

General Facts About Coal

Coal is widely distributed throughout the United States, with 39% occurring in states east of the Mississippi River and 61% in western states and Alaska. Coal underlies 13% of the total U.S. land area, encompassing some 458,000 square miles. Measurable quantities are found in 38 states; in 31 of them, the coal is considered mineable, and mining operations currently take place in 25 states. Thick, relatively flat coal beds at depths of less than 200 feet below the surface are particularly suitable for surface mining. Coal beds that dip or lie very deep beneath the surface generally must be extracted through underground mining methods. The Energy Information Administration estimates that about 32% of the total demonstrated reserve base can be mined with surface methods, with 75% of this coal located west of the Mississippi River. Conversely, 54% of the demonstrated reserve base coal requiring underground mining is located in states east of the Mississippi. Coal in the U.S. is mined from about 400 beds or veins, but approximately 47% of annual production comes from only about 10 beds. Coal beds are generally flat-lying but may be inclined, folded, or faulted as a result of geologic forces; although the thickness of the coal beds mined ranges from less than 2 feet to about 100 feet, most of the mining is in beds 2-8 feet thick. The average thickness of coal beds mined is a little more than 4 feet in the Appalachian states, about 6 feet in the Midwest, and about 30 ft in the West.

2022 Ranked By

State	Reserve Base (Billions of Tons)	Ranked by Reserve Base	Production (Millions of Tons)	Ranked by Production
Montana	118.4	1	28.2	6
Illinois	103.1	2	37.4	4
Wyoming	56.1	3	244.7	1
West Virginia	29.6	4	83.3	2
Kentucky	27.9	5	28.5	5
Pennsylvania	25.7	6	39.7	3
Ohio	22.7	7	2.4	13
Colorado	15.5	8	12.8	10
Texas	11.7	9	17.1	9
New Mexico	11.7	10	10.5	12
Indiana	8.7	11	23.5	8
North Dakota	8.5	12	26.7	7
Alaska	6	13	1	14
Missouri	5.9	14	0.075	15
Utah	4.8	15	12.4	11

Source: U.S. Energy Information Administration

Of the 15 major coal-producing states, Montana ranks first in coal resources and reserves with 118.4 billion tons. The Energy Information Administration estimates that 1 billion of those tons are presently recoverable reserves. This includes only coal that is mineable from producing coal mines. At the present mining rate of approx. 28.5 million tons per year, Montana could sustain over 35 years of mining from presently mineable coal. In terms of the coal reserve base, if it all became mineable and were mined at the current rate, it would sustain mining for 4,480 yrs.

Surface Mining and Reclamation

Surface coal mining companies are required to reclaim and return mined land to a productive capacity that is equal to or better than before mining occurred. The reclamation operation takes place concurrently with the mining operation. The first step taken is to remove the topsoil from an area to be mined, stockpile it and stabilize it with temporary vegetation to prevent erosion. The initial removal of the overburden (the remaining material covering the coal) is called a box cut and the cavity that is left when the coal is removed will receive the overburden from the second cut. In most cases, a dragline is used to lift overburden from a new section and deposit it in the area that has just been mined. To loosen the overburden for the dragline, it is blasted. The coal is fractured in the same way and then removed by large loaders, deposited in coal haulers, and transported to the mine storage and loading facility. Once the dragline has deposited an overburden over the mined-out cavity, bulldozers smooth it out and contour it to blend with the surrounding landscape. This process is much like that employed in construction projects. After that, reclamation becomes very similar to any farming operation. The soil is scarified to guard against erosion, topsoil is replaced, and the area is planted with seed mixtures that are prescribed by the regulatory agency. In some cases, ponderosa pine and other woody plants are part of the approved reclamation plan. Companies may apply a fiber mulch to further protect against erosion and while fertilizer may be used during the early growing seasons, irrigation has not been necessary. Before any company is permitted to mine, it must post a bond sufficient to cover the cost of reclamation if an operator fails with his reclamation efforts. That bond is not released until successful reclamation is verified. Based on precipitation rates in the West, the law dictates that in no case can the bond be released sooner than ten years from the date of seeding.

COAL PRODUCTION MONTANA'S COAL PRODUCTION

The chart shows annual production from fiscal year 2011 through 2022. The price per ton at the various sites depends on the quality of coal (heating value, moisture content, sulfur and ash content, etc.) but an average for the Fiscal Year 2022 was \$34.22 per ton making the value of that coal just under \$966 million. The price is established by the Department of Revenue after three state and two federal taxes are deducted.

MONTANA COAL PRODUCTION	
2011	41,958,168
2012	36,661,187
2013	42,217,027
2014	44,547,663
2015	42,112,013
2016	32,359,310
2017	35,261,344
2018	38,530,604
2019	34,770,336
2020	26,450,749
2021	28,436,447
2022	28,220,105
2023	28,505,245

ROYALTIES

Unlike a tax paid to the government on the production of coal or its realized profits, royalties are a monetary payment to the owner of the coal as agreed upon in the terms of pre-mining leases. State and Federal government still are major beneficiaries of these payments, however, because a large percentage of the mineral right ownership in Montana has been retained by the federal government, with payment from the coal-producing school sections going to the state. In addition, the 1976 federal leasing law mandates that 50 percent of the royalties collected from the development of federal leases be returned to the state. Other coal lessors include Indian tribes and private owners.

Best Available Figures for Cumulative Royalty Payments from Montana Mining Operations Through December 2023

	Decker	NTEC Spring Creek	BMP Signal Peak
Federal	413,436,187	455,277,431	42,213,327
State	71,137,213	131,512,735	51,290,989
Private	139,154,029	34,213,064	358,675,782
Indigenous	-	-	-
	\$623,727,429	\$621,004,086	\$452,180,098

	Westmorland Savage	Westmorland Rosebud	Westmorland Absaloka
Federal	4,494,166	415,155,622	3,366,120
State	-	27,618,678	4,617,797
Private	2,449,553	301,489,264	8,943,684
Indigenous	-	-	205,295,728
	\$6,943,719	\$744,263,564	\$222,223,329

Total Federal	\$1,333,942,853
Total State	\$286,177,412
Total Private	\$844,926,232
Total Indigenous	\$205,295,728
TOTAL	\$2,670,342,225

PRODUCTION, EMPLOYMENT AND PAYROLL

Montana's coal mining industry furnishes some of the highest-paying and most sought-after jobs in the state. There were 889 coal mining employees in 2023.

THE TYPICAL SALARY OF A COAL MINER IS NEARLY 3 TIMES THE AVERAGE SALARY PER CAPITA IN MONTANA.

Montana Coal Council

	# OF EMPLOYEES	ESTIMATED PAYROLL	2023 COAL PRODUCTION (MILLION TONS)
SIGNAL PEAK ENERGY	260	\$33.3 M	7,581,000
SPRING CREEK COAL CO.	260	\$34 M	12,454,894
WESTMORELAND ROSEBUD	290	\$31.8 M	6,432,462
WESTMORLAND ABSALOKA	67	\$19 M	2,036,460
WESTMORLAND SAVAGE	7	\$696 K	429
	889	\$100 M	28,505,245

MONTANA COAL

• 2024 •



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\$2,611,036,000 PAID IN SEVERANCE TAXES BY MONTANA COAL PRODUCERS

SEVERANCE TAXES

Prior to 1975, Montana's coal severance tax was assessed on a cents-per-ton basis. In 1975 the Legislature enacted the highest severance tax in the nation, based on the percentage of the mine-mouth price of the coal. The percentage was tied to the heating quality of the coal -- 30% for subbituminous and 20% for lignite. However, the 1987 Legislature enacted a law to gradually reduce the taxes on coal in 5% increments over the next few years if a target tonnage of 32.2 million tons was produced in Fiscal Year 1988. That target was met; and the tax dropped to 25% on July 1, 1988; to 20% on July 1, 1990; and to 15% on July 1, 1991.

\$77,151,000 was paid in 2024.

1975/76	\$ 23,965,000	2000/01	\$ 32,337,000
1976/77	\$ 35,906,000	2001/02	\$ 31,614,000
1977/78	\$ 34,372,000	2002/03	\$ 29,424,000
1978/79	\$ 42,689,000	2003/04	\$ 31,545,000
1979/80	\$ 75,125,000	2004/05	\$ 37,635,000
1980/81	\$ 70,415,000	2005/06	\$ 35,822,000
1981/82	\$ 86,187,000	2006/07	\$ 40,759,000
1982/83	\$ 80,045,000	2007/08	\$ 45,332,000
1983/84	\$ 82,823,000	2008/09	\$ 49,564,000
1984/85	\$ 91,749,000	2009/10	\$ 43,825,000
1985/86	\$ 84,217,000	2010/11	\$ 54,971,000
1986/87	\$ 76,547,000	2011/12	\$ 52,743,000
1987/88	\$ 84,638,000	2012/13	\$ 56,574,000
1988/89	\$ 58,566,000	2013/14	\$ 57,676,000
1989/90	\$ 67,871,000	2014/15	\$ 60,891,000
1990/91	\$ 50,458,000	2015/16	\$ 60,359,000
1991/92	\$ 43,434,000	2016/17	\$ 58,808,000
1992/93	\$ 38,181,000	2017/18	\$ 60,097,000
1993/94	\$ 41,200,000	2018/19	\$ 60,028,000
1994/95	\$ 40,416,000	2019/20	\$ 46,756,000
1995/96	\$ 36,261,000	2020/21	\$ 43,256,000
1996/97	\$ 37,740,000	2021/22	\$ 65,339,000
1997/98	\$ 35,045,000	2022/23	\$ 88,442,000
1998/99	\$ 36,768,000	2023/24	\$ 77,151,000
1999/00	\$ 35,470,000	TOTAL PAID 1975-2024	
		\$2,611,036,000	

HISTORIC ALLOCATION OF COAL SERVRANCE TAX

Permanent Coal Trust Fund	\$ 1,235,933,661	47.34%
General Fund	\$ 607,072,817	23.25%
State Special Revenue Fund	\$ 67,896,064	2.60%
Long Range Building Program	\$ 167,679,072	6.42%
Parks Acquisition Trust	\$ 36,399,296	1.39%
Arts Council Trust/Aesthetics Project	\$ 10,024,541	0.38%
Renew. Res. Loan Debt Service	\$ 13,174,324	0.50%
Coal & Uranium Permitting & Recl.	\$ 4,250,000	0.16%
Coal Board	\$ 45,851,720	1.76%
State Library Commission	\$ 7,771,977	0.30%
Conservation District	\$ 13,852,030	0.53%
MT Growth Through Agriculture	\$ 5,825,165	0.22%
Oil, Gas & Coal Nat. Resource Acct.	\$ 7,514,674	0.29%
Local Impact	\$ 90,616,117	3.47%
Water Development	\$ 4,275,441	0.16%
County Land Planning	\$ 6,119,376	0.23%
Long Range Building Program Dept Serv	\$ 933,565	0.04%
Renewable Res. Develop.	\$ 11,169,855	0.43%
Highway Reconstruction Trust	\$ 52,731,221	2.02%
Fish, Wildlife & Parks	\$ 1,482,958	0.06%
State Equilization Aid to Schools	\$ 102,574,928	3.93%
State Parks/Historic Sites	\$ 2,653,207	0.10%
Education Trust	\$ 75,318,623	2.88%
Alternative Energy Research	\$ 18,354,255	0.70%
Coal Area Highway Improvement	\$ 15,117,192	0.58%
Coal Counties	\$ 4,737,441	0.18%
Acquisition of Sites & Areas	\$ 1,647,532	0.06%
	\$ 2,611,037,052	100%

Source: Montana Dept. of Revenue based on available data

The above figures do not include coal severance taxes paid since 1988 by Westmoreland Resources Inc on coal owned by the Crow Tribe. WRI coal severance taxes and gross proceeds taxes directly to the Crow Tribe and not to the state of Montana or the county.

* State Special Revenue Funds include library services, conservation districts, Montana growth through Agricultural Act, and unspent money goes to the General Fund.

GROSS PROCEED TAXES

These are additional taxes paid on the value of the coal to support the local government in the counties where the mines are located. From 1975 through 2022 \$671,271,119 has been collected for Bighorn, Richland, Musselshell and Rosebud counties. An additional \$20,469,628 was collected in 2023 and \$33,376,581 in 2024 bringing the total collected since 1975 to \$725,117,328.

Source: Montana Dept. of Revenue

RESOURCE INDEMNITY TRUST TAX

As of 1973, all nonrenewable resource producers have been required to pay this tax which on coal is 0.4 percent of gross value. The total collections from FY 1974 through FY 2023 were \$68,469,687.

Source: Montana Dept. of Revenue

FEDERAL TAXES

In addition to state taxes, Montana surface mining operations pay a tax for abandoned mine reclamation, mostly abandoned hard rock mines, consisting of 8 cents per ton for lignite or 28 cents per ton for all other types of coal. Effective January 1, 2019, the black lung tax is assessed at 50 cents per ton for underground mines and 25 cents per ton for surface mines. The tax is limited to 2% per ton and does not apply to lignite.

PROPERTY TAXES

Property taxes paid in 2023 by the coal mines to the counties where the mines are located. Does not include gross proceeds taxes listed.

Big Horn Co.

Decker Coal Co. \$710,006

Spring Creek Coal \$1,550.058

Westmoreland Absaloka \$296,047

Musselshell Co.

Signal Peak Energy \$1,781,039

Rosebud Co.

Westmoreland Rosebud \$745,886

Richland Co.

Westmoreland Savage \$22,469

Total \$5,105,485

PERSONAL INCOME TAXES

While it is difficult to determine the amount of personal income tax paid to the state by mine employees, we have made a general estimate based on the average gross income of \$86,000 per year with two exemptions. Under that formula, the state of Montana would receive more than \$5.6 million annually and the actual amount is most likely higher. It may be of interest to note that a large amount of the mine employees who work in Montana and pay its state income tax live in Sheridan County, Wyoming because it is the closest urban center.

USES OF COAL

Different types of coal have different uses. Steam coal, also known as thermal coal- is mainly used in power generation. Coking coal- also known as metallurgic coal, is mainly used for steel production. Other important uses of coal include alumina refineries, paper manufacturers, and chemical and pharmaceutical industries. Several chemical products can be produced from the by-products of coal. Refined coal tar is used to manufacture of chemicals, such as creosote oil, naphthalene, phenol, and benzene. Ammonia gas recovered from coke ovens is used to manufacture ammonia salts, nitric acid, and agricultural fertilizers. Thousands of different products have coal or coal by-products as components: soap, aspirins, solvents, dyes, plastic, and fibers such as rayon and nylon. Coal is an essential ingredient in the production of specialist products: Activated Carbon is used to filter water and air purifiers and in kidney dialysis machines. Carbon Fiber is an extremely soft, strong but lightweight reinforcement material used in construction, mountain bikes and tennis rackets. Silicon Metal is used to produce silicones and silanes which are in turn used to make lubricants, water, repellents, resin, cosmetics, hair shampoos and toothpastes.

Source: World Mining Association

GLOSSARY OF COAL TERMS

Anthracite - Called hard coal, the highest rank of economically usable coal. Has a considerable heating value of 15,000 Btu, carbon content of 86-97%, and moisture content of less than 15%. Used primarily for space heating and generating electricity. Anthracite coal deposits total some 7 billion tons and are located primarily in Pennsylvania.

Btu - British thermal unit. A measure of the energy required to raise the temperature of one pound of water one degree Fahrenheit.

Bituminous - Called soft coal, the most common type. Has a heating value of 10,500-15,500 Btu; carbon content of 45-86%, and moisture content usually less than 20%. Mined chiefly in Appalachia and Midwest. Reserves are widely scattered across the country and total some 238 billion tons.

Coal Resources - Total coal deposits, regardless of whether they can now be mined or recovered. The U.S. may have as much as 4 trillion tons of coal resources, according to the U.S. Geological Survey.

Coal Seam - Abed or stratum of coal; usually applied to large deposits of coal.

Coal Washing - The process of separating coal of various sizes, densities, and shapes by allowing them to settle in a fluid.

Demonstrated Reserves - Coal deposits that are potentially mineable on an economic basis with existing technology. The U.S. Energy Information Administration estimates that there are about 494.1 billion tons of demonstrated reserves in the U.S.

Fossil Fuel - Any naturally occurring fuel of an organic nature, such as coal, crude oil, and natural gas.

Gasification - Any of various processes by which coal is turned into low, medium, or high Btu gases.

Lignite - Brownish-black coal with generally high moisture content and lower heating value (4,000-8,300 Btu). Carbon content is 25-35%; moisture is sometimes as high as 45%. Demonstrated reserves of 45 billion tons are mined primarily in Louisiana, Montana, North Dakota, and Texas, primarily used to make electricity at power plants located relatively close to the coal mine.

Liquefaction - Converting coal into synthetic liquid fuel, similar in nature to crude oil and/or refined products such as gasoline.

Magnetohydrodynamics - Also known as MHD. Coal and preheated air are fired in a low-resistance time burner at very high temperatures. Next, potassium salts are added, producing gas of high conductivity. The gas is then passed through a magnetic field, producing electricity. This process is still in the research stage.

Mine-Mouth Plant - Commonly a steam-electric plant built close to a coal mine that delivers its electricity output to a distant point by transmission lines.

Recoverable Reserves - The amount of coal that can be recovered from the demonstrated reserve base. The recovery factor for surface mines is about 80-90%, and for underground mines, about 60%. Using these percentages, there are about 296.5 billion tons of recoverable reserves in the U.S., enough to last more than 250 years at current production levels.

Scrubber - Any of several forms of chemical-physical devices which operate to remove sulfur compounds formed during coal combustion. These devices combine the sulfur in gaseous emissions with another chemical medium to form "sludge," which must then be removed for disposal.

Slurry Pipeline - Pipeline for transporting a viscous mixture of coal and liquid medium. Only one such line, a 273-mile system from Arizona to Nevada, is currently operating, although several others have been proposed. Water is the medium now is used, but experiments with oil, liquid methane, or carbon dioxide show promise of increased efficiency and reduced environmental concerns in areas where water supplies are scarce. These pipelines might also be used for short-haul transport, such as from a port facility to a nearby power plant, reducing or eliminating the need for large stockpiles of coal.

Subbituminous - Dull black coal with a heating value ranging between 8,300-11,500 Btu; carbon content, 35-45%; and moisture content, 20-30%. Demonstrated reserves total about 180 billion tons and are located in Montana, Wyoming, Colorado, New Mexico, Washington, and Alaska, primarily used for generating electricity and for space heating.

Tons - A short or net ton equals 2,000 pounds; a long ton or British ton is 2,240 pounds; a metric ton is approximately 2,205 pounds.

Unit Train - Long train of 60-150 hopper cars carrying only coal between a mine and a customer. A typical unit train can carry at least 10,000 tons of coal in a single shipment.