

Making Sense of Montana Energy and Resources



Dumbing down Montana commodity, energy, and mineral supply chains. Spring 2025.

Introduction

Montana is known for its wide open spaces and beauty above the surface but few account for the geologic beauty below the surface. Above ground, as of 2022 Montana sold \$6.2B of agricultural goods, \$5.8B in travel, and \$617M in timber products. Below the surface lay minerals and oil, a combined \$4.4B industry that are used in industry and energy production which is the focus of this paper divided into three sections called commodities, energy, and minerals.

- 1) **Commodities**, explaining what hard/soft commodities are produced here, what is imported and exported, and how much of it.
- 2) **Energy**, demand forecasts, US and Montana maps of where it comes and goes.
- 3) **Mining**, coal, Wyoming, and Montana active mines.

The objective is to expand upon a personal understanding of Montana commodities, energy, and mineral supply chain and to educate locals about the resources around them.

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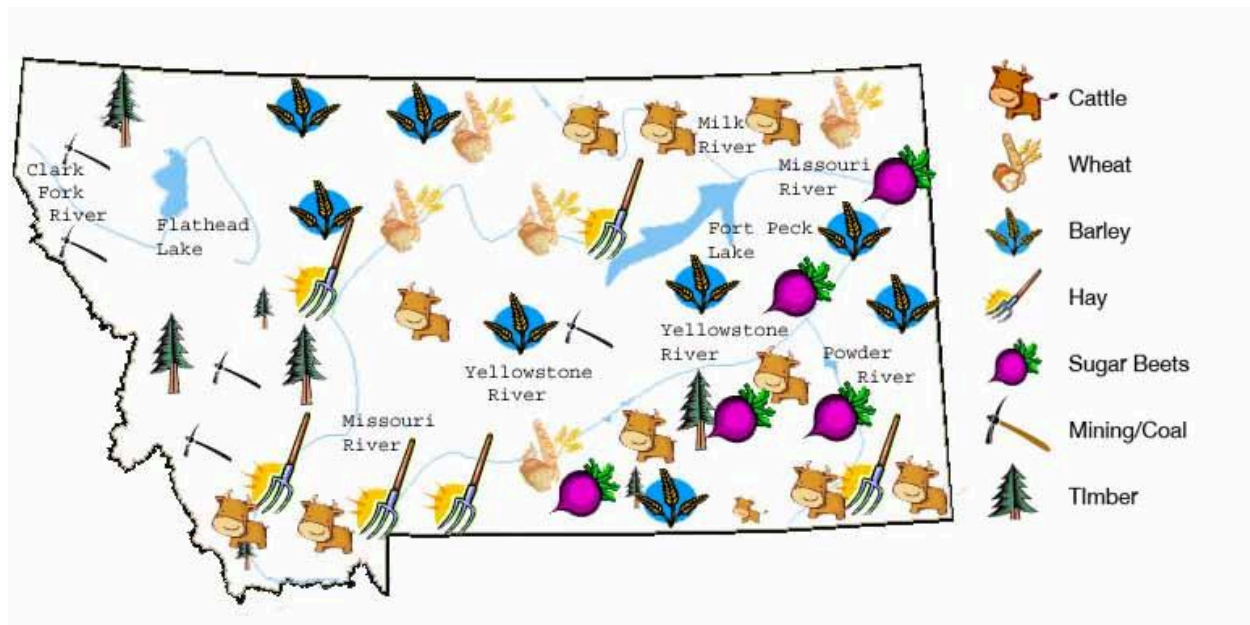
Enjoy,
DZ

****We are not financial advisors or have any idea what we are talking about nor was this paper peer edited, these topics are complex, and change rapidly. We are not responsible for this paper. This information is for general informational purposes only and does not constitute professional advice. Please consult with a qualified professional before making any decisions based on this information.**

Commodities	2
Montana Import and Export	3
Montana Imports	4
Montana Exports	6
Energy	6
Montana Oil Production	7
Montana Natural Gas Resources	9
Electricity	10
Electric Demand Projections	11
Montana Electric Generation	12
Montana Transmission System	13
Mining	14
Mining for Energy	15
Wyoming Uranium and Rare Earths	16
Montana Mining	17

Commodities

Before we look at a handful of graphs, economics, and numbers, let's start with something kid friendly, an infographic geared more towards agriculture. In 2021, Montana had cattle receipts of \$1.6B, Wheat \$1.1B, Hay \$430M, Barely \$200M, and Lentals around \$100M.



https://montanakids.com/agriculture_and_business/productmap.htm

What is Montana producing and how much of it?

Selected Montana Industries Comparison

Industry	2020 (million dollars)	2021 (million dollars)	2022 ⁵ (million dollars)	2021/2022 (percent of change)
Agriculture ¹	4,617.8	4,346.2	6,221.7	43.0
Mining ²	2,012.7	2,379.0	2,486.2	4.5
Gas & Oil ²	678.0	1,306.2	2,075.1	58.9
Travel ³	3,140.0	5152.0	5,816.0	13.0
Wood & Paper Products ⁴	594.0	855.0	617.0	-27.8

¹ Data sources: USDA Economic Research Service,; USDA Foreign Agricultural Service. Data as of August 31, 2023.

² Gross value, Montana Department of Revenue.

³ Non-resident Direct Economic Impact, Institute for Tourism and Recreation Research, The University of Montana.

⁴ Bureau of Business and Economic Research, The University of Montana.

⁵ 2022 preliminary.

https://data.nass.usda.gov/Statistics_by_State/Montana/Publications/Annual_Statistical_Bulletin/2023/Montana-Annual-Bulletin-2023.pdf

Montana Import and Export

In 2021, Montana imported over 1,900 products and exported over 1,300 products. These products were imported from over 112 countries and exported to 138 countries. Montana imported \$6.5B worth of goods and exported \$2B. Notice how we import much more than export? The State of Montana offers things like the [STEP](#) or State Trade Expansion Program to help our exports grow.

Montana Imports and Exports of Tangible Goods

2013 to 2021



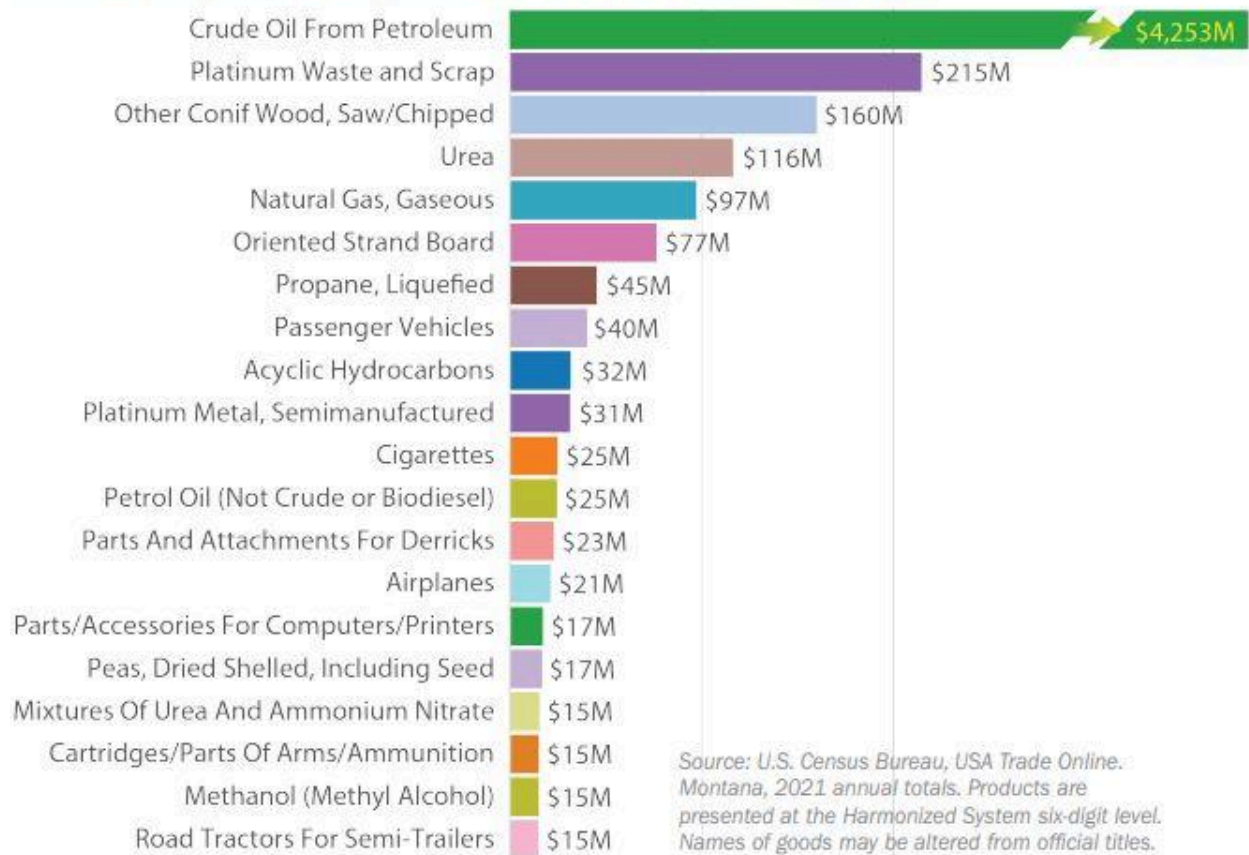
Source: U.S. Census Bureau, USA Trade Online. Montana 2013-2021 annual totals

<https://lmi.mt.gov/docs/0422-ImportExport.pdf>

Montana Imports

Montana's top 5 imports are Crude Oil at \$4.25B, Platinum Waste & Scrap \$215M, Wood Products \$160M, Urea \$116M, and Natural Gas \$97M. Crude oil is imported to Montana to be refined into petroleum products. Montana has four refineries—three in the Billings area, and one in Great Falls—which have a combined crude oil processing capacity of 224,100 barrels per day—roughly 1.2% of total U.S. capacity.

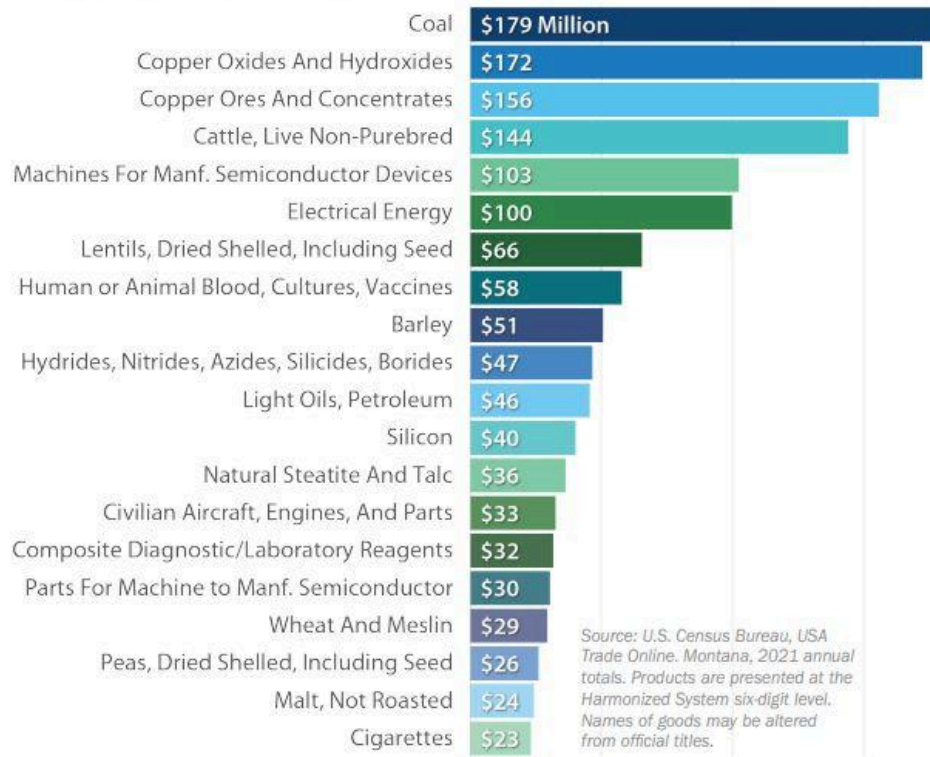
Montana Imports of Tangible Goods- Top 20 Products, 2021



Montana Exports

Montana's largest exports are coal, copper, cattle, high tech and electrical energy. The State is also known for its quantum, photonics, and computer component manufacturing.

Montana Exports of Tangible Goods - Top 20 Products, 2021



Energy

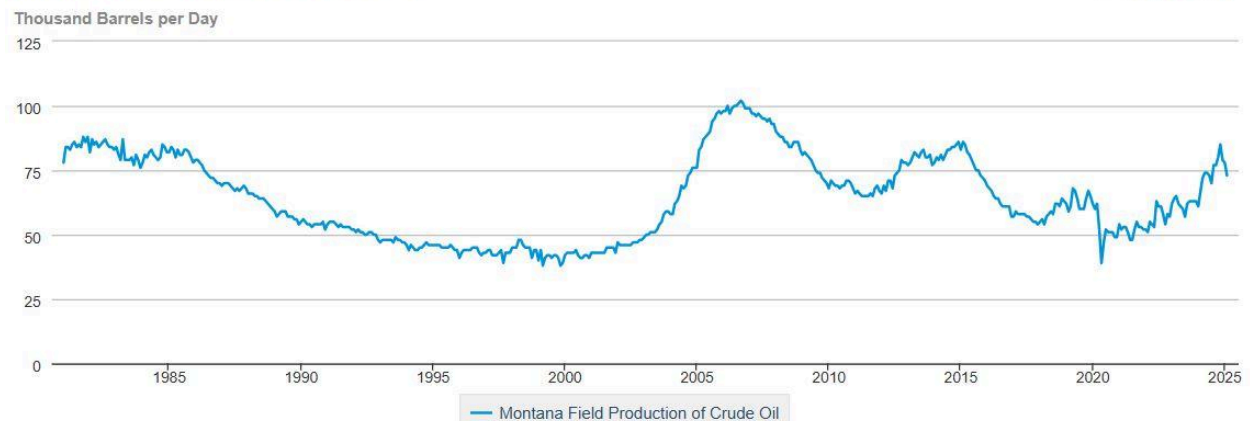
Now that we have a basic understanding of what Montana buys and sells, let's take a look at how this State is powered. With **oil** we demonstrate where it's produced, refined, and distributed. With **electricity** we cover demand, generation, and transmission lines. Most of the energy maps below were provided by the Montana DEQ deq.mt.gov/energy/resources

Montana Oil Production

In September 2006, Montana hit a production record of 102,000 barrels per day and hit a low in 1999 at 38,000 BPD. As of February 2025, Montana produced 73,000 BPD, if all 73,000 barrels went through In-State processing, that would only make up 1/3rd of crude input while 2/3rd comes from Canada. Production ebbs and flows with the prices of gasoline.

Montana Field Production of Crude Oil

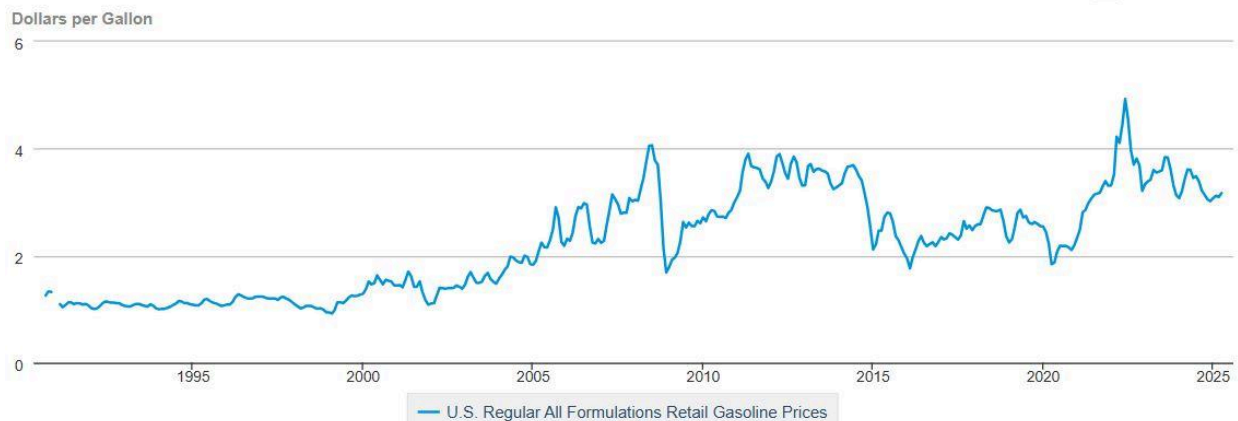
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<https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=p&s=mcrfpmt2&f=m>

U.S. Regular All Formulations Retail Gasoline Prices

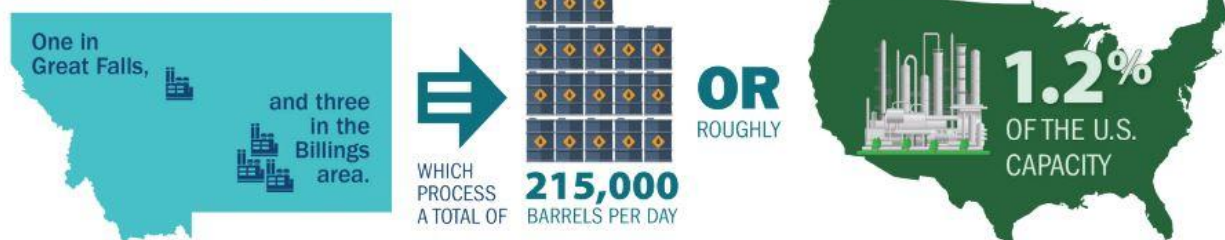
DOWNLOAD



https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=p&s=emm_epmr_pte_nus_dpg&f=m

Montana processes over 215,000 barrels per day (BPD) making up for only 1.2% of the US total production capacity.

Montana has 4 refineries.



https://lmi.mt.gov/_docs/0422-ImportExport.pdf

Here's a list of Montana refineries and their estimated production capacity

Town	Company	est. BPD
Laurel	CHS Inc.	60,000
Billings	Conoco Phillips Inc.	62,900
Billings	Par Pacific Holdings	64,000
Great Falls	Calumet Montana Refining LLC	25,000

** Exxon sold to Par Pacific in 2023

Here's a list of Wyoming refineries and their estimated production capacity

Town	Company	est. BPD
Sinclair	Sinclair Refinery	80,000
Cheyenne	HollyFrontier Refinery	52,000
Casper	Sinclair's Little America Refinery	24,500
Newcastle	Par Petroleum Inc	14,000
Douglas	Antelope Refining	4,500
Evanston	Silver Eagle Refining	3,000

Montana Natural Gas Resources

As mentioned in the 2021 imports section, we import loads of crude from Canada (over \$4.3B in 2021), this crude gets piped to all four of Montana's refineries. Canadian oil or Western Canadian Select (WCS) is a heavy sour blend of crude oil that is one of North America's largest heavy crude oil streams and, historically, its cheapest. Read more about the autonomy of Alberta Crude at [OilSandsMagazine](#). The Petroleum in Montana map identifies crude product pipelines coming from Alberta South, some making a pitstop around Great Falls and Billings to be refined into something usable.



https://deq.mt.gov/files/Energy/Photos/Chapter8_Petroleum_in_Montana.jpg

Montana Natural Gas Resources

The majority of Montana pipelines are owned by [Northwestern Energy](#) and [WBI energy](#). These pipelines provide reliable natural gas to Montana towns and cities. There are six total natural gas generating stations across the State strategically positioned near the Bakken formation putting to work excess natural gas.



https://deq.mt.gov/files/Energy/Photos/Chapter6_Natural_Gas_System.jpg

Electricity

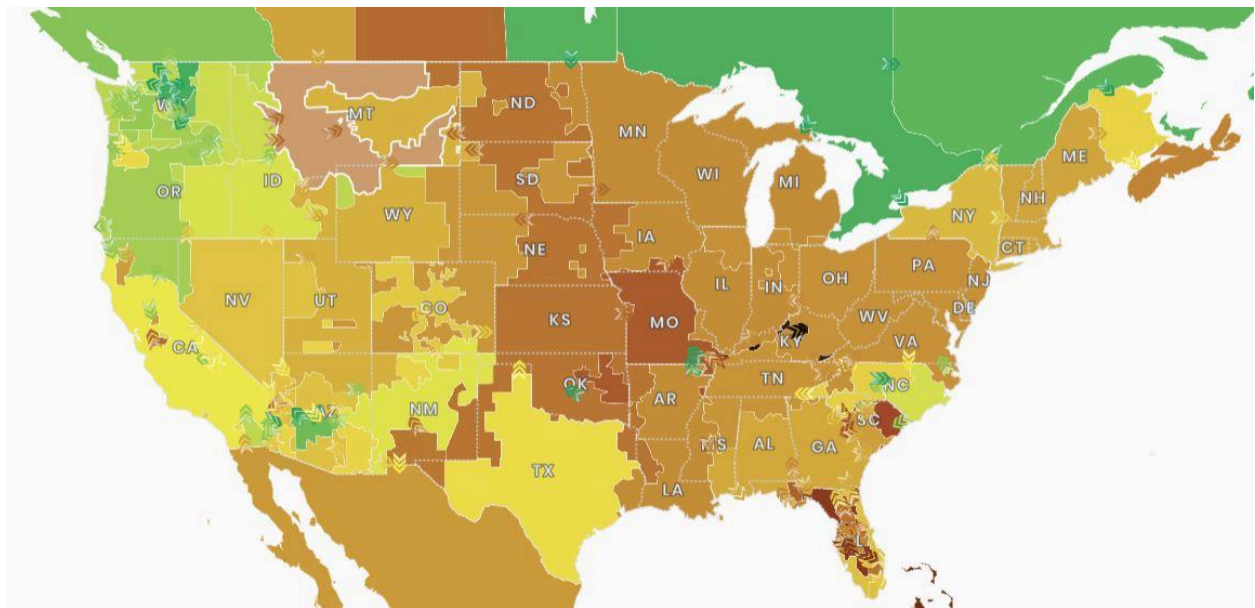
- Montana has the nation's largest recoverable coal reserves, which is 30% of the U.S. total, and the state accounts for about 5% of U.S. coal production.
- Montana's temperature extremes and small population contribute to the state's residential sector having the highest per capita energy consumption of any state.
- In 2023, Montana ranked among the top 10 states with the largest share of electricity generated from renewables, about 50%.
- Coal-fired power plants provided the largest share of Montana's electricity generation in 2023, accounting for 45% of in-state generation.
- Montana's total natural gas consumption is among the five lowest states. About half of state households use natural gas as their primary energy source for home heating.

Quick Facts from <https://www.eia.gov/state/?sid=MT>

Electric Demand Projections

Published April 25, 2022 was the Northwest Power and Conservation Council's [9th Power Plan Demand Forecast](#) claiming that demand for electricity in the Northwest could double by 2046. During the next two decades, demand could increase by between 1.8% and 3.1% annually, the Northwest Power and Conservation Council heard Tuesday. The projected growth will come primarily from companies building more data centers in the region, more electric vehicles on roads, electrifying buildings, computer chip manufacturing and the production of "green hydrogen" created by running an electrical current through water to split the molecules into hydrogen and oxygen.

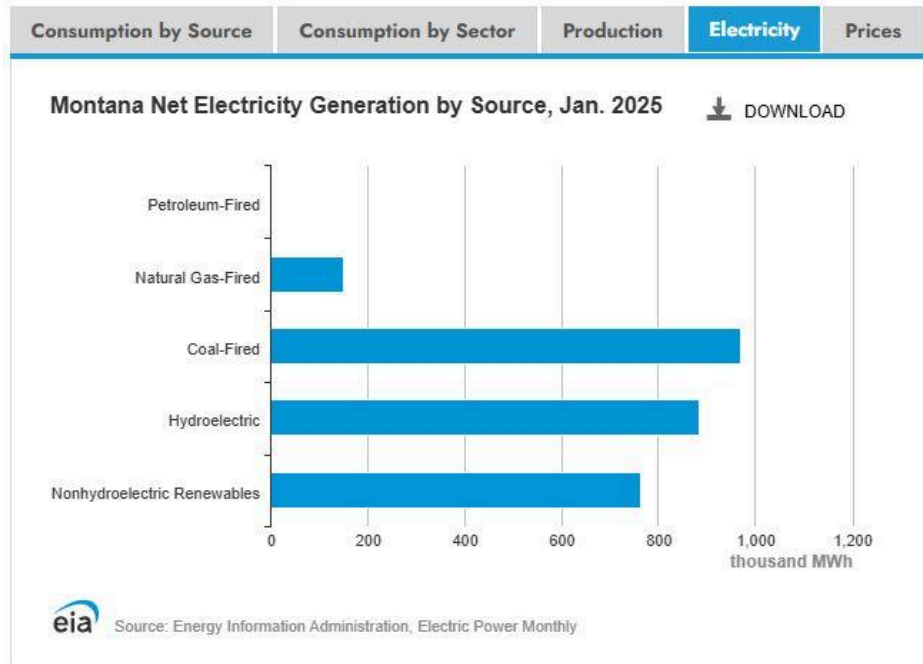
Electricity Maps App shows where electricity is flowing across the world and how it's generated.



<https://app.electricitymaps.com/map/72h/hourly>

Montana Electric Generation

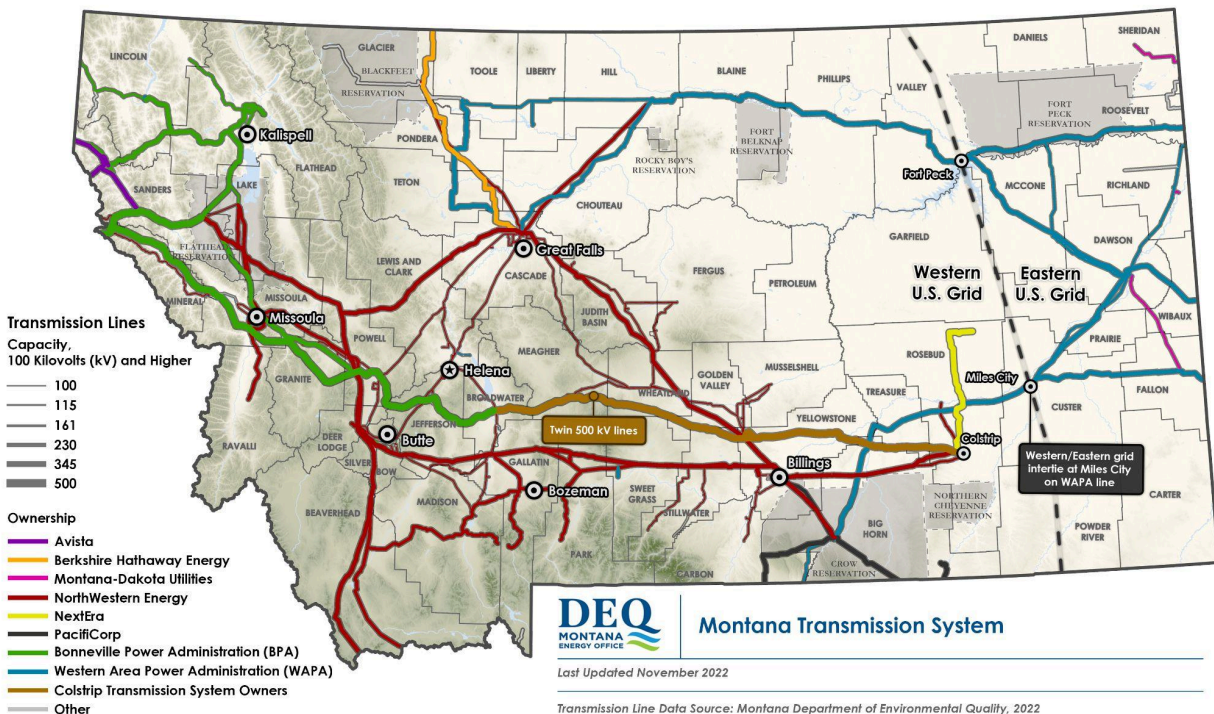
We are fortunate to have a diversified set of energy generation sources across the State.



https://deq.mt.gov/files/Energy/Photos/Chapter4_Electric_Generation_Map.jpg

Montana Transmission System

Northwest is the majority owner of Montana transmission lines. The interesting thing here is the eastern and western US power grid coming together at Miles City and Fort Peck. There's currently a project in development called the North Plains Connector Project ([NPC](#)) which would provide 3,000 megawatts (MW) of bi-directional transfer capability and connect the Western and Eastern Interconnections (also known as the western and eastern grids between Colstrip, Montana and Central North Dakota).



<https://deq.mt.gov/files/Energy/Photos/Chapter%205%20Electric%20Transmission%20System.jpg>

Mining

Montana was born from mining starting in the 1950s when traders for the Hudson's Bay Company discovered gold near present-day Deer Lodge. The first big strike took place near Bannack in 1862. In the next two years, gold was discovered at Virginia City and Last Chance Gulch in the heart of present day Helena. ([Archives West](#)). In 1880 Marcus Daly, an Irish immigrant, and a group of California investors including George Hearst, father of publisher William Randolph Hearst, formed the Anaconda Gold and Silver Mining Company to operate a mine near Butte, Montana. ([Britannica Money](#)). Nowadays, mining isn't as significant as it was in the 1800's yet it still remains Montana's 3rd largest industry valued at \$2.5B as of 2022. This section discovers some nuggets of knowledge about mining, specifically mining for energy (coal), Wyoming rare earth/uranium emergence, along with a comprehensive list of all active mines across the State of Montana

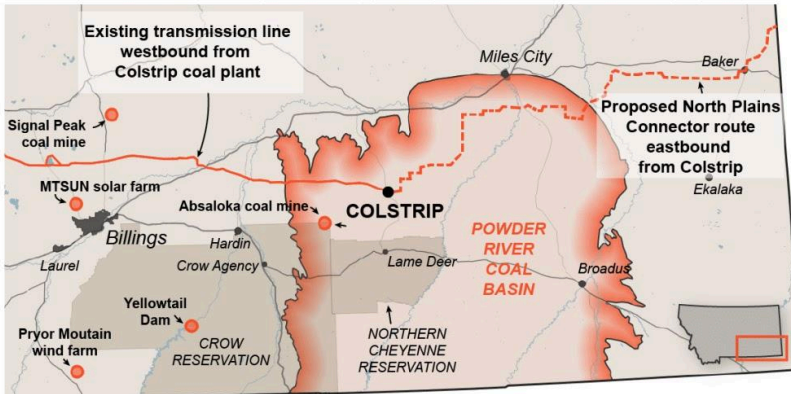
Mining for Energy

Montana produces primarily subbituminous coal from the Powder River Basin which has a lower heat content compared to other U.S. coal basins, but it burns cleaner because of its relatively low sulfur content. Montana has the largest coal reserves in the country, estimated to be over 100 billion tons. Historically, total coal production in the state has averaged near 40 million tons per year. Production has been moving downward since 2018 and dropped sharply in 2020 but has received increased support since the Trump Administration took office in 2025. Since 2025, coal is regained support from the feds

- December 6, 2024 Republican attorneys general in 11 states, including Montana's Austin Knudsen, filed a joint lawsuit last month against BlackRock, Vanguard and State Street, claiming the organizations' efforts to pressure coal companies to lower carbon emissions and respond to climate change amount to anti-competitive business practices. ([Daily Montanan](#))
- December 13, 2024 - Montana, Wyoming sue feds to repeal Powder River Basin Coal Leasing Ban ([Daily Montanan](#))
- March 14, 2025 Decision is a reversal from the Biden administration, will keep coal mining in southern Montana for at least another 16 years ([Daily Montanan](#))
- April 08 2025 The Department of the Interior Moves to Restore Coal Industry ([DOI](#))
- April 08 2025 Unleash American Energy signed ([State of Montana Newsroom](#))

Southeastern Montana's energy country

Coal deposits in the Powder River basin have fueled energy generation in southeastern Montana for decades. The region also supports hydroelectric, wind and solar projects.



Data: U.S. Energy Information Administration, U.S. Geological Survey, North Plains Connector.
Map: Eric Dietrich / MTFP

Wyoming Uranium and Rare Earths

The State of Wyoming has been interestingly investing more recently into nuclear energy mining especially since TerraPower made their Kemmerer Power Station Unit 1 announcement which is a Natrium reactor .

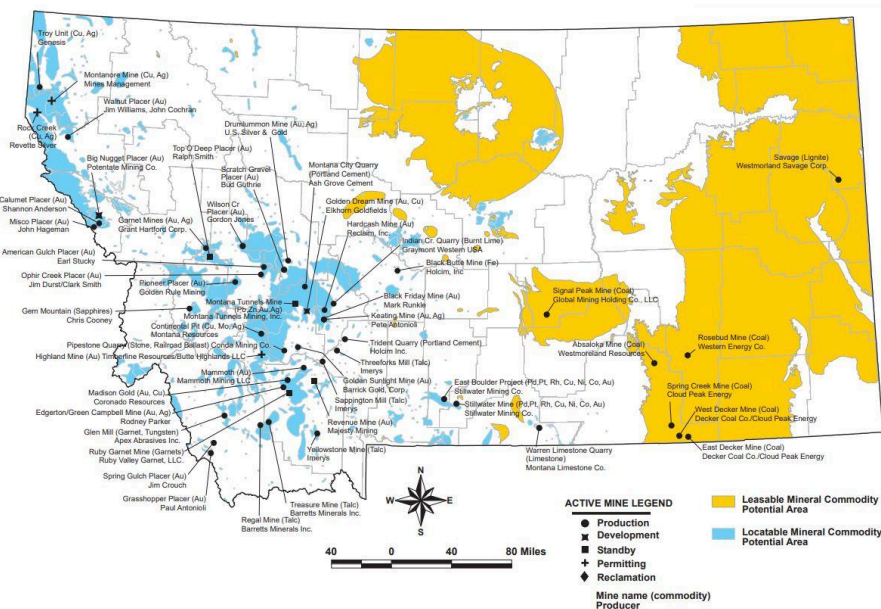
- January 14, 2025 - TerraPower Awarded Pivotal State Permit for aNatrium® Plant ([Terra Power](#))
- April 7, 2025 - Eleven governors and their state energy offices are putting out ready-for-business signs to advanced nuclear energy developers under an initiative that taps into experts at the Idaho National Laboratory ([INL](#)).
- April 09, 2025 \$30 Million Investment Bets On Glenrock Being Wyoming's Next Uranium Hot Spot ([Cowboy State Daily](#))
- April 16, 2025 Wyoming Rare Earths Could Be Processed At Retooled Plant In Utah ([Cowboy State Daily](#))
- May 02, 2025 Gov. Mark Gordon signed a tri-state agreement with Idaho and Utah April 29, pledging to contribute to the growing industrial ecosystem supporting nuclear energy in those three states. ([Cowboy State Daily](#))

Here's a small handful of uranium and rare earth companies operating around Wyoming.

Company	Mine	Material
American Rare Earths	Rare Earth Halleck Creek	REE
Energy Fuels Inc	Nichols Ranch ISR Mine & Plant	Uranium Processessing
Ramaco Resources	Brook Mine near Ranchester	Coal and REE
Peninsula Energy	Lance Project	Uranium Mining
Ramaco Resources	Brook Mine near Ranchester	Coal and REE
Rare Element Resources Ltd	Bear Lodge Project	REE

Montana Mining

Back to Montana, In 2024, Montana only ranked 30th or \$1.13M for mineral production, Nevada was ranked 1st at \$9.97B for reference. Montana's principal commodities were cement, copper, molybdenum mineral concentrates, palladium metal, sand and gravel (construction). Below is an information map of Montana's active mines as of 2012 published by Montana Tech.



Active Mines in Montana–2012

<https://archive.legmt.gov/content/Committees/Interim/2013-2014/EQC/Meetings/January-8-9-2014/sj15-mineralpotential.pdf>

The following data table gives nonfuel mineral commodity production data for Montana extracted from Table 5 in the 2019 Minerals Yearbook Statistical Summary. Note that these figures are outdated and were generated from surveys.

Nonfuel Mineral Commodity Production in Montana^{1,2,3}

Mineral Commodity	Units	2018 Qty	2018 Value (\$ 1000)	2019 Qty	2019 Value (\$ 1000)
Garnet, industrial	metric tons	(4)	W	52,400 ^e	11,600 ^e
Gemstones, natural ^e		NA	774	NA	648
Palladium ⁵	kilograms (kg)	14,300	475,000 ^f	14,300	711,000
Platinum ⁵	kg	4,160 ^f	118,000	4,150	116,000
Sand and gravel, construction	1000 metric tons (1000 t)	10,800	88,000	10,300	92,200
Stone, crushed	1000 t	2,750 ^f	23,200 ^f	2,890	24,400
Combined values of cement, clay (bentonite and common clay), copper, gold, lime, molybdenum mineral concentrates, rhenium, silver, stone (dimension), talc (crude)		XX	500,000	XX	457,000
Total		XX	1,210,000 ^r	XX	1,410,000

<https://www.usgs.gov/centers/national-minerals-information-center/mineral-industry-montana>

We synthesised this map categorizing active mines by those in active production and development. Please note that ownership and operation status can change frequently, we cannot guarantee the accuracy of the list below.

Region	Mine	Mineral	Company
NW	Troy Unit	CU, Ag	Genesis, Inc / Revett Minerals
NW	Walnut Placer	Au	Jim Williams, John Cochran
NW	Trout Cr Placer	Au	Dave Gull
NW	Calumet	Au	Shannon Anderson
NW	Misco Placer	Au	John Hageman
NW	Gem Mountain	Sapphires	Chris Cooney
NW	Garnet Mines	Au	Grant Hartford Corp.
NW	Weasel Cr//Douglas Cr Placer	Au	Jack Jones
NW	Wilson Cr Placer	Au	Gordon Jones
NW	American Gulch Placer	Au	Earl Stucky
NW	Ophir Placer	Au	Jim Durst/Clark Smith
NW	Pioneer Placer	Au	Golden Rule Mining
NW	Big Nugget	Au	Potentate Mining
Butte	Continental Pit	Mo, Cu, Ag	Montana Resources
Butte	Trident Quarry	Portland cement	Holcim Inc. now GCC
Butte	Threeforks Mill	Talc	IMRYS to Magris
Butte	Sappington Mill	Talc	Rio Tinto Minerals to Magris
Butte	Edgerton/Green Campbell Mine	Au, Ag	Rodney Parker
Butte	Treasure Mine	Talc	Barretts Minerals Inc./ Specialty Minerals, Inc.

Butte	Regal Mine	Talc	Barretts Minerals Inc./ High Divide Materials / 406 Minerals
Butte	Spring Gulch Placer	Au	Jim Crouch
Butte	Grasshopper Placer	Au	Paul Antonioli
Butte	Yellowstone Mine	Talc	IMRYS / Magris Resources Inc
Helena	Drumlummon Mine	Au, Ag	RX Gold and Silver, Inc /U.S. Silver and Gold, Inc
Helena	Scratchgravel Placer	Au	Bud Guthrie
Helena	Black Butte Mine	Fe	Sandfire America Resources America Inc
Helena	Montana City Quarry	Portland Cement	Ash Grove Cement
Helena	Indian Cr. Quarry	Burnt Lime	Ash Grove Cement / CRH Company
Helena	Hardcash Mine	AU	Reclaim, Inc.
Helena	Black Friday Mine	AU	Mark Runkle
Helena	Keating	AU	Pete Antonioli
Helena	Trident Quarry	Portland cement	Holcim, Inc /GCC
Helena	Golden Sunlight Mine	Au	Barrick Gold, Corp.
Helena	Mammoth	Au	Paul Antonioli/ Phil MacDonald
Helena	Pipestone Quarry	Stone, Railroad Ballas	Conda Mining Co. / Washington Companies
Helena	Golden Dream Mine	Au, Cu	Elkhorn Goldfields

Park	East Boulder Project	Pd,Pt, Rh, Cu, Ni, Co, Au	Stillwater Mining Co.
Park	Stillwater Mine	Pd, Pt, Rh, Cu, Ni, Co, Au	Stillwater Mining Co.
Park	Warren Limestone Quarry	Limestone	Montana Limestone Co. / Dakota Coal Company
Coal	Savage	Lignite	Westmorland Savage Corp.
Coal	Signal Peak Mine	Coal	Global Mining Holding Co., LLC
Coal	Rosebud Mine	Coal	Western Energy Co.
Coal	Absaloka Mine	Coal	Westmoreland Resources
Coal	Spring Creek Mine	Coal	Cloud Peak Energy
Coal	West Decker Mine	Coal	Decker Coal Co./Cloud Peak Energy
Coal	East Decker Mine	Coal	Decker Coal Co./Cloud Peak Energy

List gathered from [MINES AND EXPLORATION IN MONTANA—2012](#) , ownership was looked up manually. Big thanks to Robin McCulloch, Mining Engineer at Montana Tech for putting together the map.

In summary, Montana, Wyoming, and other surrounding states are fortunate to have a wide variety of natural resources to keep the lights on and the economy moving forward. It's interesting to watch the market adapt based on market demands, pricing, and politics. It will forever be a revolving door. If energy consumption forecasts are true (double consumption by 2050), it will be interesting to see what the Feds, States, and power companies do to fill this need.

Thats all for today folks, hope you learned a few new things about Montana natural resources!

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