



# How Wyoming Returns “Unconventional” Oil Revenue to Local Governments

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## Introduction

This brief shows how Wyoming’s local governments receive production tax revenue from unconventional oil extraction. Fiscal policy is important for local communities for several reasons. Mitigating the acute impacts associated with drilling activity and related population growth requires that revenue is available in the amount, time, and location necessary to build and maintain infrastructure and to provide services. In addition, managing volatility over time requires different fiscal strategies, including setting aside a portion of oil revenue in permanent funds.<sup>1</sup>

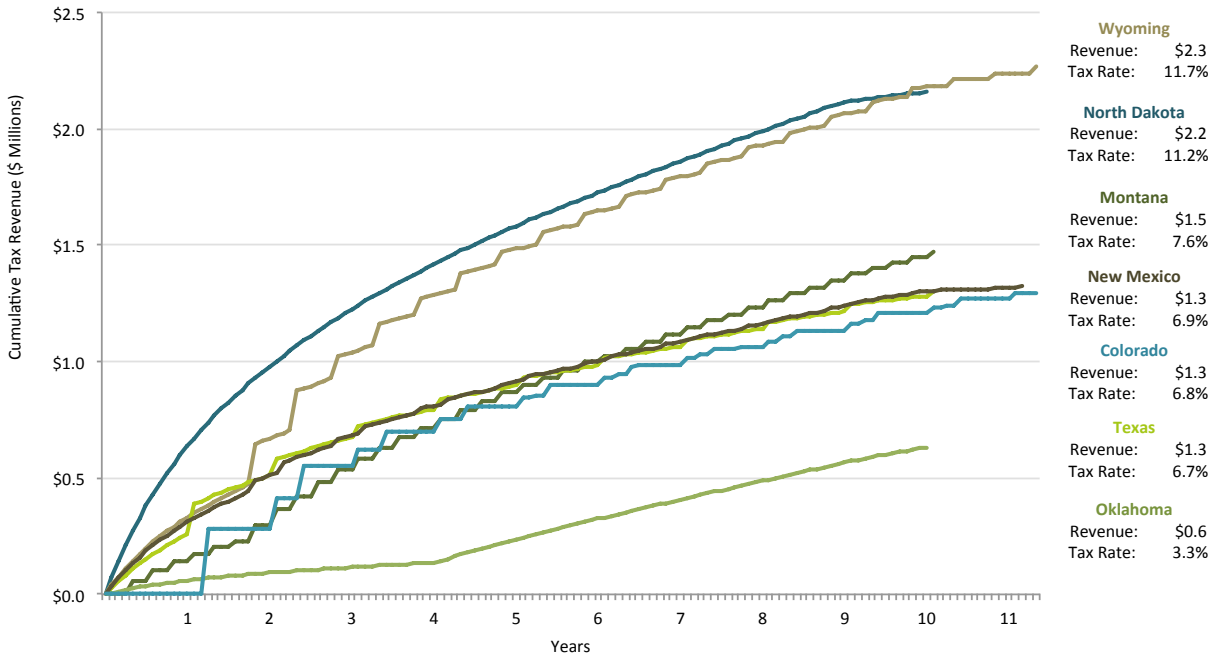
The focus on unconventional oil is important because horizontal drilling and hydraulic fracturing technologies have led a resurgence in oil production in the U.S. Unconventional oil plays require more wells to be drilled on a continuous basis to maintain production than comparable conventional oil fields. This expands potential employment, income, and tax benefits, but also heightens and extends public costs.

This brief is part of a larger project by Headwaters Economics that includes detailed fiscal profiles of major oil-producing states—Colorado, Montana, New Mexico, North Dakota, Oklahoma, Texas, and Wyoming—along with a summary report describing differences between these states. These profiles will be updated regularly. The various approaches to taxing oil make comparisons between states difficult, although not impossible. We apply each state’s fiscal policy, including production taxes and revenue distributions, to a typical unconventional oil well. This allows for a comparison of how states tax oil extracted using unconventional technologies, and how this revenue is distributed to communities. Detailed state profiles and the larger report are available at <http://headwaterseconomics.org/energy/state-energy-policies>.

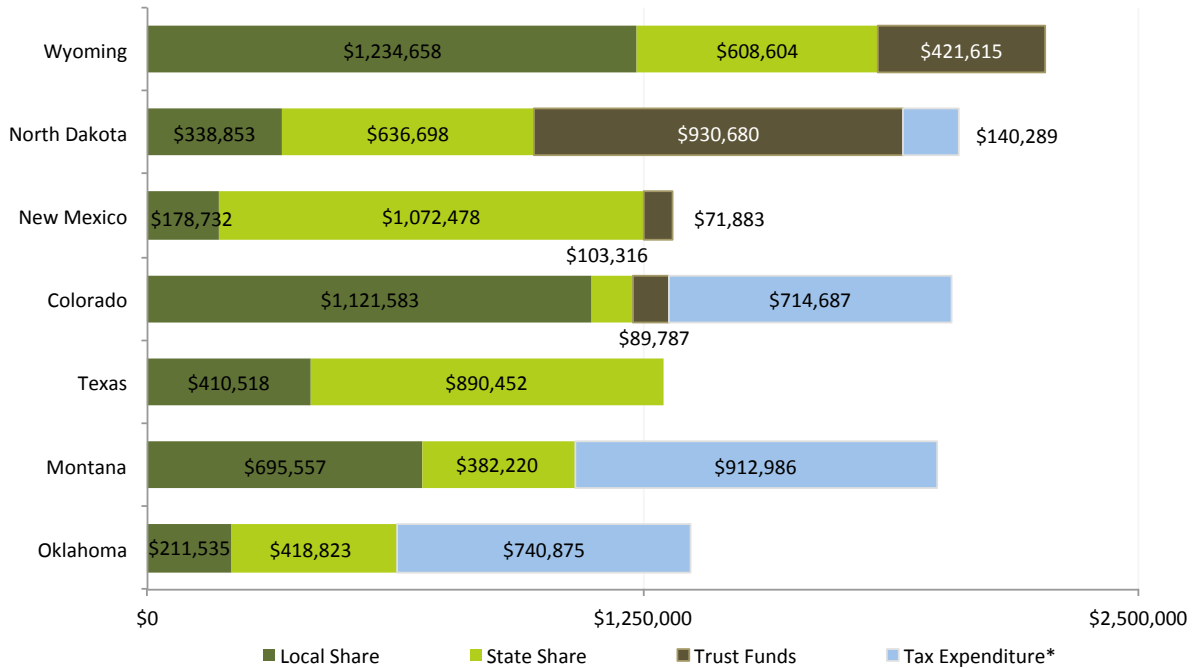
## Wyoming Summary

- Wyoming levies two main taxes on oil production: a state severance tax and local property taxes. The two taxes add to an effective tax rate of 11.7 percent on unconventional oil production, the highest effective tax rate compared to the other six states in this report. Wyoming does not offer any specific incentives for unconventional oil production.
- Because local governments in Wyoming rely on property taxes to generate revenue from oil production, they are exposed to annual volatility and face challenges related to the timing and location of revenue collections that don’t necessarily match local needs.
- Wyoming saves a relatively large share of production tax revenue in a permanent trust fund (the Permanent Wyoming Mineral Trust Fund), second only to North Dakota of the seven states we include in this report. The investment income is directed to the state’s General Fund.

**Figure 1: Comparison of Production Tax Revenue Collected from a Typical Unconventional Oil Well**



**Figure 2: Comparison of Distribution of Production Tax Revenue from a Typical Unconventional Oil Well**



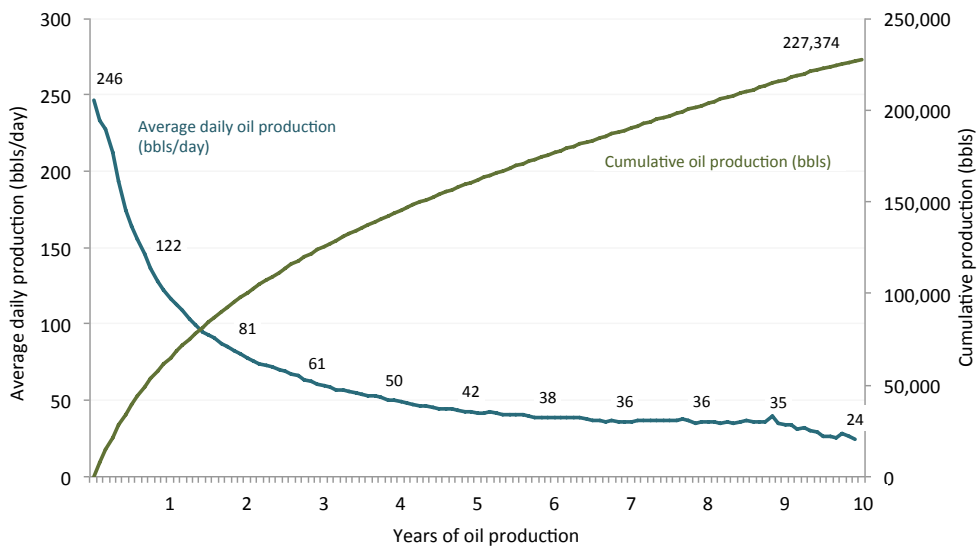
\*Tax Expenditure refers to the value of production tax incentives and tax relief funded with production tax revenue.

## Unconventional Oil Well Performance

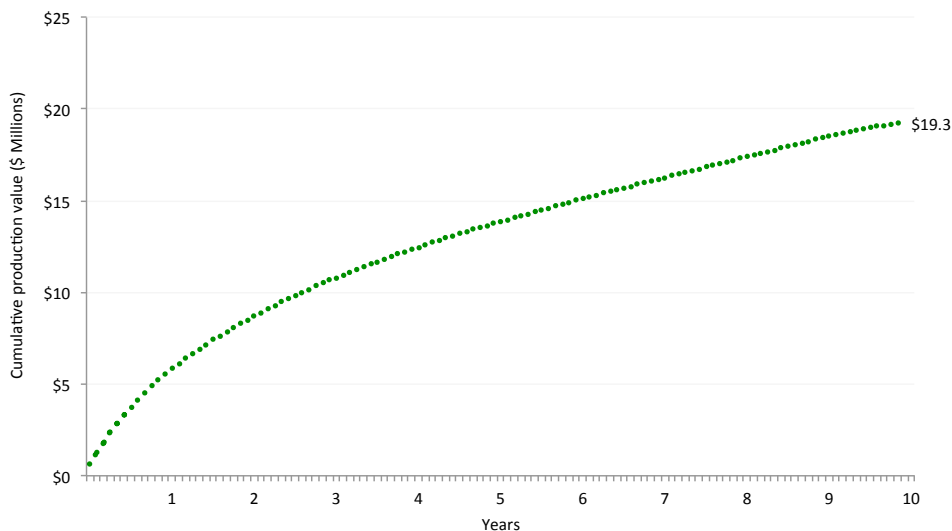
Unconventional oil is produced using horizontal drilling and hydraulic fracturing technologies. While no two wells are identical, unconventional wells all share a typical production profile, characterized by relatively high rates of initial production followed by steep production declines.<sup>2</sup> This makes it possible to construct a typical well profile—in this case using data from Montana’s Elm Coulee field in the Bakken formation. We use this well profile to determine how a state’s taxation and distribution policies combine to deliver revenue to local governments over ten years in terms of amount, timing, location, and predictability.<sup>3</sup>

There were 789 horizontal oil wells drilled in the Elm Coulee between 2000 and 2012.<sup>4</sup> Average oil production peaked at 246 barrels per day in the first month, declining to 122 barrels per day after one year—a 51 percent decline in the first year. Cumulatively, the average Elm Coulee well produces 227,374 barrels of oil over ten years (Figure 3). At a fixed price of \$85 per barrel, the typical well generates \$19.3 million in cumulative production value over ten years (Figure 4).

**Figure 3: Production Profile from a Typical Unconventional Oil Well**



**Figure 4: Cumulative Production Value from a Typical Unconventional Oil Well**



## Profile of Wyoming Production Taxes

Wyoming levies two main production taxes on oil: the state severance tax and local government property taxes on gross production value. Wyoming maintains the highest effective tax rate on unconventional oil production compared to the other six states in this report. The state does not offer any specific incentives for unconventional oil production. Local governments are largely reliant on property taxes to fund local services.

This dependence on property taxes creates inherent challenges relative to oil production and related booms and busts that can occur quickly. Property taxes are only collected annually, extending the time lag between when drilling impacts occur, and when revenue is received from production. The lag can make it difficult for communities to manage rapidly increasing impacts related to drilling activity and related population growth. Property taxes also result in uneven distribution of revenue between local governments. Jurisdictions can only tax production if it occurs within their borders, making it difficult for adjacent cities, school districts, and counties that do not have production to raise revenue to deal with impacts they experience from population growth and industrial activities.

Below we offer a detailed look at how the two taxes apply to unconventional oil production using the typical well profile in the previous section. The results are displayed in Figure 5 and Table 1.

### Severance Tax

Base Rate: The severance tax rate is six percent on oil production. Severance tax rates are applied to the taxable value of the current period's mineral production at the point where the production process is complete, before processing and transportation.<sup>5</sup>

Stripper Wells: Stripper wells pay a reduced rate of four percent. Stripper wells are defined as wells producing less than 10 bbls/day if average price is over \$20/bbl, and less than 15 bbls/day if average price is under \$20/bbl.

Production Incentives: None.

Timing of Collections: Monthly.

### Local government property (ad valorem) tax

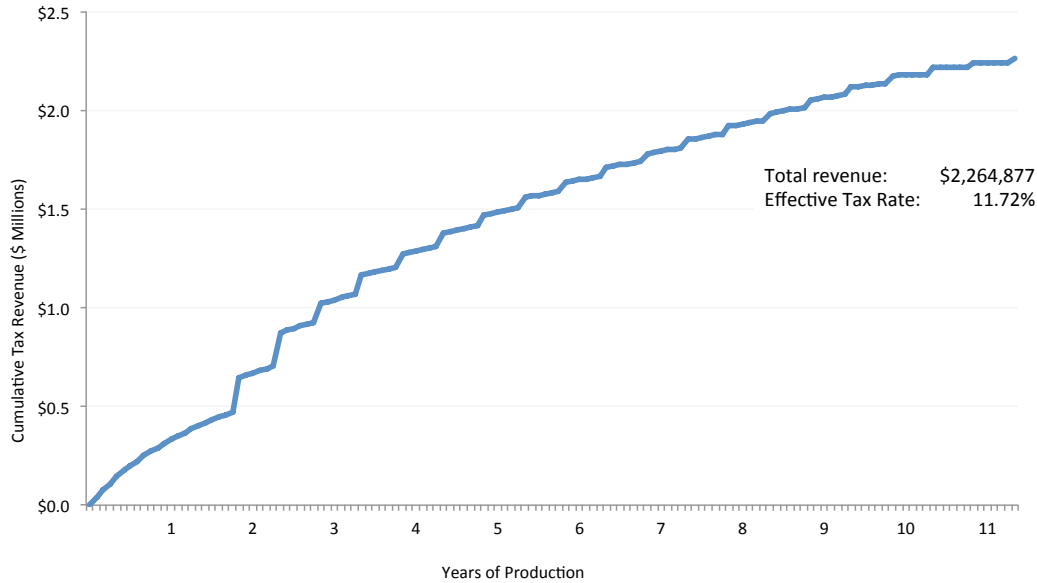
Base Rate: Oil production is assessed at 100 percent of the prior year's market value of production. Local tax levies are applied to the assessed value. Statistics on property tax revenue by source are available from the Wyoming Department of Revenue annual reports.

Stripper Wells: None.

Production Incentives: None.

Timing of Collections: Annual. Assessments are determined by June of the following year, and taxes are payable in two installments: 50 percent of the taxes are due by November 10 and the remaining 50% by May 10 of the succeeding calendar year (more than two years after well completion in some cases).<sup>6</sup>

**Figure 5: Wyoming Tax Policy Applied to a Typical Unconventional Oil Well**



**Table 1: Wyoming Tax Policy Applied to a Typical Unconventional Oil Well**

Production Year	Gross Production		Wyoming Severance Tax	Wyoming Local Property Tax	Total Production Tax Revenue	Effective Tax Rate
	Value of Oil Production					
1	\$5,530,321		\$331,819	\$0	\$331,819	11.7%
2	\$2,984,622		\$179,077	\$158,136	\$337,213	11.7%
3	\$2,146,014		\$128,761	\$243,479	\$372,240	11.7%
4	\$1,686,964		\$101,218	\$146,707	\$247,925	11.7%
5	\$1,412,756		\$84,765	\$109,602	\$194,367	11.7%
6	\$1,250,365		\$75,022	\$88,634	\$163,656	11.7%
7	\$1,160,428		\$69,626	\$76,150	\$145,776	11.7%
8	\$1,136,597		\$68,196	\$68,935	\$137,131	11.7%
9	\$1,121,166		\$67,270	\$65,682	\$132,952	11.7%
10	\$897,516		\$53,851	\$64,559	\$118,410	11.7%
11				\$57,723	\$57,723	
12				\$25,664	\$25,664	
<b>Cumulative</b>	<b>\$19,326,749</b>		<b>\$1,159,605</b>	<b>\$1,105,272</b>	<b>\$2,264,877</b>	<b>11.7%</b>

## Profile of Wyoming Production Tax Distribution Policies

Local governments receive the largest amount of money from unconventional oil compared to other states on a standard per-well basis. Almost all of this revenue, however, is generated through direct local property taxes on oil production. The state shares little of the state severance tax with communities, and investment income from the Wyoming Permanent Mineral Trust Fund is deposited into the state general fund.

The state is making significant investments in schools and infrastructure statewide, and this is a major benefit of the resource wealth in Wyoming. However, the local budgets of communities in the oil patch are still exposed to annual volatility and face challenges related to the timing and location of revenue collections that do not necessarily match local needs.

The following section describes allocation of production taxes between the state government, local governments, permanent trust funds, and tax expenditures.

### Allocations

Statistics on distribution amounts are available from the State of Wyoming Revenue Consensus Estimating Group (CREG) Annual Revenue Forecasts that include excellent summary data on prior year revenue collections and distributions.<sup>7</sup>

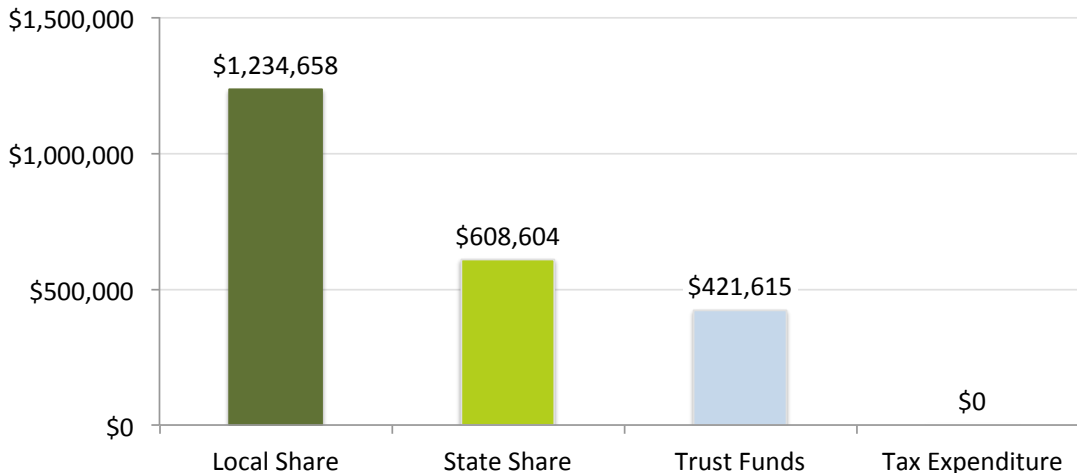
State Share: Three and a half percent of taxable value, or 58.333 percent of severance tax collections is distributed to the Severance Tax Distribution Account (STDA). Up to \$155 million each fiscal year is distributed from the STDA to nine different accounts/entities.<sup>8</sup> Spending includes amounts for water development, highway funding, local governments, capital facilities, and the state General Fund. Amounts in excess of \$155 million are distributed to the state General Fund (one-third) and to the Budget Reserve Account (two-thirds).

Local Share: Local property taxes on gross production tax are collected directly by local governments and distributed to counties, schools, cities, and special districts based on the location of production and local mill levies. Cities, towns, and counties also receive a share of allocations from the Severance Tax Distribution Account as direct distributions and grants for infrastructure and capital improvements.

Permanent Savings: Two and a half percent of taxable value, or 41.667 percent of severance tax collections are distributed to the Permanent Wyoming Mineral Trust Fund (PWMTF).

Tax Expenditures: None.

**Figure 6: Wyoming Distribution Policy Applied to a Typical Unconventional Oil Well**



**Table 2: Wyoming Distribution Policy Applied to a Typical Unconventional Oil Well**

Distribution	Description	Amount	Share of Total
<b>State Share</b>		<b>\$608,604</b>	<b>26.9%</b>
General Fund	After PWMTF distributions, General Fund receives 62.5% of Severance Tax Distribution Account allocations, and one-third of excess revenue after the Severance Tax Distribution Account reaches \$155 million. General Fund distributions were 11.6% of total production tax revenue in FY 2012.	\$263,318	11.6%
Infrastructure Spending	The Highway Fund receives 3.5% of Severance Tax Distribution Account allocations.	\$7,992	0.4%
Natural Resources Mgmt.	Several funds that have natural resources development and conservation purposes receive allocations from the Severance Tax Distribution Account, including: Water I; Water II; Water III; and Other (DEQ Leaking Underground Storage Tanks).	\$40,463	1.8%
Other	The Budget Reserve Act receives 66.7% of excess revenue after PWMTF distributions and the Severance Tax Distribution Account reaches \$155 million.	\$296,831	13.1%
<b>Local Government</b>		<b>\$1,234,658</b>	<b>54.5%</b>
Local Production Taxes	Local governments levy property taxes directly against the net production value of oil extracted in each taxing jurisdiction.	\$1,200,774	53.0%
Direct Distributions	Cities and towns and counties receive 13.13% of Severance Tax Distribution Account allocations.	\$24,232	1.1%
Impact Grants	Cities, Towns, Counties and Special Dist. Capital Construction Fund and State Aid to County Roads Fund receive 5.23% of Severance Tax Distribution Account allocations.	\$9,652	0.4%
<b>Trust Funds</b>		<b>\$421,615</b>	<b>0.0%</b>
Natural Resources Trust Fund	2.5% of taxable value, or 41.67% of total severance tax collections are deposited in the Permanent Wyoming Mineral Trust Fund (PWMTF). The state also makes occasional discretionary deposits.	\$421,615	18.6%
Schools Trust Fund		\$0	0.0%
Other Trust Funds		\$0	0.0%
<b>Tax Expenditures (Incentives)</b>		<b>\$0</b>	<b>0.0%</b>
Production Tax Incentives		\$0	0.0%
Dedicated Tax Relief		\$0	0.0%
<b>Total Distributions</b>		<b>\$2,264,877</b>	<b>100.0%</b>

## Contact

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Headwaters Economics is an independent, nonprofit research group whose mission is to improve community development and land management decisions in the West.

## Endnotes

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<sup>1</sup> Headwaters Economics. *Oil and Natural Gas Fiscal Best Practices: Lessons for State and Local Governments*. November 2012. [http://headwaterseconomics.org/wphw/wp-content/uploads/Energy\\_Fiscal\\_Best\\_Practices.pdf](http://headwaterseconomics.org/wphw/wp-content/uploads/Energy_Fiscal_Best_Practices.pdf).

<sup>2</sup> See, for example: Energy Information Administration. 2013a. NEMS Model Documentation 2013: Oil and Gas Supply Module. Appendix 2.C: Decline Curve Analysis. U.S. Department of Energy. Washington, D.C.

<sup>3</sup> This same approach is used by other analysts. See, for example, Ernst & Young LLP. 2012. Analysis of Ohio Severance Tax Provisions of H.B. 487. Prepared by Ernst & Young LLP for the Ohio Business Roundtable. <http://jobs-ohio.com/images/Ernst-Young-Severance-Tax-Analysis-Prepared-for-the-Ohio-Business-Roundtable-5-15-12.pdf>; See also Montana Department of Revenue. 2012. Oil and Gas Production Tax Comparison: Montana and North Dakota. Helena, MT. [http://revenue.mt.gov/content/committees/legislative\\_interim\\_committee/oil\\_and\\_gas\\_prod\\_tax\\_comp\\_july\\_rtic.pdf](http://revenue.mt.gov/content/committees/legislative_interim_committee/oil_and_gas_prod_tax_comp_july_rtic.pdf).

<sup>4</sup> Montana Board of Oil and Gas Conservation. Production data for Elm Coulee Horizontally Completed Wells. 2000 to 2013. Department of Natural Resources and Conservation. Analysis by Headwaters Economics.

<sup>5</sup> Temte, Dean. 2010. Wyoming Severance Taxes and Federal Mineral Royalties. Wyoming Legislative Service Office. PDF slide show presentation <http://legisweb.state.wy.us/budget/wyosevtaxes.pdf>. (accessed 8-3-2013).

<sup>6</sup> Wyoming Property Tax Division. Frequently Asked Questions. <http://revenue.wyo.gov/property-tax-division>.

<sup>7</sup> State of Wyoming Consensus Revenue Estimating Group (CREG). Department of Administration and Information, Economic Analysis Division. Most recent data is January 2013 CREG Forecast for FY2013-FY2018. <http://eadiv.state.wy.us/creg/creg.html>. (accessed on August 3, 2013).

<sup>8</sup> Temte, Dean. 2010. Wyoming Severance Taxes and Federal Mineral Royalties. Wyoming Legislative Service Office. PDF slide show presentation <http://legisweb.state.wy.us/budget/wyosevtaxes.pdf>. (accessed 8-3-2013).