

Methods Documentation: Wyoming

Appendix of Working Paper 24-01 by **Daniel Raimi, Elena Davert, Haley Neuenfeldt, Amy Van Zanen, and Zach Whitlock**

1. Table of Contents

This document details our methods for collecting and estimating amounts from those taxes, royalties, fees and payments that are distributed to the local level in Wyoming.

State Collections

Federal Mineral Lease Revenue distributed via formulaic distribution. – Final values can be found in the “FML_Final” tab.

Severance Revenue distributed via formulaic distribution. – Final values can be found in the “Sev_Final” tab.

Wind Generation Revenue distributed via formulaic distribution to counties. – Final values can be found in the “WindGen_Final” tab.

Local Collections

Property Taxes levied on mineral reserves, Power Plants, Renewable Facilities, Refineries and Natural Gas Processing and Distribution systems, Electric Companies, and Pipelines. – Final values can be found in the “Prop_Final” tab.

2. Federal Mineral Lease Revenue

2.1. Policy

The Wyoming State Treasurer collects revenue generated from federal lands. Per Wyoming Statutes § 9-4-601 Federal Mineral Royalties received the equal less than \$200 million are distributed to the following funds: Cities and Towns, University of Wyoming, School Foundation, Highway Department, State Lands and Investments Capital Construction and School District Capital Construction. Federal Mineral Royalties over \$200 million get distributed to the funds above but also go to the School Foundation and Budget Reserve (WY_5).

2.2. Data Inputs

Unique ID	Source	Data Name, Shorthand	Description
WY_1	Wyoming State Treasurer	Annual Reports	Data summarizes the distribution of Federal Mineral Lease Revenue and Coal Bonuses through direct and indirect formulaic distribution.

2.3. Calculations and Assumptions

Federal Mineral Royalties

1) Collecting Distribution Data

Using Annual Reports from the Wyoming State Treasurer, we compiled direct distributions of Federal Mineral Lease revenue for cities and towns, as well as aggregate deposits into the remaining funds. The statute does not include provisions for how the funds other than “Cities and Towns” are distributed locally, so we did not include those values in our analysis.

Note: See the “FML_Raw” tab.

2) Disaggregate by Energy Type

We then selected our counties of interest using Municipality data from the Wyoming Department of Administration and Information, then multiplied by the ONRR Ratios. Using ONRR Revenue data, we estimated the proportion of federal mineral lease revenue by State, Fiscal Year, and Commodity. See the ONRR Methods Documentation for more details.

Note: See “FML_ONRR_Ratios” and “FML_Interim1” tabs.

2.4. Output

Federal Mineral Lease tax data disaggregated by municipal jurisdiction and mineral type for years 2012-2021.

Note: See the “FML_Final” tab.

3. Severance Tax

3.1. Policy

The Wyoming Department of Treasury collects severance revenue for all minerals produced in the state, including oil, natural gas, coal, trona, uranium, and other “valuable products.” Two thirds of all revenue is deposited into the Permanent Wyoming Mineral Trust Fund and Permanent Mineral Trust Fund Reserve Account, and the remaining third is deposited into the Severance Tax Distribution Account.

Per Wyoming Statutes § 39-14-801, DoR makes the following distributions from the Severance Tax Distribution Account, not to exceed one hundred fifty-five million dollars (\$155,000,000.00) in any fiscal year (any excess is deposited into the state’s General Fund and Budget Reserve Account). Items in bold indicate funds with direct distributions to county and sub-county governments:

- 62.26% - State General Fund
- 12.45% - Water Development Account I
- **9.25% - Cities and Towns**
- 4.33% - Highway Fund
- **3.1% - Counties**
- **2.9% - Road Construction and Maintenance (Distributed to Counties)**
- 2.33% - Capital Construction Account
- 2.1% - Water Development Account II
- **0.78% - Counties**
- 0.5% - Water Development Account III

3.2. Data Inputs

Unique ID	Source	Data Name, Shorthand	Description
WY_2	Wyoming Department of Revenue	Mineral Tax Distribution Data	Data summarizes quarterly distribution of all mineral revenue by source (coal, oil, gas, and other) and by fund. Funds include the State’s General Fund, Permanent Wyoming Mineral Trust Fund, capital investment funds, and direct distribution to cities, towns, and counties. However, data is not disaggregated by county.
WY_3	Wyoming Department of Administration and Information	Wyoming Population Estimates and Forecasts	We used population datasets to identify the appropriate umbrella counties for cities and towns.
Fed_13, Fed_14	United States Census	County Population Estimates	Population Data from 2012-2022.
Fed_15, Fed_16	United States Census	City and Town Population Estimates	Population Data from 2012-2021.

3.3. Calculations and Assumptions

1) Collecting Distribution Data

First we downloaded the mineral tax reports from the Wyoming Department of Revenue. We were able to obtain all quarterly distribution reports from 2012-2021, except for April 2018.

We removed all mineral tax records associated with “Trona,” “Uranium,” and “Other Valuable Products” and left only payments associated with fossil fuels of interest: coal (surface and underground), natural gas and oil. We also removed all payments associated with “Interest” and “Penalty,” which are always attributed to the State General fund, not our funds of interest.

Note: See the “Sev_Raw” tab.

2) Consolidating and coding mineral distributions by Energy Type

We then further consolidated the distribution data by removing all records and entire funds with zero payments from 2012-2022 (Including “DEQ FIN. RESP,” “DEQ. CORR. ACTION,” and “Capital Facilities.” We also removed records labeled “LUST from WYDOT to DEQ,” which represent financial transfers from the Department of Transportation to the Department of Environmental Quality. After this, we coded the “Mineral Description” column into our relevant energy categories of interest.

Note: See the “Sev_Coded” tab.

“Cities, Towns, and Counties” Fund

3) Summarize Distribution Data By Year

We consolidated the quarterly data into single annual records for each energy type.

Note: See the “Sev_CityCountiesPIVOT” tab.

4) Disaggregating Direct Distribution for Cities, Towns, and Counties

Because most of the direct distributions of severance revenue are determined by population¹, we used population as the main mechanism for estimating the distribution of severance revenue across counties, cities, and towns.

1 Per (Wyoming Statutes § 39-14-801):

(v) To counties, seventy-eight hundredths percent (0.78%), subject to the following formula:

(A) Fifty percent (50%) of the funds distributed under this paragraph shall be distributed to the counties in the same proportion that the population of the county bears to the population of the state; and

(B) Fifty percent (50%) of the funds distributed under this subsection shall be distributed to the counties based upon the inverse of the assessed valuation of each county as computed under subparagraph (vii)(C) of this subsection.

(vi) To counties, three and one-tenth percent (3.1%), each county to receive an amount in the proportion which the population of the county bears to total state population;

(viii) To cities and towns, nine and twenty-five hundredths percent (9.25%), each city or town to receive an amount in the proportion which the population of the city or town bears to the population of all cities and towns in Wyoming;

	Percent of Severance Distribution	Percent of "Cities, Towns, Counties" Fund
Counties	0.78	5.94%
Counties	3.1	23.61%
Cities and Towns	9.25	70.45%
Total	13.13%	100%

Using the consolidated annual records by energy type, we allocated 29.55% of the distribution to Counties and 70.45% for Cities and towns. Then, using Census population data, we allocated the funds to our counties and municipalities of interest, based on their proportion of population in relation to the state.

Note: See the “Sev_CityCountiesCalc” tab.

“Road Construction and Maintenance” Fund

5) Summarize Distribution Data By Year

We consolidated the quarterly data into single annual records for each energy type.

Note: See the “Sev_RoadPIVOT” tab.

6) Disaggregating Indirect Distribution: Road Construction Funds for Counties

We also used population as a means of allocating Road Construction revenue across counties. Although this fund is allocated by population, mileage of roads, and assessed valuation², we used population as a proxy.

Note: See the “Sev_RoadCalc” tab.

7) Combine all Mineral Distribution data

We then combined all county and municipal/township records into one spreadsheet before finalizing.

Note: See the “Sev_Interim” tab.

2 Per (Wyoming Statutes § 39-14-801):

(vii) To the road construction and maintenance funds of the various counties as provided by W.S. 24-2-110, two and nine-tenths percent (2.9%), except that each county’s share of funds under this subsection shall be computed as follows:

- (A) One-third (1/3) shall be distributed to each county in the ratio that the population of the county bears to total state population;
- (B) One-third (1/3) shall be distributed to each county in the ratio that the mileage of county roads in the county bears to total county roads in Wyoming;
- (C) One-third (1/3) shall be distributed to each county as follows:
 - (I) Arrange the assessed valuation of each county in descending order by county;
 - (II) Calculate the county percentages of assessed valuation relative to total state valuation;
 - (III) Calculate the inverse of the county percentage of total state assessed valuation by dividing one (1) by the percentage computed in subdivision (C)(II) of this paragraph;
 - (IV) Compute each county share by dividing each inverse calculated under subdivision (III) of this subparagraph by the total sum of the inverses calculated under subdivision (III) of this subparagraph.

3.4. Output

Severance tax data disaggregated by County, fund, and mineral type for years 2012-2022.

Note: See the “Sev_Final” tab.

4. Wind Generation Tax

4.1. Policy

Per Wyoming Statutes § 39-22, the State of Wyoming imposes a \$1.00 tax on each megawatt hour produced by wind energy developments. The tax goes into effect three years after the wind turbine first produces electricity. The Wyoming Department of Revenue collects this tax and then distributes sixty percent (60%) to the counties where the facilities are located, and distributes the remaining forty percent (40%) into the state’s general fund.

- Oil Production Tax (3290) - Texas Code Sec. 202.352-353
- Gas Production Tax (3291) - Texas Code Sec. 201.403-404
- Gas, Water, Electric Utility Tax (3233) - Texas Code Sec. 182.122
- Oil Well Service Tax (3296) - Texas Code Sec. 191.122

In addition to funds from the FSA, the Foundation School Program is also receives funds from the Available School Fund (0002) (ASF). The ASF serves as a passthrough for funding from the Permanent School Fund (0044) (PSF) which in turn receives 25% of state-collected revenue from oil and gas royalties, bonuses and leases on state lands and lands owned by educational institutions as well as 2/3rds of Outer Continental Shelf Settlement Monies, which are comprised of revenue from offshore oil and gas leases (Texas Code Sec. 202.43.001, U.S. Public Law 99-272).

Therefore, there are two options for attributing Foundation School Program payments to state-collected energy-related revenues. The first is to only follow funds directly distributed to school districts from the Foundation School Account. The second way is to trace distributions back through the ASF to the PSF and its revenue sources. We decided to use the first method and only trace funds received by the FSA and distributed by the FSA because, according to the data we received from the Comptroller as part of our open records request, funds disbursed to school districts never passed through the ASF (0002). However, because the ASF also funds the Foundation School Program, the amount the ASF provides the FSP may influence the amounts of FSP payments. Below we describe both options. The data sources with two asterisks are sources that are only needed for the second option.

4.2. Data Inputs

Unique ID	Source	Data Name, Shorthand	Description
WY_4	Wyoming Department of Revenue	DOR Annual Reports	DOR’s Annual Reports include a summary of historic wind generation revenue, including distributions by county.

4.3. Calculations and Assumptions

1) Direct allocation solely to Counties.

Because the statute (2020 Wyoming Statutes, Section 39-22-111) does not offer any requirements or guidance for how funds are distributed to sub-county jurisdictions, we did not further disaggregate beyond county-level revenues.

Our counties of interest:

Note: See the “WindGen_Final” tab.

4.4. Output

Wind generation revenue, disaggregated by county, for years 2015-2021.

5. Property Taxes

5.1. Policy

In the State of Wyoming, Mineral and Oil & Gas Companies are valued by the Wyoming Department of Revenue Mineral Tax Division. Commercial, Residential, and Industrial Property is valued by the local County Assessor. The county gross products tax is an ad valorem property tax based on the taxable value of minerals produced in the previous calendar year, which is also assessed by the State (WY_6).

5.2. Data Inputs

Unique ID	Source	Data Name, Shorthand	Description
WY_4	Wyoming Department of Revenue	Annual Reports	Reports include detailed Locally-assessed and State-assessed valuations, by county, plus County, Municipal, and Special District Taxes Levied.
Fed_11	U.S. Energy Information Administration	Petroleum Refineries	Record of operating crude oil refineries.
Fed_10	U.S. Energy Information Administration	Natural Gas Processing Facilities	Includes Natural Gas Processing Facilities across the US by county.

5.3. Calculations and Assumptions

1) Compile Total Taxable Values For Relevant Property Classifications

First we collected total taxable data from the following sections and property class categories of interest. We collected this data in three locations in the Annual Reports:

- Property Tax Division: Locally Assessed Valuations
- Property Tax Division: State Assessed Valuations
- Mineral Tax Division: State Assessed Valuations

Note: See the “Prop_Assessed_Raw” tab.

2) Estimate Taxable Value Ratios by County

We then collected the Total Assessed Values – Local and State - reported by county and calculated the proportions of total assessed value of each property class by each county and fiscal year.

Note: See the “Prop_Assessed_Ratios” tab.

3) Compile Revenue Data

Next we collected data about total taxes levied by different jurisdictions. We collected this data in two locations of the Property Tax Division section of the Annual Reports:

- Grand Total County Levies (which includes a sum of all taxes levied for special districts and school districts)
- City and Town Assessed Valuation and Taxes Levied for the Year

Note: See the “Prop_Levied_Raw_County” and “Prop_Levied_Raw_Muni” tabs.

We chose to use the more granular City and Town Taxes Levied for the Year, rather than the “Municipal” total included in the Grand Total County Levies tables.

4) Estimate property tax revenue by property class, county, and jurisdiction

Using an Excel Power Query, we first created a table of all possible combinations of jurisdiction, assessment category, and year.

Note: See the “Prop_Interim” tab.

Then, separating Counties/School Districts/Special Districts from Municipalities, we multiplied the raw taxes levied by each jurisdiction by the appropriate assessed value ratio to estimate the total tax levied.

Note: See the “Prop_Interim_County-SD-Other” and “Prop_Interim_Muni” tabs.

5) Define revenue by Energy Type and Phase

Finally, we used the crosswalk below to identify the appropriate simplified energy type and phase for each individual record.

Note: See the “Prop_Interim3” tab.

Assessed	Property Class/Detailed Energy Type	Energy Type Simplified	Phase
Locally	Coal Mining	Coal	Upstream
Locally	Oil and Gas Extraction	Oil and gas	Upstream
Locally	Petroleum and Coal Product Manufacturing	Fossil	Midstream_Refining
Locally	Pipeline Transportation	Oil and gas	Midstream_Pipeline
State	Gas Distribution	NG	Downstream_Distribution
State	Gas Pipelines	NG	Midstream_Pipeline
State	Liquid Pipelines	Oil	Midstream_Pipeline
State	Major Electrics	Electric	Downstream_GenTranDist
State	Municipal Electrics	Electric	Downstream_GenTranDist
State	Natural Gas	NG	Upstream
State	Oil	Oil	Upstream
State	REA Electrics	Electric	Downstream_GenTranDist
State	Surface Coal	Coal	Upstream
State	Underground Coal	Coal	Upstream

To estimate revenues from specific power generation facilities, such as wind and solar parks, we gathered statewide assessment data from the WY Department of Revenue (Dept. of Revenue - Assessment Data Download (wyo.gov)). We identified all properties listed as “electric generation” and matched the owner name to the owners of wind and solar farms in the EIA 860 database. These data provided assessment values (year 2023-2021 assessment data were not available) for the state’s only solar farm and 14 of the state’s 29 wind parks operating in 2021. To estimate the values of those wind parks not included in the database, we calculated the valuation per MW of capacity for plants in our dataset, then averaged them across 5-year intervals based on the first operating date of the plant: 2000-2005, 2006-2010, 2011-2015, and 2016-2020. We then applied these average valuations per MW to each plant outside of our dataset based on the year it began operating.

We then multiplied the assessed values by countywide average mill levies, and apportioned the revenue to the appropriate government type based on the total property taxes levied in 2021. We exclude revenues to municipalities because we assume all wind and solar facilities are located outside of city or town boundaries.

6.4. Output

Property tax revenue, estimated for each county, jurisdiction, and property class.

Note: See the “Prop_FINAL” tab.

Sources

Unique ID	Source	Data Name	Description	Access	Type	Years	Original Source link
WY_1	Wyoming State Treasurer	Annual Reports	Data summarizes the distribution of Federal Mineral Lease Revenue and Coal Bonuses through direct and indirect formulaic distribution.	Public	Federal Lands	2012-2021	https://statetreasurer.wyo.gov/reports/
WY_2	Wyoming Department of Revenue	Mineral Tax Distributions	Summarizes quarterly contributions from each mineral tax into various state funds by year. (April 2018 reported as "unavailable" online).	Public	Severance	2012-2022	https://revenue.wyo.gov/tax-distribution-reports/mineral-tax-distribution-reports
WY_3	Wyoming Department of Administration and Information	Wyoming Population Estimates and Forecasts	We used population datasets to identify the appropriate umbrella counties for cities and towns.	Public	Policy Information	2021	http://eadiv.state.wy.us/pop/
WY_4	Wyoming Department of Revenue	Annual Reports	Annual Reports includes Annual summaries of Mineral Tax Distribution, Local/State assessed values, and taxes levied.	Public	Severance, Property	2012-2022	https://revenue.wyo.gov/about-us/dor-annual-reports
WY_5	Wyoming State Treasurer	Distributions	Includes a description of distribution policies, statutes, and reports.	Public	Policy Information	na	https://statetreasurer.wyo.gov/financial/distributions/

WY_6	Wyoming Department of Revenue	Public Utility Taxation	Provides a summary of public utility taxation and links to relevant forms, publications, and reporting materials.	Public	Policy Information	na	https://wyo-prop-div.wyo.gov/public-utilities
Fed_10	U.S. Energy Information Administration	Natural Gas Processing Facilities	Includes Natural Gas Processing Facilities across the US by county.	Public	Natural Gas Processing	2012, 2014, 2017	https://www.eia.gov/naturalgas/ngqs/#?report=RP9&year1=2012&year2=2017&company=Name
Fed_11	U.S. Energy Information Administration	Petroleum Refineries	Record of operating crude oil refineries.	Public	Petroleum Processing	Current as of 2019	https://www.eia.gov/petroleum/refinerycapacity/ https://atlas.eia.gov/datasets/eia::petroleum-refineries/explore?location=75.117622%2C-126.882310%2C11.54
Fed_13	U.S. Census Bureau	County Population Totals (2010-2019)	County population totals, by state.	Public	Per Capita Estimates	2010-2019	https://www.census.gov/data/tables/time-series/demo/popest/2010s-counties-detail.html
Fed_14	U.S. Census Bureau	County Population Totals (2020-2022)	County population totals, by state.	Public	Per Capita Estimates	2020-2022	https://www.census.gov/data/tables/time-series/demo/popest/2020s-counties-total.html
Fed_15	U.S. Census Bureau	City and Town Population Totals (2010-2019)	City and town population totals, by state.	Public	Per Capita Estimates	2010-2019	https://www.census.gov/data/tables/time-series/demo/popest/2010s-total-cities-and-towns.html
Fed_16	U.S. Census Bureau	City and Town Population Totals (2020-2021)	City and town population totals, by state.	Public	Per Capita Estimates	2020-2021	https://www.census.gov/data/tables/time-series/demo/popest/2020s-total-cities-and-towns.html

