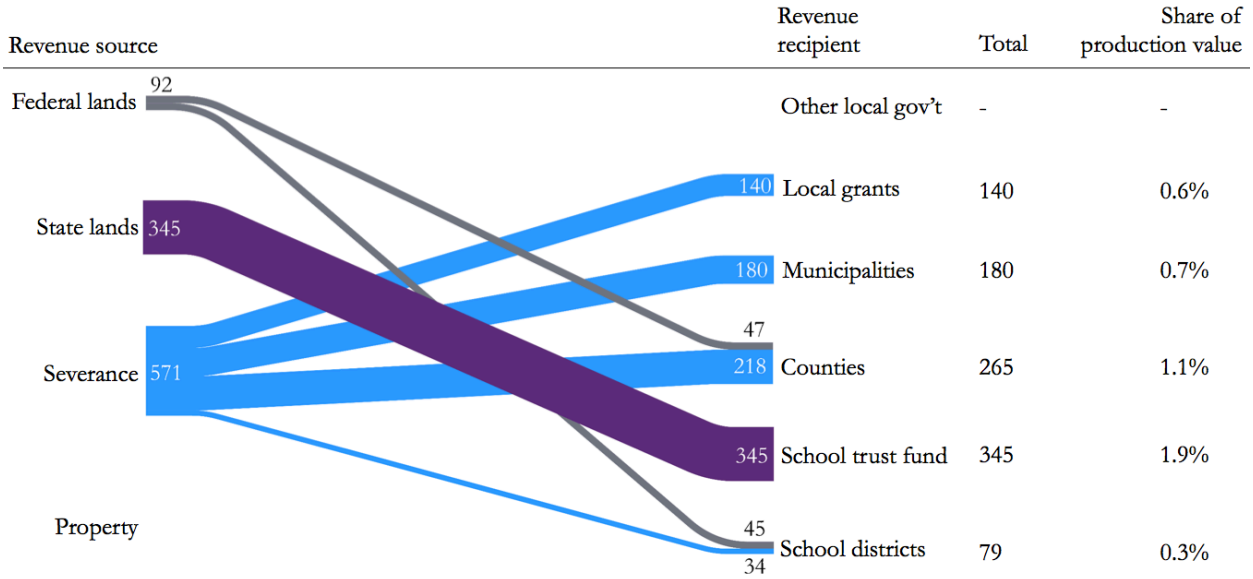
3.9 North Dakota

Table 3.9 North Dakota FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
276.7	$86.28	204.3	$3.31	$24.6

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on White River Hub via Bloomberg.

Figure 3.10 North Dakota FY 2013 local government revenue from oil and gas production ($million)



Note: Allocations to local governments shown here differ from actual FY 2013 values because we apply the most recent (2015) allocation formulas to revenue collected in FY 2013. Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

As we described in a previous report, local governments in North Dakota have at times struggled to manage increased demand for services associated with Bakken-driven population growth (Newell & Raimi 2015b). However, formula changes have resulted in most local governments, particularly counties and municipalities, seeing a notable increase in the absolute and relative amounts of revenue from oil and gas development (Table 3.10).

Table 3.10 FY 2012 and FY 2013 local government revenue allocations in ND

Fiscal Year	Grant program	Municipalities	Counties	Schools trust fund	School districts
2012 Amount ($M)	120	79	144	411	49
Share of production value	0.7%	0.5%	0.8%	2.4%	0.3%
2013 amount ($M)	140	180	265	345	79
Share of production value	0.6%	0.7%	1.1%	1.9%	0.3%

Sources: Raimi and Newell (2014a), this report. FY 2013 allocations to local governments shown here differ from actual FY 2013 values because we apply the most recent (2015) allocation formulas to revenue collected in FY 2013.

As the table shows, allocations to the local government grant program increased from $120 million to $140 million per year (though, as a share of production value, allocations decreased due to the rapid growth in production). Allocations to municipalities more than doubled in absolute terms, and grew from 0.5 percent to 0.7 percent of production value. Similarly, county governments saw an increase of roughly $120 million, growing from 0.8 percent to 1.1 percent of production value. Revenues to the state's school trust fund fell slightly, but remained substantial at 1.9 percent of production value, and direct revenues to school districts grew by $30 million, remaining at 0.3 percent of production value.

These formula changes reflect a recognition among state and local officials that existing revenue policies were not sufficient to manage the rapid growth occurring in western North Dakota. They also reflect the rapid rate at which Bakken development expanded, leading officials to adjust policies to account for rapidly changing local dynamics.

3.9.1 State production taxes and fees

North Dakota levies two major oil and gas production taxes, the Oil and Gas Gross Production Tax and the Oil Extraction Tax.

The Oil and Gas Gross Production Tax (North Dakota Century Code §57-51-02) is 5 percent of the gross value of oil production at the wellhead, plus $0.1143/mcf in FY 2013 (adjusted annually based on the price of gas) of the taxable production of natural gas. The tax in FY 2015 was $0.0982/mcf. This does not include flared or vented gas. There are generally no exemptions or deductions for this tax. Some exemptions exist for capturing and selling natural gas that would otherwise have been vented or flared (NDCC §57-51-02.5 and §57-51-02.6).

The Oil Extraction Tax (NDCC §57-51.1) was revised in 2015 from 6.5 percent to 5 percent of the gross value of oil production at the wellhead. In 2015, the legislature also eliminated the so-called "trigger," which would have put in place a variety of exemptions and deductions for oil produced when WTI fell below a certain price (ND 2015 House Bill 1476). Natural gas is not taxed under this provision. Stripper wells (producing less than 35 bbls/day) are exempt, as is incremental production using secondary or tertiary recovery techniques.

In FY 2013, the Gross Production Tax raised roughly $1,130,400,000 and the Oil Extraction Tax raised roughly $1,277,400,00 (North Dakota State Tax Commissioner 2014).

3.9.1.1 Allocation of those revenues

North Dakota's two main production taxes are allocated according to different formulas, both of which are complex. For readers interested in the details of the allocation, please see the North Dakota Legislative Council's description of projected allocations for the 2015-2017 biennium:

http://www.legis.nd.gov/files/resource/oil-and-gas-tax-revenue-publications/15.9440.01000.pdf?20150828095118, upon which our allocation estimates are based. Alternatively, see ND Century Code §57-51 for the Oil and Gas Gross Production Tax and §57-51.1 for the Oil Extraction Tax. A simplified explanation of revenue allocation from the Oil and Gas Gross Production Tax follows:

> The state legacy fund receives 27.5 percent; 33.6 percent goes to political subdivisions including counties, cities, and school districts; up to $140 million per year to the state impact fund (which provides grants to local governments impacted by oil and gas development); 8.4 percent to tribes; 1.5 percent to the Outdoor Heritage Fund; 0.5 percent to the Abandoned Well Plugging/Site Reclamation Fund; and 0.3 percent to the oil and gas research fund. The remainder goes into a separate "state share" allocation formula that provides revenue for the state general fund, state capital projects, disaster preparedness, and statewide property tax reductions.

A simplified explanation of revenue allocation from the Oil Extraction Tax follows:

> The state legacy fund receives 27.9 percent; 17.3 percent goes to the Resources Trust Fund; 8.6 percent to the Common Schools Trust Fund; 8.6 percent to the Foundation Aid Stabilization Fund; 1.7 percent to the Infrastructure Revolving Loan Fund; up to $5 million per year to the Oil and Gas Research Fund; up to $1.5 million per year to the Renewable Energy Development Fund; and up to $600,000 per year to the Energy Conservation Grant Fund. The remainder goes into a separate "state share" allocation formula that provides revenue for the state general fund, state capital projects, disaster preparedness, and statewide property tax reductions.

3.9.2 Local production taxes and fees

North Dakota local governments cannot apply ad-valorem property taxes on oil and gas production or property.

3.9.3 Revenue from state lands

In FY 2013, North Dakota generated $344,934,639 in revenue from oil and gas bonuses, rents, and royalties on state-owned land.[15]

[15] North Dakota State Lands Department. 2013 Audited Financial Report. Available at http://www.land.nd.gov/Docs/FinancialServices/AnnualStatements/June%2030%202013.pdf

3.9.3.1 Allocation of those revenues

All revenue from state land leases goes to the Common Schools Trust Fund, a permanent trust fund that endows primary education.

3.9.4 Revenue from federal lands

ONRR reports that oil and gas disbursements to the state of North Dakota in FY 2013 for leasing, rents, royalties, and other revenues were $90,290,490. This is well below the 49 percent share of revenue that many states receive primarily because a large portion of production occurs on tribal land. McKenzie County, ND, receives direct distributions from oil and gas revenues from production on federal land. In FY 2013, it received $2,028,638 from oil and gas rents and royalties.[16]

3.9.4.1 Allocation of those revenues

Counties receive 50 percent of federally-disbursed oil and gas revenue based on production levels per county. The other 50 percent goes to the Common Schools Trust Fund NDCC §15.1-27-25.

[16] As reported on p. 2 of the FY 2015 McKenzie County Budget.

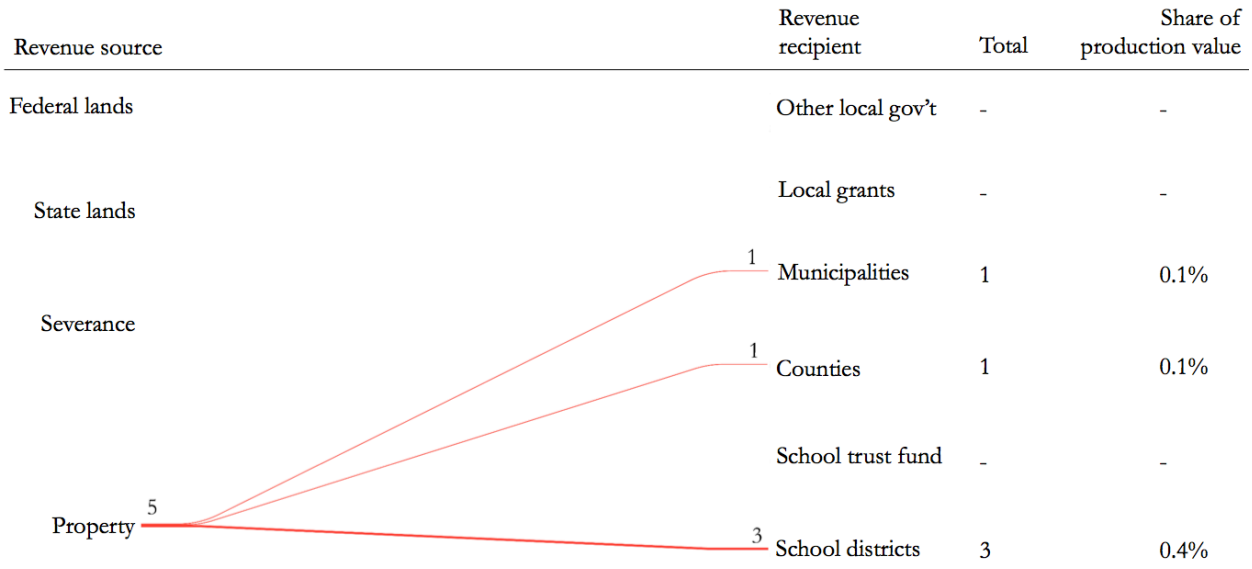
3.10 Ohio

Table 3.11 Ohio FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
6.0	$90.71	108.5	$3.39	$0.9

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on Dominion South Hub via Bloomberg.

Figure 3.11 Ohio FY 2013 local government revenue from oil and gas production ($million)



Note: Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

3.10.1 State production taxes and fees

In FY 2013, Ohio levied a modest severance tax on oil and natural gas production of $0.10/bbl and $0.025/mcf (OH Revised Code § 5749). Recent proposed legislation would increase this tax, but none has been signed into law at the time of this writing. The state also levies an Oil and Gas Cost Recovery Assessment of $0.10/bbl of oil and $0.005/mcf of natural gas, with a minimum quarterly payment of $15 (OH Revised Code § 1509.50).

In FY 2013, the severance tax raised roughly $2,800,000 and the recovery assessment raised roughly $1,800,000 (Ohio Department of Taxation 2013).

3.10.1.1 Allocation of those revenues

The severance tax and cost recovery assessment are allocated according to the same formula: 90 percent is allocated to the oil and gas well fund, which is used to remediate legacy producing sites,

plug abandoned wells, and mitigate potential health and safety risks. The remaining 10 percent is allocated to the geological mapping fund (OH Revised Code § 5749.02 (B) 4 and § 1509.071).

3.10.2 Local production taxes and fees

Ohio local governments apply their property tax rates to the assessed value of oil and gas minerals within their jurisdiction. This does not include personal property used to produce the minerals (Ohio Revised Code § 5707.01(A)).

The Ohio Department of Taxation does not separate the value of oil and gas minerals from other minerals in its statistical reports.[17] However, the Ohio Geological Survey does estimate the value of minerals produced each year. They report that in 2013, oil and gas minerals accounted for 39 percent of the production value (Ohio Geological Survey 2014). We multiply this percentage by the total assessed values of mineral properties in FY 2013, which was $219,546,614.[18] As a result, we estimate assessed oil and gas minerals in Ohio in FY 2013 at $86,299,406. This assessed value was then multiplied by each jurisdiction's real property tax rate to estimate total taxes levied of $4,738,106.

3.10.2.1 Allocation of those revenues

The jurisdiction that levies the tax retains the revenue.

3.10.3 Revenue from state lands

No central agency collects information on oil and gas revenue from state lands in Ohio. While multiple state agencies lease land for production and natural gas storage, we only were able to gather data from the state Division of Forestry, housed within the Ohio Department of Natural Resources. In FY 2013, the oil and natural gas leases generated $5,170.56.[19]

3.10.3.1 Allocation of those revenues

The state agency or department that leases their land for production receives any revenue generated from that production.

3.10.4 Revenue from federal lands

ONRR reports that federal oil and gas leases in Ohio generated $461,564.77 in total revenue in FY 2013. We estimate that 49 percent of that revenue, $226,166.74, flowed to the state.

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[17] Personal communication with the Ohio Department of Taxation, Tax Analysis Division, September 2015.

[18] Based on data from the OH Department of Taxation Real Property Abstracts, PD31. Available at: http://www.tax.ohio.gov/tax_analysis/tax_data_series/publications_tds_property.aspx#Realpropertyonly

[19] Data provided by OH Department of Natural Resources, Division of Forestry via email on 12/22/2015.

3.10.4.1 Allocation of those revenues

Federal lease revenues flow to the general fund.

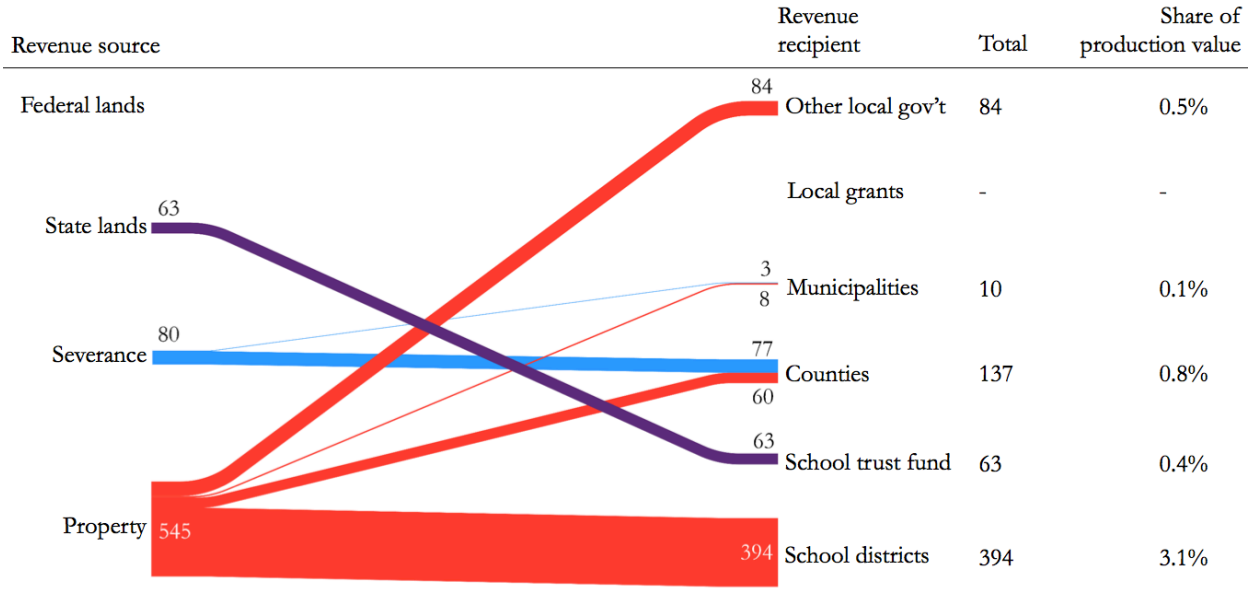
3.11 Oklahoma

Table 3.12 Oklahoma FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
103.4	$88.26	2,083.4	$3.31	**$16.5**

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on Chicago CityGate via Bloomberg.

Figure 3.12 Oklahoma FY 2013 local government revenue from oil and gas production ($million)



Note: Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

As we describe in a companion report (Raimi & Newell 2016), a number of local government officials in Oklahoma stated in interviews that the various exemptions and deductions from the largest state severance tax (known as the Gross Production Tax, or GPT) reduce revenue to local governments. This issue was particularly relevant for counties, which receive a substantial share of state severance taxes.

However, a close examination of the law reveals that revenue flows to counties remain relatively constant even when deductions and exemptions are taken into account. As the rate of GPT is reduced for each producer, the share of revenue allocated to county governments grows, keeping county revenues roughly stable even as overall revenue collection falls, as Table 3.13 demonstrates using hypothetical production and price figures.

Table 3.13 Hypothetical OK Gross Production Tax Revenue Allocation (68 OK Statutes §1001)

Oil production (bbl)	Oil price ($/bbl)	State GPT rate	Revenue	County share	County revenue
100	$100	7%	$700	7.14%	$49.98
100	$100	4%	$400	12.5%	$50.00
100	$100	2%	$200	25%	$50.00
100	$100	1%	$100	50%	$50.00

3.11.1 State production taxes and fees

Oklahoma currently levies three taxes on the value of oil and gas produced within the state, but in FY 2013 levied four. We include all four taxes. The first, and largest, is known as the Gross Production Tax (GPT), with a top statutory rate of 7 percent. However, the GPT has a number of exemptions and deductions that adjust the rate from 1 to 7 percent. Exemptions are available for a variety of technologies, including horizontal wells, new wells, incremental production from secondary and tertiary recovery techniques, inactive wells, deep wells (>12,000 feet), new discovery wells (>1 mile from existing oil wells, or >2 miles from existing gas wells), and economically at-risk leases. For more details on these incentives, see 68 Oklahoma Statutes § 1001. The GPT raised a net total of $503,550,229 in FY 2013.

The state levies a Petroleum Excise Tax of 0.095 percent of the value of oil and gas produced, which raised net $12,430,419 in FY 2013, and an Energy Resources Assessment of 0.1 percent of the value of oil and gas produced, which raised net $15,726,666. Finally, 2013 was the last year in which the state assessed a marginal well fee, which raised a net total of $682,401.05 in FY 2013. All revenue data from the Oklahoma Tax Commission Annual Report (OK Tax Commission 2013).

3.11.1.1 Allocation of those revenues

As we discuss in Section 3.11, the allocation of GPT revenue varies depending on the rate of the tax, with local governments receiving 7.14 percent of the revenue when tax rates are 7 percent, and 50 percent of the revenue when tax rates drop to 1 percent. Below is a more detailed description of the revenue allocation formula based on 68 Oklahoma Statutes § 1001:

- For all natural gas and casinghead gas taxed at 7%:
  85.72% goes to the state general fund;
  7.14% to county highway fund based on the value of production in each county;
  7.14% to county highway fund based on the per capita student attendance within each county.

- For all natural gas and casinghead gas taxed at 4%:
  75% goes to the state general fund,
  12.5% to county highway fund based on the value of production in each county, and

12.5% to county highway fund based on the per capita student attendance within each county.

- For all natural gas and casinghead gas taxed at 2%:
  50% goes to the state general fund,
  25% to county highway fund based on the value of production in each county, and
  25% to county highway fund based on the per capita student attendance within each county.

- For all natural gas and casinghead gas taxed at 1%,
  50% goes to county highway fund based on the value of production in each county, and
  50% goes to county highway fund based on the per capita student attendance within each county.

- For oil taxed at 7%:
  25.72% goes to the Common Education Technology Revolving Fund;
  25.72% goes to the Higher Education Capital Revolving Fund;
  25.72% goes to the OK Student Aid Revolving Fund;
  3.754% goes to counties via the County Bridge and Road Improvement Fund;
  4.28% divided evenly between the OK Tourism and Recreation Department Capital Expenditure Revolving Fund, OK Conservation Commission Infrastructure Revolving Fund, and the Community Water Infrastructure Development Revolving Fund;
  7.14% to county highway fund based on the value of production in each county;
  7.14% to county highway fund based on the per capita student attendance within each county.
  0.535% to the Statewide Circuit Engineering District Revolving Fund

- For oil taxed at 4%:
  22.5% goes to the Common Education Technology Revolving Fund;
  22.5% goes to the Higher Education Capital Revolving Fund;
  22.5% goes to the OK Student Aid Revolving Fund;
  3.28% goes to counties via the County Bridge and Road Improvement Fund;
  3.75% divided evenly between the OK Tourism and Recreation Department Capital Expenditure Revolving Fund, OK Conservation Commission Infrastructure Revolving Fund, and the Community Water Infrastructure Development Revolving Fund;
  12.5% to county highway fund based on the value of production in each county;
  12.5% to county highway fund based on the per capita student attendance within each county.
  0.47% to the Statewide Circuit Engineering District Revolving Fund

- For oil taxed at 2%:
  50% to the state general fund.
  25% to county highway fund based on the value of production in each county;

25% to county highway fund based on the per capita student attendance within each county.

- For oil taxed at 1%:
  50% to county highway fund based on the value of production in each county;
  50% to county highway fund based on the per capita student attendance within each county.

Note: The total deposited to the Common Education Technology Revolving Fund, the Higher Education Capital Revolving Fund, the Oklahoma Student Aid Revolving Fund, the Rural Economic Action Plan Water Projects Fund, the Oklahoma Tourism and Recreation Department Capital Expenditure Revolving Fund, the Oklahoma Conservation Commission Infrastructure Revolving Fund, and the Community Water Infrastructure Development Revolving Fund cannot exceed $150 million in any fiscal year. Any revenue above $150 million goes to the state general fund.

An examination of actual allocations reported in the FY 2013 Oklahoma Tax Commission's Annual Report shows that revenues were generally allocated as stated in statute, with roughly 45 percent flowing to a variety of state operating funds including the general fund, 21 percent flowing to school districts or other funds that support current school expenditures, 18 percent flowing to various higher educational institutions, 15 percent flowing to various county government funds, and 1 percent flowing to municipalities or state funds designed to assist municipalities with infrastructure projects.

The Petroleum Excise Tax allocates 10 percent of its revenue to the Corporate Commission Plugging Fund, which plugs abandoned wells, roughly 7 percent to the Interstate Oil Compact Fund, which supports the Interstate Oil and Gas Compact Commission, and the remainder to the general fund.

The Energy Resources Assessment allocates its funds to support educational programming related to oil and gas, as well as to environmental remediation projects including well plugging.

The Marginal Well Fee supported the Oklahoma Commission on Marginally Producing Oil and Gas Wells, which was dissolved in 2013, with responsibilities transferred to the Oklahoma Energy Resources Board.

3.11.2 Local production taxes and fees

Local property taxes on oil and gas property in Oklahoma generated more revenue than the GPT and other severance-type taxes combined. Local government apply their property tax millage to the assessed value of the oil and gas property, which is calculated as a portion of the fair cash value of the property. In FY 2013, the Oklahoma Tax Commission estimates that local governments levied $545,050,830 on oil and gas properties, which includes minerals and surface equipment used

to produce those minerals, but not other infrastructure such as refineries, gas processing plants, gathering lines, or compressor stations.[20]

3.11.2.1 Allocation of those revenues

The Tax Commission estimates that oil and gas properties accounted for $393,920,985 for school districts, $59,943,234 for counties, $7,594,311 for municipalities, and $83,592,301 for other local governments.

3.11.3 Revenue from state lands

Oklahoma generated roughly $90,400,000 in revenue from oil and gas leases on state lands in FY 2013 (Oklahoma Commissioner of the Land Office 2014). Roughly $72.3 million of these revenues were from royalties and roughly $18.1 million were from other revenues such as bonuses and rentals.[21]

3.11.3.1 Allocation of those revenues

Revenues from state lands in Oklahoma are used to endow education through the State Lands Trust fund. In FY 2013, the fund allocated 69 percent of its revenues to local school districts, 27 percent to higher educational institutions, and 4 percent to support the construction of public buildings (Oklahoma Commissioner of the Land Office 2014). School districts revenue is apportioned based solely on attendance.

3.11.4 Revenue from federal lands

ONRR reports that oil and gas leases on federal (non-tribal) lands in Oklahoma generated $12,900,803.42 in FY 2013. We estimate that 49 percent of those revenues, $6,321,393.69, flow to the state government. Actual revenue data from the state were not available.

3.11.4.1 Allocation of those revenues

Federal oil and gas lease revenue flows to the general fund in Oklahoma.[22]

[20] Data provided by the Oklahoma State Tax Commission via email on October 30, 2014, and November 19, 2014.

[21] Data provided via email by the Oklahoma Comissioner of the Land Office, November 6, 2014.

[22] Data provided via telephone by Oklahoma State Auditor and Inspector's Office, November 21, 2014.

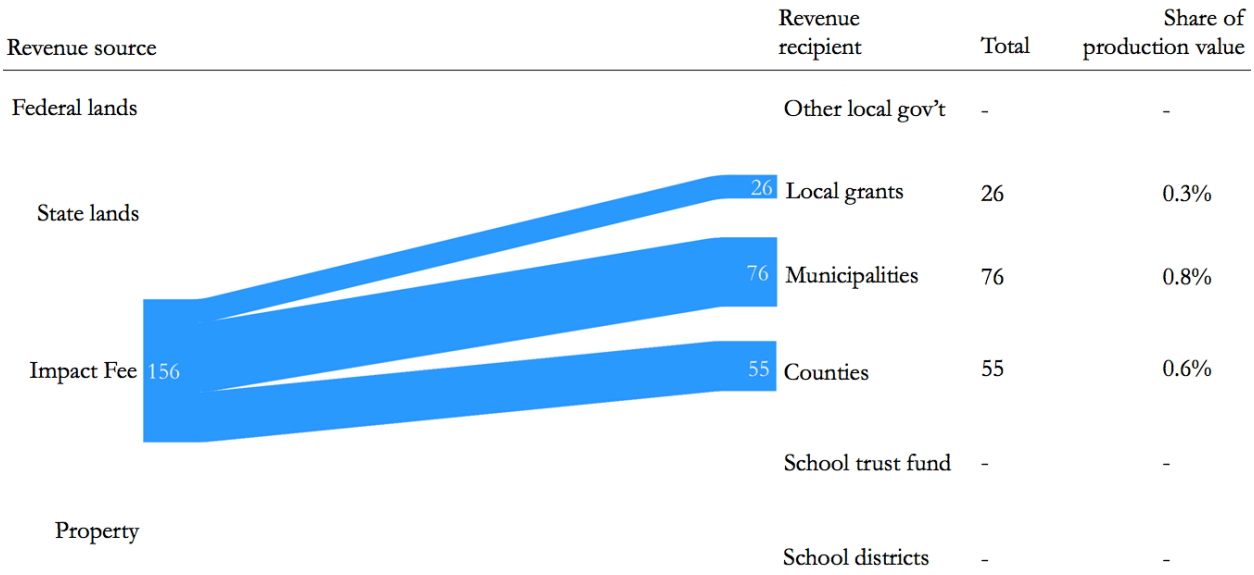
3.12 Pennsylvania

Table 3.14 Pennsylvania FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
4.5	$86.63	2,742	$3.39	$9.7

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on Dominion Hub via Bloomberg.

Figure 3.13 Pennsylvania FY 2013 local government revenue from oil and gas production ($million)



Note: Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

Substantial debate has surrounded Pennsylvania's Impact Fee, with some officials calling for the implementation of a severance tax based on the value and volume of natural gas produced within the state. As of this writing, no severance tax has been put into place.

3.12.1 State production taxes and fees

Pennsylvania imposes an "Impact Fee" on each unconventional oil and gas well drilled in the state. "Conventional" wells, such as shallow vertical wells, are not required to pay this fee. The Impact Fee is paid over a 15-year period for each well, and the annual level of payment varies according to the price of natural gas. Horizontally drilled unconventional wells pay the full fee as shown below, while vertically drilled unconventional wells pay 20 percent of the amount listed below. Wells producing less than 90 mcf/day of natural gas pay zero impact fee.

The Impact Fee schedule is reproduced below. In 2013, the Pennsylvania Public Utility Commission, which oversees the program, reported the annual average price for calendar year 2013 of $3.652 (Pennsylvania Public Utility Commission 2013):

Table 3.15 Pennsylvania Impact Fee schedule for unconventional horizontal wells

	Price of natural gas ($/mcf)				
Year	<2.25	2.26-2.99	3.00-4.99	5.00-5.99	>6
1	$ 40,000	$ 45,000	$ 50,000	$ 55,000	$ 60,000
2	$ 30,000	$ 35,000	$ 40,000	$ 45,000	$ 55,000
3	$ 25,000	$ 30,000	$ 30,000	$ 40,000	$ 50,000
4	$ 10,000	$ 15,000	$ 20,000	$ 20,000	$ 20,000
5	$ 10,000	$ 15,000	$ 20,000	$ 20,000	$ 20,000
6	$ 10,000	$ 15,000	$ 20,000	$ 20,000	$ 20,000
7	$ 10,000	$ 15,000	$ 20,000	$ 20,000	$ 20,000
8	$ 10,000	$ 15,000	$ 20,000	$ 20,000	$ 20,000
9	$ 10,000	$ 15,000	$ 20,000	$ 20,000	$ 20,000
10	$ 10,000	$ 15,000	$ 20,000	$ 20,000	$ 20,000
11	$ 5,000	$ 5,000	$ 10,000	$ 10,000	$ 10,000
12	$ 5,000	$ 5,000	$ 10,000	$ 10,000	$ 10,000
13	$ 5,000	$ 5,000	$ 10,000	$ 10,000	$ 10,000
14	$ 5,000	$ 5,000	$ 10,000	$ 10,000	$ 10,000
15	$ 5,000	$ 5,000	$ 10,000	$ 10,000	$ 10,000

Source: Pennsylavania Public Utility Commission

3.12.1.1 Allocation of those revenues

For a detailed description, see the Pennsylvania Public Utility Commission website.[23] The following is a general description.

Certain funds are allocated specific amounts "off the top" of the Impact Fee revenue, led by the Marcellus Legacy Fund, Pennsylvania Department of Environmental Protection, County Conservation Districts and Conservation Commission. After these initial allocations, the remainder is allocated as follows:

> Sixty percent of the revenue is allocated directly to local governments based on the level of drilling activity in the area. Counties with producing wells receive roughly 36 percent of the 60 percent, municipalities (including townships) with producing wells receive roughly the same share, and municipalities that are contiguous to or within five miles of municipalities with producing wells receive 27 percent of the 60 percent share. Other revenue goes to a

[23] See: http://www.puc.pa.gov/filing_resources/issues_laws_regulations/act_13_impact_fee_.aspx.

state grant fund to support local government affordable housing projects. The remaining 40 percent is allocated to the Marcellus Legacy Fund, which provides funding for a variety of state and local government infrastructure projects, such as highway bridges, water and sewer projects, and the rehabilitation of greenways, recreational trails, open spaces, and nature areas.

3.12.2 Local production taxes and fees

Pennsylvania local governments cannot apply ad-valorem property taxes on oil and gas production or property.

3.12.3 Revenue from state lands

In FY 2013, Pennsylvania generated $143,514,008 in revenue from oil and gas bonuses, rents, and royalties on state-owned land. We do not include the $2,805,499 in revenue generated by underground natural gas storage on state lands, as these revenues are not directly related to production.[24]

3.12.3.1 Allocation of those revenues

Revenue from production on state lands is statutorily allocated for conservation, recreation, dams, or flood control (based on legislation establishing the Oil and Gas Lease Fund, Act 256 of 1955).[25]

3.12.4 Revenue from federal lands

Pennsylvania has minimal (<$100,000 in value) oil and gas production on federal lands.

[24] Data provided via email by the Pennsylvania Department of Conservation and Natural Resources, Bureau of Forestry, October 5, 2015. .

[25] Available at: http://www.legis.state.pa.us/WU01/LI/LI/US/PDF/1955/0/0256..PDF

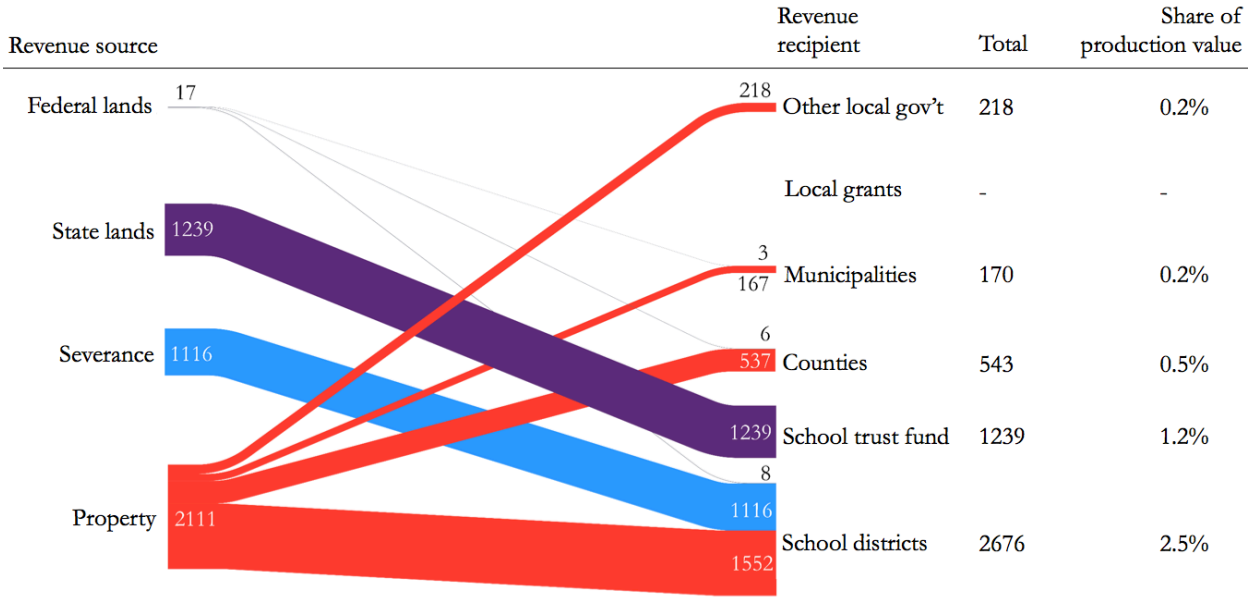
3.13 Texas

Table 3.16 Texas FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
860.6	$93.68	7,483	$3.52	$107.0

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on Katy Hub via Bloomberg.

Figure 3.14 Texas FY 2013 local government revenue from oil and gas production ($million)



Note: Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

3.13.1 State production taxes and fees

Texas levies a Gross Production Tax on oil and gas, along with an Oilfield Cleanup Regulatory Fee, which is only levied when the fund that the fee supports drops below a certain level.

The statutory rate for the Gross Production Tax is 4.6 percent of the market value of oil or condensate produced or $0.046/barrel, whichever is greater (see TX Tax Code § 202). Natural gas is taxed at 7.5 percent of the market value (see TX Tax Code § 201).

There are a variety of exemptions and deductions from these taxes. They include:

-*Stripper wells* (§202.058 for oil, §201.059 for natural gas): If producing less than 15 barrels/day, if oil production is less than five percent of water production, or if producing less than 90 mcf/day, producers receive a 25 percent credit against their tax liability if price is $25-30/bbl or $3-3.50/mcf. Producers receive a 50 percent credit if prices are $22-25/bbl or $2.50-3.00/mcf.

Producers receive a 100 percent credit (i.e., pay zero tax) if prices are less than $22/bbl or <$2.50/mcf. Based on 2005 dollars. Does not apply to casinghead gas production.

-*Enhanced Oil Recovery wells* (§202.054): Producers pay 2.3 percent of the market value of incremental production for the first 10 years after EOR is applied.

-*High-cost gas wells* (§201.057): If spudded after 9/1/1996, the natural gas rate is reduced for up to 10 years, or until 50 percent of project costs are recovered. The amount of the rate reduction is determined based on the cost of drilling and completion.

-*Vented/flared gas* (§201.058): For gas that had previously been vented or flared and is then sold, that gas is not subject to any severance tax.

-*Two-Year Inactive Well Incentive* (§202.056): Expired 2/28/2010. Had allowed a 100 percent tax exemption for new production from wells that had been inactive for more than two years.

-*Orphaned well reduction program* (§202.060): Operators that take over an orphaned well pay no severance tax on production from that well. They also receive a payment from the Texas Railroad Commission (RRC) so that the RRC does not have to pay to plug the well.

The Oilfield Cleanup Regulatory Fee (TX Administrative Code Title 34, Part 1, Chapter 3, Subchapter DD §3.731 and §3.732) is only collected if the Oilfield Cleanup Fund has dropped below $10 million. The fee is $0.00625 per barrel of oil produced and $0.000667 per mcf of gas produced. The fee is not collected from oil and gas produced on government-owned property.

In FY 2013, the Gross Production Tax levied $4,484,744,856 and the Cleanup Regulatory Fee levied $1,348,219 (Texas Comptroller of Public Accounts 2013).

3.13.1.1 Allocation of those revenues

The first 0.5 percent of gross production tax revenues goes to administer the state's oil and gas regulatory program. After that, 75 percent goes to the general fund and 25 percent goes to the Foundation Schools Fund. The Foundation Schools Fund allocates revenue for school operations on an annual basis, and is not classified as a trust fund by our methodology.

All of the Oilfield Cleanup Regulatory Fee is allocated to the Oilfield Cleanup Fund (TX Administrative Code Title 34, Part 1, Chapter 3, Subchapter DD §3.731 and §3.732).

3.13.2 Local production taxes and fees

Texas local governments levy their ad-valorem property tax rates on the full value of oil and gas property. The value of property is determined for each county, school district, municipality, and other local government entity by independent appraisal districts, which varies across the state.

The Texas Comptroller of Accounts provides annual data on the assessed value of oil and gas properties including underground minerals and the equipment used to produce those minerals.[26] We do not include property such as refineries, natural gas processing plants, gathering and distribution lines, or compressor stations. We estimate local taxes levied by multiplying these assessed values by various local government tax rates. We estimate total local government property tax levies on oil and gas property of $2,475,004,396 in FY 2013.

3.13.2.1 Allocation of those revenues

The local government that levies the relevant property tax retains the revenue from that tax. We estimate that in FY 2013 school districts levied $1,552,297,040, counties levied $536,991,225, cities levied $167,501,850, and other local governments levied $218,214,280 on oil and gas property.

3.13.3 Revenue from state lands

In FY 2013, Texas generated $1,239,219,539 in revenue from oil and gas bonuses, rents, and royalties on state-owned land (Texas Comptroller of Public Accounts 2013).

3.13.3.1 Allocation of those revenues

All revenue from production on state-owned land goes to the Permanent Schools Fund. Interest from this fund is used to fund K-12 and higher education in Texas in perpetuity (TX Natural Resources Code Title 2, Subtitle A, Chapter 11, §11.001).

3.13.4 Revenue from federal lands

ONRR reports that oil and gas disbursements to Texas in FY 2012 for leasing, rents, royalties, and other revenues were $16,674,290.55.

3.13.4.1 Allocation of those revenues

All funds are allocated to counties where production took place, with levels varying based on production. The county is obligated to distribute those funds as follows: 50 percent to school districts within the county, 35 percent to counties, and 15 percent to municipalities within the county (TX Government Code, Title 4, Subtitle A, §403.104).

[26] Provided by the Texas Comptroller of Accounts via email, October 1, 2015.

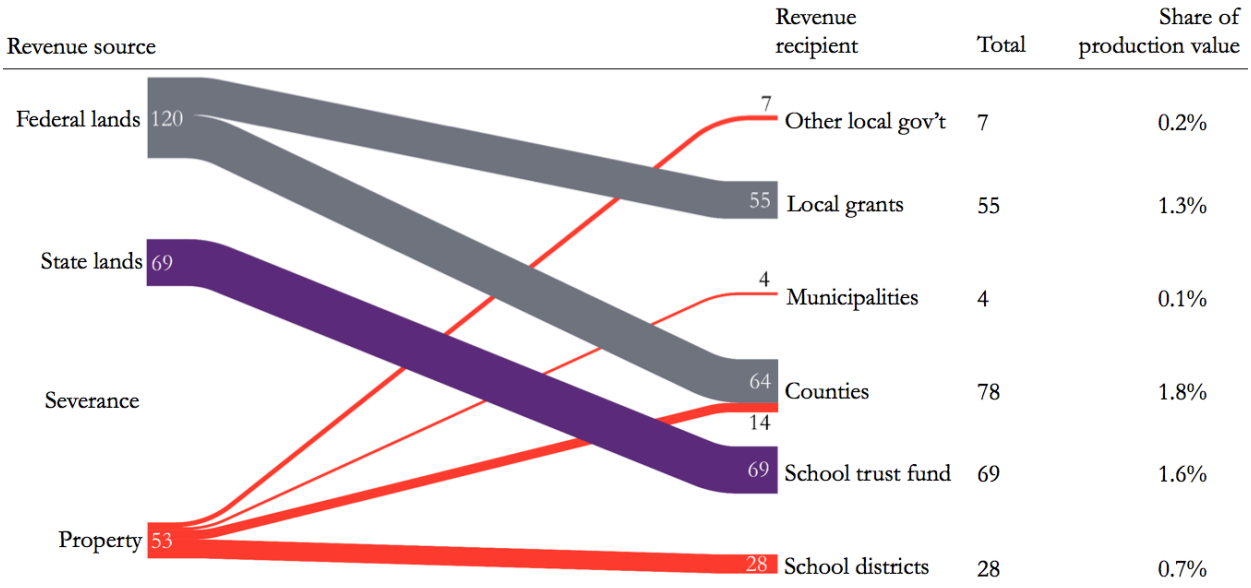
3.14 Utah

Table 3.17 Utah FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
32.3	$80.27	480.5	$3.31	$4.3

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on White River Hub via Bloomberg.

Figure 3.15 Utah FY 2013 local government revenue from oil and gas production ($million)



Note: Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

3.14.1 State production taxes and fees

Utah levies two taxes upon the value of produced oil and gas. The first is a severance tax (UT Code § 59-5-102) that applies marginal tax rates to varying levels of production. A rate of 3 percent is applied to the first $13 of each barrel of oil produced and to the first $1.50 of each thousand cubic feet of oil produced. In addition, a tax rate of 5 percent is applied to any value greater than $13 per barrel or $1.50 per thousand cubic feet. Natural gas liquids are taxed at a flat rate of 4 percent. In FY 2013, the severance tax generated $ 53,164,253 (Utah State Tax Commission 2014).

The second tax, called a Conservation Fee, levies 0.02 percent of the value of oil, gas, and natural gas liquids (UT Code § 40-6-14). In FY 2013, the conservation tax generated $5,870,532 (Utah State Tax Commission 2014).

3.14.1.1 Allocation of those revenues

Severance tax revenues are deposited into the general fund, and the Conservation Fee is used to support the Division of Oil, Gas, and Mining, which uses these funds to plug and reclaim abandoned wells and provide public education about the mineral and petroleum industries (Utah State Tax Commission 2014).

3.14.2 Local production taxes and fees

The Utah State Tax Commission provides data on property taxes levied on oil and gas property in each county. In FY 2013, $52,604,864 was charged for oil and gas property statewide (Utah State Tax Commission 2013).

3.14.2.1 Allocation of those revenues

The state does not provide jurisdiction-specific tax revenues for oil and gas property taxes, so we estimate these values based on county-level tax revenues (described above) and relevant jurisdiction's millage rates. We estimate that $27,880,578 was charged by school districts, $14,203,313 by counties, $3,682,340 by municipalities, and $6,838,632 by other local governments.

3.14.3 Revenue from state lands

The state government generated $69,062,326.64 in FY 2013 from oil and gas leases on state lands.[27]

3.14.3.1 Allocation of those revenues

As with other western states, Utah allocates these revenues to a permanent school fund, which endows the operations of future education.

3.14.4 Revenue from federal lands

Federal oil and gas leases generated $127,743,497 for the state government in FY 2013.[28]

3.14.4.1 Allocation of those revenues

The state does not report specific allocations from these revenues, so we estimate the amounts based on the Utah Code § 59-21-2. According to this section, all bonus revenues (roughly $3 million in FY 2013) are deposited into the Mineral Bonus Account, which funds statewide schools and road construction projects. The remainder is allocated as follows: 40 percent to counties and special districts for road projects; 32.5 percent to the Permanent Community Impact Fund,

[27] Data provided via email by the Utah Governor's Office of Energy Development, August 18, 2015.

[28] Ibid.

which supports infrastructure projects through grants and low-interest loans for local governments in producing regions; 5 percent to counties based on their acreage of state trust lands; 5 percent to counties and special districts to support workforce services; and 2.25 percent each for the state Board of Education, Geological Survey, and Water Research Laboratory. The remainder (roughly 10.75 percent) is allocated to the Permanent Community Impact Fund.

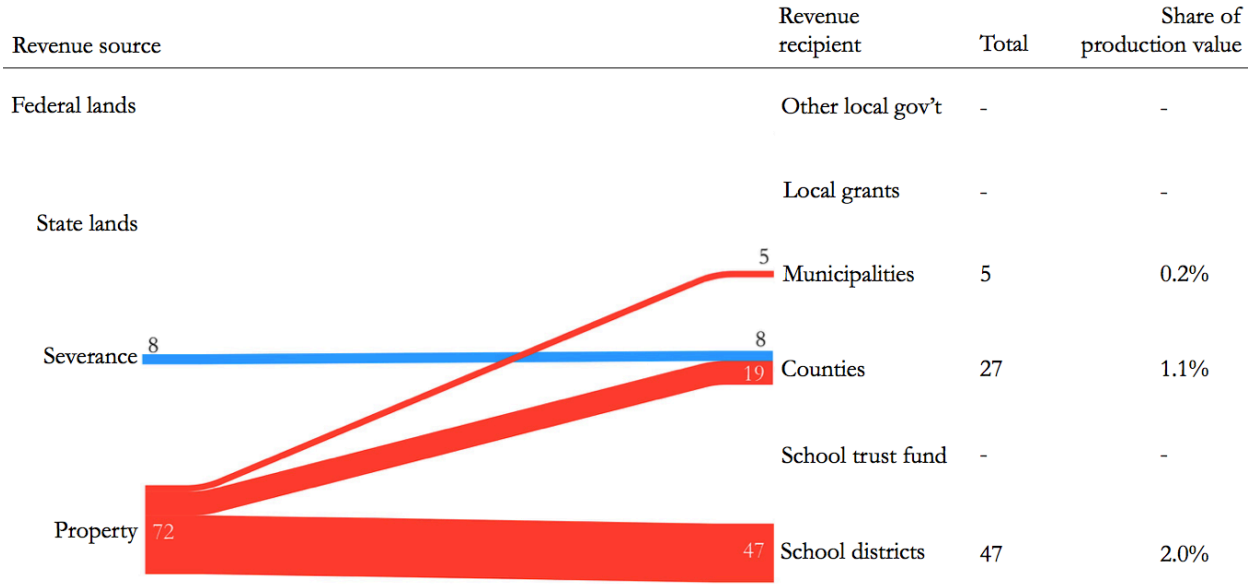
3.15 West Virginia

Table 3.18 West Virginia FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
59.9	$86.17	607.9	$3.39	$2.4

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on Dominion South Hub via Bloomberg.

Figure 3.16 West Virginia FY 2013 local government revenue from oil and gas production ($million)



Note: Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

3.15.1 State production taxes and fees

West Virginia levies a five-percent severance tax on the wellhead value of oil and gas produced under WV Code § 11-13(A). An exemption of five years is provided to production from stripper wells (<5 mcf/day or 0.5 barrels/day) and new production from wells that had been inactive for five years or more. There had previously been exemptions in place for production from coalbed methane wells and horizontal wells, but those provisions were not in place in FY 2013. This tax raised $87,734,387 in FY 2013.[29]

The state also levies a Workers' Compensation Fund Tax (WV Code § 11-13(V)-4) of $0.047 per thousand cubic feet of natural gas produced. Revenue from this source is not reported in state documents, and we estimate revenues based on production at $27,280,161 in FY 2013.

[29] Provided by the West Virginia Department of Revenue via email on March 23, 2015.

3.15.1.1 Allocation of those revenues

The first $35,000 in severance tax revenue is allocated to administer oil and gas regulatory programs. Ten percent of the remaining total is allocated to local governments, with 75 percent of this allocation flowing to counties based on production levels and 25 percent to non-producing counties based on population. Three percent of the total is allocated to the state Future Fund, which is designed to help provide revenue for state expenses in years when revenue shortfalls occur. The remaining ~87 percent of revenue flows to the state general fund (WV Code § 11-13(A)-5a).

Revenue from the Workers' Compensation Fund tax supports the unfunded liabilities and/or debt service for existing state worker's compensation funds.

3.15.2 Local production taxes and fees

Local governments apply their ad-valorem property taxes to the value of oil and gas property, which is appraised by state assessors. In FY 2013, local governments levied $71,696,594 on oil and gas property statewide.[30]

3.15.2.1 Allocation of those revenues

Detailed reporting on oil and gas property taxes by jurisdiction were not available. We estimate revenue to school districts, counties, and municipalities based on available data from the West Virginia State Tax Department, which provides information on total revenue collected from all types of property (not just oil and gas property) for each jurisdiction statewide. We estimate that in FY 2013, oil and gas property provided $47,319,752 for school districts, $19,358,080 for counties, and $5,018,762 for municipalities.

3.15.3 Revenue from state lands

West Virginia generated $228,550.84 from oil and gas leases on state land in FY 2013 (West Virginia Department of Natural Resources 2013).

3.15.3.1 Allocation of those revenues

In FY 2013, lease revenues such as bonuses and rents (roughly $34,000) flowed to the state Use and Development Fund. Most oil and gas royalties (roughly $182,000) flowed to the state Wildlife Resources and Recreation Fund. The remaining $12,000 flowed to the State Part Operating Fund (West Virginia Department of Natural Resources 2013).

[30] Data provided by the West Virginia Department of Taxation via email, February 11, 2015.

3.15.4 Revenue from federal lands

ONRR reports that oil and gas leases on federal land generated $553,152.47 in West Virginia in FY 2013. We estimate that 49 percent of these revenues, $271,044.71, flowed to the state government.

3.15.4.1 Allocation of those revenues

These revenues flow to the state general fund.

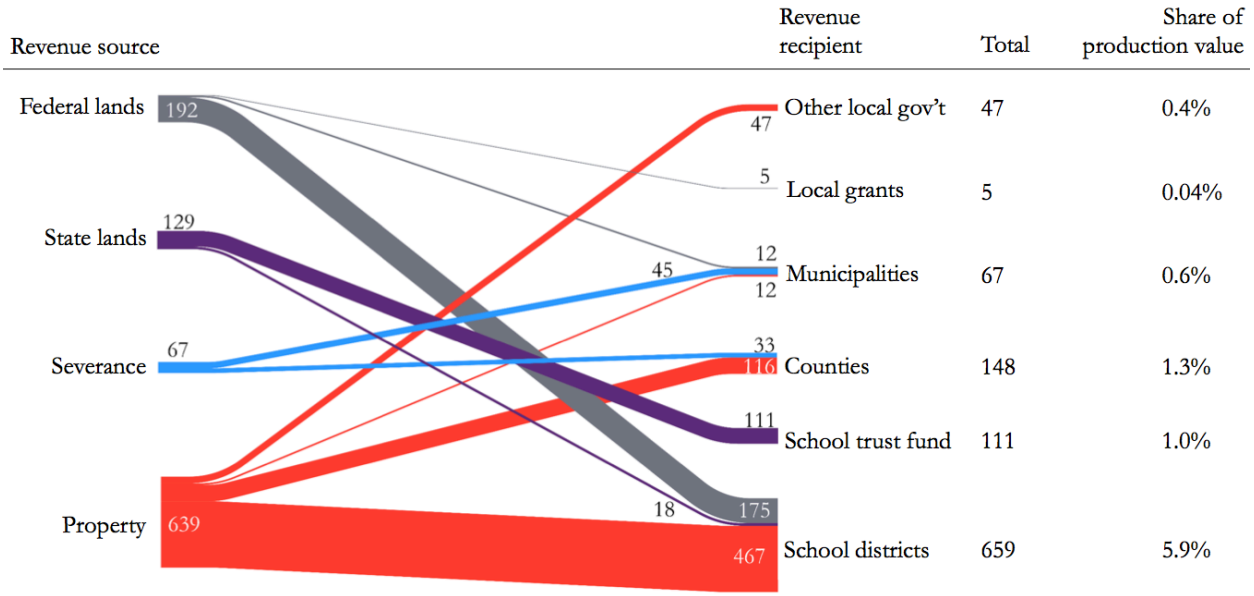
3.16 Wyoming

Table 3.19 Wyoming FY 2013 oil and gas production and production value

Oil production (Mbbl)	Oil price ($/bbl)	Natural gas production (bcf)	Natural gas price ($/mcf)	Total production value ($billion)
60.0	$79.96	1,919	$3.32	$11.2

Note: Oil price based on U.S. EIA first purchase price. Natural gas price based on Opal Hub via Bloomberg.

Figure 3.17 Wyoming FY 2013 local government revenue from oil and gas production ($million)



Note: Figures at left show local government revenue from four major sources. Figures at right show allocation of those revenues to local governments. Sums may not total due to rounding.

3.16.1 State production taxes and fees

Wyoming levies a six-percent tax on the fair market value (as determined by the state) of oil, gas, and lease condensate production. The tax rate is reduced to 4 percent for wells that produce less than 10 or 15 bbls/day, and for wells using tertiary recovery techniques. The rate is reduced to 2 percent for workovers or recompletions for 24 months after the workover or recompletion. (Wyoming Statutes § 39-14-203). In FY 2013, the severance tax generated $597,120,076 (Wyoming Department of Revenue 2014).

3.16.1.1 Allocation of those revenues

One-third of production tax revenues are allocated to the state's Mineral Trust Fund. One-sixth of production tax revenues are allocated to the state's Leaking Underground Storage Tank Fund. The remainder is allocated as follows:

62 percent to the general fund, 15 percent to the Water Development Fund, 9 percent to cities and towns based solely on population, 6 percent to counties based primarily on population, 4 percent to the Highway Fund, and 2 percent to the Capital Construction Account (Wyoming Statutes § 39-14-801).

3.16.2 Local production taxes and fees

Wyoming local governments levy their ad-valorem property tax rates on the full value of oil and gas production and property. The value of property is determined for each county, school district, municipality, and other local government entity by county assessors.

In FY 2013, local governments levied $1,463,519,560 in ad valorem property taxes, with 21.07 percent ($308,290,395) generated by natural gas properties and 20.12 percent ($294,445,500) generated by oil properties (Wyoming Department of Revenue 2014).

3.16.2.1 Allocation of those revenues

The local government that levies the relevant property tax retains the revenue from that tax. Based on property tax revenue collection data reported by the Wyoming Department of Revenue (2014), we estimate that in FY 2013, school districts levied $1,132,248,596, counties levied $281,119,104, municipalities levied $26,604,903, and other local governments levied $114,139,191.

3.16.3 Revenue from state lands

In FY 2013, Wyoming generated $139,734,586 in revenue from oil and gas bonuses, rents, and royalties on state-owned land (Wyoming Department of State Lands and Investment 2014).

3.16.3.1 Allocation of those revenues

Roughly 85 percent of revenues from state lands went to a variety of state government permanent funds for education, with roughly 11 percent going to state general funds and other income funds. Roughly 4 percent went to school capital construction projects.

3.16.4 Revenue from federal lands

ONRR reports that oil and gas disbursements to Wyoming in FY 2013 for leasing, rents, royalties, and other revenues was $471,847,236. Total federal and state revenue generated in Montana from oil and gas leasing, rents, royalties, and other revenues was $962,953,542 in FY 2013.

3.16.4.1 Allocation of those revenues

Roughly 48 percent of state share of federal lease revenues are allocated to the state's Budget Reserve Account, roughly 36 percent goes to the School Foundation Fund (which endows local school operations), roughly 8 percent went to the state highway fund, roughly 2.6 percent went to

cities and towns, roughly 1.9 percent to the University of Wyoming system, roughly 1 percent to capital construction projects for local governments, and various allocations (all less than 1 percent) went to other purposes (Wyoming State Treasurer 2013).

4. Conclusions

Local governments receive revenue directly from oil and gas production in a variety of ways, with significant variation between states. In most cases, the level of revenue collected by or allocated to local governments reflects industry activity levels, with more revenue flowing to regions with more drilling and production. This is accomplished by property taxes on oil and gas property, and by allocation formulas of state-collected revenue that take into account levels of production, drilling, or other metrics. In some cases, allocations are made by the state according to population levels, which tends to direct revenue away from the rural regions where oil and gas production most often occurs.

The share of oil and gas production value allocated to and collected by local governments ranges from 0.5 percent (OH) to more than 9 percent (WY). Generally speaking, schools receive the largest share of revenue, supported by local property taxes, allocations from state-collected revenues, or from trust funds endowed by oil and gas leases on state or federal land. Counties tend to see the second-largest share, again reflecting local property taxes and allocations from severance taxes or similar fees levied by the state. Municipalities, which tend to rely less heavily on property taxes and more heavily on sales taxes, see a relatively small share of oil and gas revenue in most states.

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6. Appendix A Data and sources

Table 6.1 Oil and natural gas prices and production for FY 2013

State	Oil price ($/bbl)	Gas price ($/mcf)	Oil production (Mbbl)	Gas production (Bcf)	Value of production (bil.)
AK	94.97	3.44	186	344	$18.9
AR	88.21	3.36	7	1,149	$4.4
CA	102.13	3.52	197	250	$21.0
CO	84.62	3.31	56	1,652	$10.2
KS	85.98	3.52	45	292	$4.9
LA	104.67	3.48	72	2,757	$17.1
MT	84.47	3.31	28	64	$2.6
ND	86.28	3.31	277	204	$24.6
NM	85.55	3.29	93	1,199	$13.2
OH	90.71	3.39	6	109	$0.9
OK	88.26	3.52	103	2,083	$16.5
PA	86.63	3.39	5	2,742	$9.7
TX	93.68	3.52	861	7,483	$107.0
UT	80.27	3.31	32	481	$4.3
WV	86.17	3.39	4	608	$2.4
WY	79.96	3.32	60	1,919	$11.2

Note: All state fiscal years run from Jul. 1 through Jun. 30 annually, except TX, which runs from Sept. 1 through Aug. 31. Sources: U.S. EIA for oil and gas production. Crude oil prices: U.S. EIA first purchase price. For natural gas prices, we use regional market hub prices accessed via Bloomberg, with the exception of AK , for which we use Henry Hub, and LA, which publishes monthly natural gas prices in its Energy Facts Annual report. Market hubs were determined based on regional gas flows and are as follows: AR: Perryville; CA: SoCal Border; CO: White River; KS: Chicago CityGate; MT: White River; NM: Blanco; ND: White River; OH: Dominion South Point; OK: Chicago CityGate; PA: Dominion South Point; TX: Katy; UT: White River Hub; WV: Dominion South Point; WY: Opal. Sums may not total due to rounding.

Table 6.2 Revenue from taxes on oil and natural gas production and property in FY 2013 ($millions)

State	Severance tax	Other state taxes/fees on oil and gas production	Local property taxes from oil and gas property
AK	3,972	107	429
AR	91	-	42
CA	-	64	505
CO	136	-	367
KS	123	8	175
LA	821	5	202
MT	213	-	-
ND	2,408	-	-
NM	781	21	147
OH	3	2	5
OK	504	29	545
PA	-	226	-
TX	4,485	1	2,475
UT	53	6	53
WV	88	27	72
WY	597	-	639

Note: Types of taxable oil and gas property vary by state. We include local property taxes on oil and gas minerals, produced oil and gas, and exploration/production equipment such as rigs and wellheads. With the exception of Alaska, where we include property taxes on the Trans-Alaska Pipeline System, we do not include oil and gas refining, processing, or transportation systems, which are not necessarily located in producing regions.

Table 6.3 Revenue from oil and gas leases on state and federally-owned lands in FY 2013 ($millions)

State	State lands	Total federal and tribal lands revenue	State share of federal revenue
AK	2,804	34	19
AR	n.d.	5	2
CA	407	249	105
CO	104	262	98
KS	0.6	6	3
LA	591	187	27
MT	27	43	21
ND	345	767	90
NM	543	1,006	460
OH	0.005	0.5	0.2
OK	90	13	6
PA	144	0.1	-
TX	1,239	48	17
UT	69	268	131
WV	0.2	0.6	0.3
WY	140	963	472

Sources: For state lands, various state agencies. Data not available for AR, and only incomplete data were available for OH. For federal lands, U.S. Department of Interior, Office of Natural Resource Revenue. Sums may not total due to rounding. Notes on state shares of federal lease revenue below.

Notes on Table 6.3: Revenue disbursements to states are sometimes described simply as 49 percent of the total amount of government revenue collected on federal lands. However, the actual amount may be lower due to several major factors.

First, for revenue produced in state waters where the federal government has jurisdiction (such as in parts of CA, LA, and TX), the applicable rate is 27 percent.

Second, 100 percent of the revenue generated on tribal land is allocated from the federal government to tribal governments or individual tribe members where oil and gas is produced. Where this is the case, such as in North Dakota and Colorado, the shares allocated to the state government will be below 49 percent.

Finally, ONRR is continually refining its data collection, conducting audits, and adjusting its records. Some of these data are subject to change as ONRR conducts audits at three-year cycles, meaning that the data reported here has not been audited and is subject to revision.

Table 6.4 Alaska FY 2013 local government revenue from oil and gas production ($million)

Revenue source	School districts	School trust funds	Boroughs and schools	Municipalities	Grant program	Other local governments	Total local government
Severance or similar							
Property			429.3				429.3
State lands	14.0						14.0
Federal lands	0.1						0.1
Total	14.1		429.3				443.5
Share of production value	**0.1%**		**2.3%**				**2.4%**

Note: Sums may not total due to rounding.

Table 6.5 Arkansas FY 2013 local government revenue from oil and gas production ($million)

Revenue source	School districts	School trust funds	Counties	Municipalities	Grant program	Other local governments	Total local government
Severance or similar			6.6	6.6			13.3
Property	39.9		1.9				41.8
State lands							
Federal lands			0.5				0.5
Total	39.9		9.0	6.6			55.6
Share of production value	**0.9%**		**0.2%**	**0.1%**			**1.3%**

Note: Sums may not total due to rounding.

Table 6.6 California FY 2013 local government revenue from oil and gas production ($million)

Revenue source	School districts	School trust funds	Counties	Municipalities	Grant program	Other local governments	Total local government
Severance or similar							
Property	287.5		119.6	30.7		67.4	505.1
State lands							
Federal lands							
Total	287.5		119.6	30.7		67.4	505.1
Share of production value	**1.4%**		**0.6%**	**0.1%**		**0.3%**	**2.4%**

Note: Sums may not total due to rounding.

Table 6.7 Colorado FY 2013 local government revenue from oil and gas production ($million)

Revenue source	School districts	School trust funds	Counties	Municipalities	Grant program	Other local governments	Total local government
Severance or similar			10.2	9.9	47.1		67.3
Property	205.2		131.7	5.0		24.9	366.9
State lands		102.3					102.3
Federal lands	49.2		10.7	9.0	19.7		88.6
Total	254.5	102.3	152.6	23.9	66.8	24.9	625.1
Share of production value	**1.0%**	**2.5%**	**1.5%**	**0.2%**	**0.7%**	**0.2%**	**6.1%**

Note: Sums may not total due to rounding.

Table 6.8 Kansas FY 2013 local government revenue from oil and gas production ($million)

Revenue source	School districts	School trust funds	Counties	Municipalities	Grant program	Other local governments	Total local government
Severance or similar			22.8				22.8
Property	65.2		73.8	22.5		14.0	175.5
State lands							
Federal lands							
Total	65.2		96.6	22.5		14.0	198.2
Share of production value	**1.3%**		**2.0%**	**0.5%**		**0.3%**	**4.0%**

Notes: Sums may not total due to rounding.

Table 6.9 Louisiana FY 2013 local government revenue from oil and gas production ($million)

Revenue source	School districts	School trust funds	Parishes	Municipalities	Grant program	Other local governments	Total local government
Severance or similar			41.0	41.0			82.1
Property	94.7		104.6			2.8	202.0
State lands			54.8				
Federal lands		24.6	0.3				
Total	94.7	24.6	200.8	41.0		2.8	363.8
Share of production value	**0.6%**	**0.1%**	**1.2%**	**0.2%**		**0.02%**	**2.1%**

Note: Sums may not total due to rounding.

Table 6.10 Montana FY 2013 local government revenue from oil and gas production ($million)

Revenue source	School districts	School trust funds	Counties	Municipalities	Grant program	Other local governments	Total local government
Severance or similar	51.7		47.3	2.7			101.7
Property							
State lands		26.0					26.0
Federal lands			5.3				5.3
Total	51.7	26.0	52.6	2.7			133.0
Share of production value	**2.0%**	**1.0%**	**2.0%**	**0.1%**			**5.1%**

Note: Sums may not total due to rounding.

Table 6.11 New Mexico FY 2013 local government revenue from oil and gas production ($million)

Revenue source	School districts	School trust funds	Counties	Municipalities	Grant program	Other local governments	Total local government
Severance or similar							
Property	49.5		58.6	0.6		13.3	122.0
State lands	38.1	413.4					451.5
Federal lands	424.4						424.4
Total	545.2	413.4	58.6	0.6		13.3	1,031.1
Share of production value	**4.1%**	**3.1%**	**0.4%**	**0.004%**		**0.1%**	**7.8%**

Note: Sums may not total due to rounding.

Table 6.12 New Mexico FY 2013 local government revenue from oil and gas production ($million)

Revenue source	School districts	School trust funds	Counties	Municipalities	Grant program	Other local governments	Total local government
Severance or similar	33.9		217.6	179.6	140.0		571.0
Property							
State lands		344.9					344.9
Federal lands	45.1		47.2				92.3
Total	79.0	344.9	264.7	179.6	140.0		868.3
Share of production value	**0.3%**	**1.4%**	**1.1%**	**0.7%**	**0.6%**		**4.1%**

Note: Sums may not total due to rounding.

Table 6.13 Ohio FY 2013 local government revenue from oil and gas production ($million)

Revenue source	School districts	School trust funds	Counties	Municipalities	Grant program	Other local governments	Total local government
Severance or similar							
Property	3.4		0.7	0.6			4.7
State lands							
Federal lands							
Total	3.4		0.7	0.6			4.7
Share of production value	**0.4%**		**0.1%**	**0.1%**			**0.5%**

Note: Sums may not total due to rounding.

Table 6.14 Oklahoma FY 2013 local government revenue from oil and gas production ($million)

Revenue source	School districts	School trust funds	Counties	Municipalities	Grant program	Other local governments	Total local government
Severance or similar			77.3	2.6			79.9
Property	393.9		59.9	7.6		83.6	545.1
State lands		62.6					62.6
Federal lands							
Total	393.9	62.6	137.3	10.2		83.6	687.6
Share of production value	**2.4%**	**0.4%**	**0.8%**	**0.1%**		**0.5%**	**4.2%**

Note: Sums may not total due to rounding.

Table 6.15 Pennsylvania FY 2013 local government revenue from oil and gas production ($million)

Revenue source	School districts	School trust funds	Counties	Municipalities	Grant program	Other local governments	Total local government
Impact fee			54.9	75.6	25.5		155.9
Property							
State lands							
Federal lands							
Total			54.9	75.6	25.5		155.9
Share of production value			**0.6%**	**0.8%**	**0.3%**		**1.6%**

Note: Sums may not total due to rounding.

Table 6.16 Texas FY 2013 local government revenue from oil and gas production ($million)

Revenue source	School districts	School trust funds	Counties	Municipalities	Grant program	Other local governments	Total local government
Severance or similar	1,115.6						1,115.6
Property	1,552.3		536.9	167.5		218.2	2,475.0
State lands		1,239.2					1,239.2
Federal lands	8.3		5.8	2.5			16.7
Total	2,676.2	1,239.2	542.8	170.0		218.2	4,846.5
Share of production value	**2.5%**	**1.2%**	**0.5%**	**0.2%**		**0.2%**	**4.5%**

Note: Sums may not total due to rounding.

Table 6.17 Utah FY 2013 local government revenue from oil and gas production ($million)

Revenue source	School districts	School trust funds	Counties	Municipalities	Grant program	Other local governments	Total local government
Severance or similar							
Property	27.9		14.2	3.7		6.8	52.6
State lands		69.1					69.1
Federal lands			64.1		55.5		119.6
Total	27.9	69.1	78.3	3.7	55.5	6.8	241.3
Share of production value	**0.7%**	**1.6%**	**1.8%**	**0.1%**	**1.3%**	**0.2%**	**5.7%**

Note: Sums may not total due to rounding.

Table 6.18 West Virginia FY 2013 local government revenue from oil and gas production ($million)

Revenue source	School districts	School trust funds	Counties	Municipalities	Grant program	Other local governments	Total local government
Severance or similar			8.4				8.4
Property	47.3		19.4	5.0			71.7
State lands							
Federal lands							
Total	47.3		27.8	5.0			80.1
Share of production value	**1.9%**		**1.1%**	**0.2%**			**3.3%**

Note: Sums may not total due to rounding.

Table 6.19 Wyoming FY 2013 local government revenue from oil and gas production ($million)

Revenue source	School districts	School trust funds	Counties	Municipalities	Grant program	Other local governments	Total local government
Severance or similar			32.6	44.5			77.1
Property	466.3		115.8	10.1		47.0	639.2
State lands	17.6	111.0					128.6
Federal lands	175.2			12.1	4.8		192.1
Total	659.1	111.0	148.4	66.7	4.8	47.0	1,037.1
Share of production value	**5.9%**	**1.0%**	**1.3%**	**0.6%**	**0.04%**	**0.4%**	**9.3%**

Note: Sums may not total due to rounding.