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Environmental Quality Council
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FINAL REPORT TO THE 66TH MONTANA LEGISLATURE

**SJ 5: COAL IN MONTANA
CHANGING TIMES
CHALLENGING TIMES**

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**Environmental Quality Council
Legislative Environmental Policy Office**

This report is a summary of the work of the Environmental Quality Council (EQC) specific to the council's 2017-2018 work pertaining to Montana's coal economy as outlined in the EQC's 2017-18 work plan and Senate Joint Resolution No. 5 (2017). Members received additional information and public testimony on the subject, and this report is an effort to highlight key information and the processes followed by the EQC in reaching its conclusions. To review additional information, including audio minutes and exhibits, visit the EQC website: www.leg.mt.gov/eqc.

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COAL IN MONTANA: CHANGING TIMES

INTRODUCTION

All but a fraction of the coal mined in Montana is converted to electricity, either in-state, out-of-state, or out-of-country. Coal's contribution to U.S. electrical generation, however, continues to decline. In Montana, where coal is mined for power and burned for generation, the shifting energy economy means a shift in a major Montana market.

In 2015 about three-quarters of all coal mined in Montana was shipped by rail to out-of-state utilities and foreign nations. Montana used the rest, with about 90 percent consumed to produce electricity at the Colstrip Generating Station.¹ Across the country from 2002 to 2016, 531 coal-fired power plants, or 59 gigawatts (GW), were retired, according to U.S. Energy Information Administration (EIA) data. Another 12.7 GW is scheduled to retire through 2020, and the EIA's 2017 Annual Energy Outlook estimates nearly 90 total GW of U.S. coal capacity will be retired between 2017 and 2030.



From 2002 to 2016, 531 coal-fired power plants were retired.

Taxes on coal, despite decreases from historic highs, remain a major source of revenue for Montana. Severance and gross proceeds taxes generated more than \$81 million to state and local governments in FY2016, according to the Department of Revenue. Changes in the energy industry, however, translate to changes in this long-time revenue stream for the state.

The 2017 Montana Legislature passed [Senate Joint Resolution 5](#), an investigation of the threats to the mining and burning of coal in Montana and the consequences of a significant reduction in coal mining and usage. The Legislative Council assigned the study to the Environmental Quality Council, and the council requested an analysis of coal tax collections and distribution in Montana and a review of the coal industry and market in the state.

¹ "Understanding Energy in Montana: A Guide to Electricity, Natural Gas, Coal, Petroleum, and Renewable Energy Produced and Consumed in Montana," Jeff Blend, Montana Department of Environmental Quality draft report and updates before Energy and Telecommunications Interim Committee, May 2018.

COAL IN MONTANA: CHANGING TIMES

FINDINGS AND RECOMMENDATIONS

- Montana should continue to monitor activities in Washington and Oregon that strive to regulate greenhouse gases. The state should communicate with those states and ensure utilities, legislators, and other stakeholders on the West Coast understand the implications of their actions in Montana.
- Montana should continue to explore export opportunities for its coal. Additional coal ports are needed to ship Montana's low-sulfur coal to Asian and other overseas markets. Overseas exports offer an opportunity to offset declines in the domestic use of coal.
- Montana should promote significant federal investment in the Colstrip facilities to promote carbon capture, utilization, sequestration, and storage, including direct air capture.
- Taxes on coal remain a significant source of revenue for the state of Montana. As coal markets and mining change across the country, Montana needs to closely evaluate the future contribution of coal to Montana's economy.

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EQC ACTIONS

The EQC's work on SJ 5 during the interim focused on legislation in Washington and Oregon and the role Montana might play in influencing those bills.

The Washington and Oregon legislatures both pursued bills to further regulate greenhouse gases and the future of Colstrip power. Both bodies, however, adjourned in March 2018 and did not approve the proposals.

In Washington, [SB 6203](#) would have established a carbon tax that would have begun around \$12 per ton, beginning July 1, 2019. In the final days of the session, a second proposal, [HB 2995](#), became the bill with the most potential impact to Montana. The bill would have required utilities to remove coal-fired generation from rates. The bill would have also requested electric utilities to meet incremental targets to remove fossil fuel generation until those utilities reached 100 percent clean in 2045—requiring Washington utilities to no longer use Colstrip power. Sen. Reuven Carlyle, sponsor of the Washington carbon tax proposal in the Senate, said of HB 2995, “The 100 percent clean is really a forcing function to get off the remaining coal we get from Montana as well as the renewables above and beyond our current baseload.”²

In Oregon, the legislature reviewed two cap and trade bills, [House Bill 4001](#) and [Senate Bill 1507](#). The nearly identical bills would have regulated greenhouse gases through use of “allowances” representing one ton of CO₂ emissions and sought linkage with the trading platform used by California, Quebec, and Ontario. Under HB 4001, electric utilities would have had to obtain all of their compliance allowances from the marketplace. Under the Senate proposal, utilities would have received free compliance allowances for emissions coming from coal-fired electricity through 2030, and potentially through 2035 for the portion of Colstrip owned by Portland General Electric (PGE).

In January 2018, the [EQC requested](#) the Senate President or House Speaker ask for an interpretation from Montana Attorney General Tim Fox pursuant to section 2-15-501, MCA, analyzing Washington's SB 6203. “An Act Relating to Reducing Carbon Pollution by Moving to a Clean Energy Economy,” and similar legislation under review by the Washington Legislature that proposed taxing carbon emissions generated in Montana to produce electricity that Washington imports. President Scott Sales sent a [letter](#) and sought the opinion.

The Montana Attorney General's Office did not provide a legal opinion on the Washington proposal. The AG's Office indicated it was unable to issue a legal opinion on the proposed legislation, which at the time, was an abstract question. The AG also doesn't determine constitutionality, and the office doesn't issue opinions on items that are currently in litigation or likely to be litigated.

However, in a February 2018 [letter](#) sent to Washington Gov. Jay Inslee, Montana Attorney General Tim Fox and Wyoming Attorney General Peter Michael raised legal concerns over the “carbon tax” legislation considered by the Washington Legislature. In the letter, they questioned the legislation's intent to regulate emissions generated outside of Washington's borders, stating, “Washington State obviously does not have jurisdiction to regulate environmental issues in Montana and Wyoming. Yet the clear intent of SB 6203 is to force non-Washington power generation facilities into compliance with Washington air quality regulations through the imposition of a tax on carbon dioxide emitted outside Washington.” The attorneys general state in the letter their concerns that the legislation likely conflicted with the Federal Clean Air Act, Federal Energy Regulatory Commission rules, and the U.S. Constitution.

² <http://governorswindenergycoalition.org/backers-of-defeated-washington-carbon-tax-eye-big-victory-on-renewables/>

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MONTANA COAL MINES AND POWER PLANTS

The EQC's work started with a snapshot of coal mining in Montana. There are six coalmines in Montana located in Big Horn, Musselshell, Richland, and Rosebud Counties. Westmoreland Mining, LLC, controls three of the mines. In 2015 Montana was the sixth largest coal producer in the U.S. at 42 million tons mined. The majority of mining in Montana occurs in the Powder River Basin. The price of Montana coal averaged \$17.44 per ton at the mine in 2015, up from the previous 20 years when it was near \$10.00 per ton. The price of Montana and Wyoming coal is far below the U.S. average of \$31.83, largely because of transportation costs and the lower heat content of the coal.³

Following national trends, production decreased in Montana from about 45 million tons in 2008 to 32 million tons in 2016. Weak economic markets for coal both in the U.S. and internationally contributed to the decline. Coal-fired power generation is in decline, as inexpensive natural gas and cheaper renewables fuel more electricity production. In addition, air quality regulations have accelerated. The future of Montana coal economics depends in large part on greenhouse gas regulations, use of coal-fired generation in the U.S., natural gas prices, and coal export markets.⁴ Colstrip's future also will be dependent on policies enacted in Washington and Oregon concerning the use of coal-fired generation.

About 2,289 megawatts of coal-fired generating capacity exists in Montana, or 37 percent of the state's nameplate capacity. In Montana, the J.E. Corette coal-fired power plant in Billings ceased operation in 2015. Colstrip Units 1 and 2 will close no later than July 2022.

Montana Coal Mines

Cloud Peak Energy, Spring Creek Mine, Big Horn County

- ❖ Sub-bituminous – surface
- ❖ Coal mined from Spring Creek is shipped primarily to electric utilities and industrial customers in the Northwest, Midwest, Northeast, and Southwest, and various Canadian provinces and exported to Asian utility customers via the Westshore terminal in British Columbia, Canada.
- ❖ Ten-year Average Annual Production = 16.9 million tons
- ❖ BTU/lb = 9,283 Btu
- ❖ (2017) Full-time Employees = 230

Western Energy Co., Rosebud Mine, Rosebud County

- ❖ Sub-bituminous – surface
- ❖ The Rosebud Mine supplies most of its production to the four-unit Colstrip Power Station that is adjacent and specifically designed to burn Rosebud coal. Coal is sold under two long-term contracts. Western is a subsidiary of Westmoreland.

³ “Understanding Energy in Montana: A Guide to Electricity, Natural Gas, Coal, Petroleum, and Renewable Energy Produced and Consumed in Montana,” Jeff Blend, Montana Department of Environmental Quality draft report and updates before Energy and Telecommunications Interim Committee, May 2018.

⁴ Ibid

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- ❖ Ten-year Average Annual Production = 10 million tons
- ❖ BTU/lb = 8,550 Btu
- ❖ (2017) Full-time Employees = 407

Signal Peak Energy, Signal Peak Mine, Musselshell County

- ❖ Bituminous – underground
- ❖ Signal Peak is Montana’s only underground coalmine. Coal is recovered using longwall mining equipment. Global Coal Sales markets coal from Signal Peak mine in the Bull Mountains near Roundup. Most is shipped to Asia.
- ❖ Seven-year Average Annual Production = 6.4 million tons
- ❖ BTU/lb = 10,300 Btu
- ❖ (2017) Full-time Employees = 240

Westmoreland Resources, Absaloka Mine, Big Horn County

- ❖ Sub-bituminous – surface
- ❖ The Absaloka Mine is located near Hardin and the Crow Indian Reservation. The coal reserves are leased from the Crow. The Absaloka Mine was developed to supply Powder River Basin coal to a group of Midwestern utilities, including Xcel Energy’s Sherburne County Station near Minneapolis, Minnesota. It has also sold coal to other upper Midwest utilities.
- ❖ Ten-year Average Annual Production = 5.4 million tons
- ❖ BTU/lb = 8,570 Btu
- ❖ (2017) Full-time Employees = 131

Lighthouse Resources Inc., Decker Mine, Big Horn County

- ❖ Sub-bituminous – surface
- ❖ Coal from the Decker Mine is sold to the US domestic market. Along with supplying the existing domestic market, Lighthouse Resources is exporting coal from Decker to the international market.
- ❖ Ten-year Average Annual Production = 4.3 million tons
- ❖ BTU/lb = 9,500 Btu
- ❖ (2017) Full-time Employees = 132

Westmoreland Savage Corp., Savage Mine, Richland County

- ❖ Lignite – surface
- ❖ The Savage Mine is an 874-acre mine located on the Montana-North Dakota border. The Savage Mine has a full-requirements contract with the 57-megawatt Lewis & Clark Station, owned by Montana-Dakota Utilities, and a longstanding annual supply relationship with a sugar beet refinery near Sidney.
- ❖ Ten-year Average Annual Production = 330,000 tons
- ❖ BTU/lb = 6,500 Btu
- ❖ (2017) Full-time Employees = 13

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Coal-Fired Power Plants

Colstrip Generating Station

Colstrip has a combined peak output of 2,094 megawatts and is the second-largest coal-fired generating facility west of the Mississippi. Colstrip includes four separate coal-fired generating units, collectively owned by Puget Sound Energy (PSE), Talen Energy, Portland General Electric (PGE), Avista Corporation, PacifiCorp, and NorthWestern Energy. The facility is adjacent to the Rosebud coalmine, which supplies the coal.

❖ (2017) Full-time Employees = 360

Hardin Generating Station

The Hardin Generating Station north of Hardin has 116 megawatts of net generating capacity. Rocky Mountain Power, a subsidiary of Centennial Power, owns it. Colorado Energy Management operates the plant. Heorot Power Holdings, a subsidiary of Beowulf Energy, owns Colorado Energy. The plant opened in 2006. The Absaloka Mine near Hardin supplies the coal. At one time, electricity from the Hardin plant was sold to Powerex Corp. of Canada. Rocky Mountain Power recently announced it might close the facility unless purchased by another company.

❖ (2017) Full-time Employees = 30

Lewis and Clark Station

Montana-Dakota Utilities operates the Lewis and Clark Station consisting of a coal-fired boiler capable of burning coal or natural gas and associated equipment for electricity. It has 44 megawatts of net generating capacity and is located near Sidney. Lewis and Clark Station annually consumes more than 300,000 tons of lignite supplied from the nearby Savage Mine.

❖ (2017) Full-time Employees = 34

Rosebud Power Plant

Colstrip Energy Limited Partnership is a 38-megawatt waste coal-fired power project located in Rosebud County north of Colstrip. The plant began commercial operation in 1990. Energy produced is sold to NorthWestern Energy under a Power Purchase Agreement that expires in June 2025 (sold by former Montana Power Company). CELP is licensed as a qualifying small power production facility under the Public Utility Regulatory Policy Act. Fuel for the plant is primarily waste coal from the nearby Rosebud Mine.

❖ (2017) Full-time Employees = 30

THE COLSTRIP QUESTION

The four-unit Colstrip Generating Station is the second largest coal-fired generating facility west of the Mississippi River. It sits in the crosshairs of growing efforts in the Northwest to reduce carbon dioxide emissions. Although the plant is located in Rosebud County, Montana, about 75 percent of the electricity

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generated there travels across power lines to Washington and Oregon. Folks in the Northwest aren't sure they want to keep using that power.

Colstrip's complex ownership scheme—with six different utilities owning part of the facility—means that Montana has very little control over the fate of a facility that has been hailed as a powerhouse by some and scorned as a source of environmental pollution by others. Most of the power generated at Colstrip travels west to Townsend, over two 500-kilovolt transmission lines. From there, Colstrip power moves across the Bonneville Power Administration's transmission system and reaches utilities' individual transmission grids in Washington and

Oregon. Ownership is outlined in **Figure 1**.

Colstrip consists of four separate coal-fired generating units, collectively owned by PSE, Talen Energy, PGE, Avista Corporation, PacifiCorp, and NorthWestern Energy.

Units 1 and 2 were

built in the mid-1970s and have 307 MW each of net generating capacity. Units 3 and 4, built in the mid-1980s, have 740 MW each of net capacity. PSE has the largest ownership interest in Colstrip, owning 50 percent of Units 1 and 2 and 25 percent of Units 3 and 4. Colstrip also represents about 30 percent of Montana's total electric generation capacity.

In 2016, the Oregon Legislature approved [SB 1547](#). The bill moves Oregon away from coal-fired generation and for Portland General Electric (PGE) and Pacific Power, doubles Oregon's renewable energy generation under the Renewable Portfolio Standard to 50 percent. Under the legislation, electricity provided to customers of Pacific Power and PGE would be coal-free by 2030, with the exception of a small amount from PGE's ownership of Colstrip, which would be out of the Oregon mix no later than 2035.

In 2016, the Washington Legislature approved [Senate Bill No. 6248](#). The bill authorized PSE to create a fund to pay for the closure of Colstrip Units 1 and 2. In general, if PSE closes Units 1 and 2 after December 31, 2022, the company can fund remediation and decommissioning using a regulatory liabilities account. PSE has a "liabilities account" from federal Treasury grants from hydro upgrade projects and from the federal renewable energy production tax credits earned from PSE wind projects. PSE, rather than credit these benefits back to Washington customers, would use the credits to pay for remediation costs related to Colstrip Units 1 and 2.

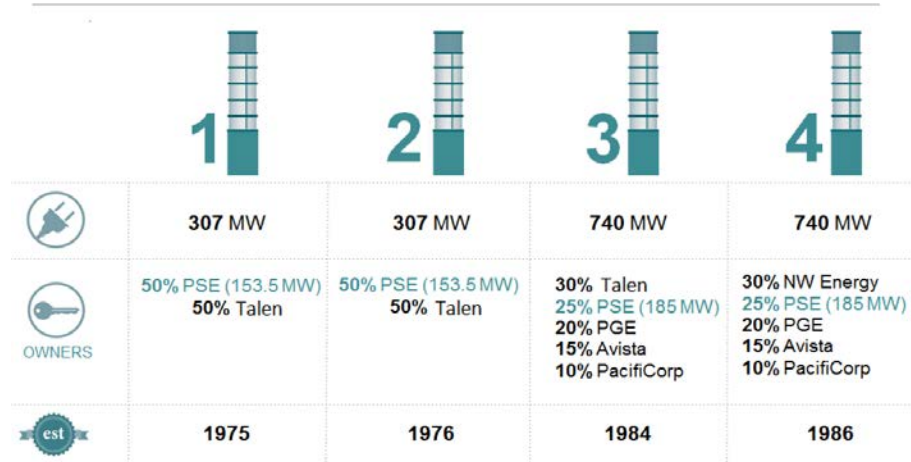


FIGURE 1: PROVIDED BY PSE

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More recently in Washington, a coalition of environmental, community and labor groups have filed a proposed citizens' initiative to tax carbon emissions. The initiative would significantly increase costs at Colstrip. Additional information about the initiative is provided later in this report.

Colstrip Closure and Depreciation

In 2016, the pending closure of Units 1 and 2 became a reality when PSE and Talen (the owners of 1 and 2) agreed to close the units no later than July 2022 to settle a lawsuit alleging clean-air violations at the facilities. The Montana Environmental Information Center and the Sierra Club sued the plant owners in federal court in 2013. Those entities and the Colstrip owners agreed to the settlement, including the closure date.

Following up on that agreement, a PSE rate case before the Washington Utility and Transportation Commission, the equivalent of the Montana Public Service Commission, raised more questions about PSE's use of electricity generated at Colstrip. A rate case is the formal regulatory process by which public utilities set the prices they charge consumers. The outcome of that rate case, which came out in late 2017, is that PSE customers who use electric energy will pay a 1 percent increase or about \$1.25 more a month per customer. The funds go toward decommissioning and remediation costs at Colstrip.

That rate case set depreciation schedules—just for PSE—for all four Colstrip units of the power plant, meaning PSE will pay down all of its debts on Colstrip by 2027, instead of its initial 2045 projection. In 2018, Avista also agreed to December 2027 for depreciation planning purposes. Hydro One of Ontario, Canada, planned to acquire Avista. To complete the acquisition, regulators in each state where Avista operates weigh in on the sale. Environmental groups in Washington agreed to settle claims over the proposed sale before the Washington Utility and Transportation Commission (WUTC) in exchange for the 2027 date. At the time of publication of this report, Montana's Public Service Commission [approved](#) the merger. However, in July, Hydro One's CEO and board of directors exited the company. The management change prompted the WUTC and others to request more information on the proposed sale.

There has been much discussion about what depreciation schedules mean in terms of an actual closure date for Units 3 and 4. The owners must agree to a closure date, according to operating agreements for the facility.

In Montana, the original cost of NorthWestern Energy's ownership interest in Colstrip Unit 4 was \$416 million and won't fully depreciate until 2042 per the original depreciation schedule, unless that changes in future NorthWestern rate cases. NorthWestern Energy's rate case, the first since the purchase of Unit 4, will be before the Montana PSC before the end of 2018.

Settlements and rate case outcomes discussed above also have included some financial contributions to Colstrip. PSE has agreed to contribute \$10 million for transition planning. Gov. Steve Bullock and Attorney General Tim Fox have appointed a [Colstrip Community Impact Advisory Group](#) to work with Colstrip in developing a plan to spend that money. Meeting materials and announcements are available above..

In late March 2018, Avista also committed \$3 million to help Colstrip with transition planning. In May 2018, the company committed another \$1.5 million to Colstrip. It is unknown if the change in Hydro One management will impact the financial commitment by Avista.

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Montana also is the recipient of federal POWER grant money to assist Colstrip with workforce planning and worker training. The money also is for other communities in Eastern Montana affected by coal-related layoffs. The Montana Department of Labor and Industry applied for the grant through the U.S. Department of Labor's Dislocated Worker program. In August 2017, Governor Bullock announced the state secured \$2 million through the POWER grant for planning efforts and for workforce training in the area. A total of \$4.6 million could be made available to Montana through the grants.⁵

CARBON CAPTURE, UTILIZATION, AND SEQUESTRATION (CCUS)

In July 2018, the EQC accepted [public comment](#) on this report. Cloud Peak Energy provided comments concerning the future of coal and requesting that carbon capture utilization and storage (CCUS) be considered part of the discussion. Cloud Peak commented, "A serious federal investment in CCUS technology should be a policy position acceptable as a way to not only protect the critical revenue stream and good paying jobs resulting from responsible coal development, but also make meaningful reductions in CO2 emissions globally." The EQC at its September 2018 meeting will host a panel on carbon sequestration. Members will hear from Cloud Peak Energy and Montana's Big Sky Carbon Sequestration Partnership. Carbon Engineering, a Canadian-based clean energy company working on the commercialization of technology that captures CO2 directly from the atmosphere, will discuss direct air capture technologies.

CCUS is a process that captures carbon dioxide emissions from sources like coal-fired power plants and either reuses it or stores it so it does not enter the atmosphere. Carbon dioxide storage in geologic formations includes oil and gas reservoirs, unmineable coal seams and deep saline reservoirs -- structures that have stored crude oil, natural gas, brine and carbon dioxide over millions of years, according to the U.S. Department of Energy. In Montana, storage capacity and potential storage locations are being studied by the [Big Sky Carbon Sequestration Partnership](#). It has examined areas of Montana where geological sequestration is likely. The Big Sky Carbon Sequestration Partnership, led by Montana State University, is one of the U.S. Department of Energy's seven regional partnerships. Researchers are developing a framework to address carbon dioxide emissions and are working with stakeholders to create a "vision for a new, sustainable energy future."

Direct Air Capture (DAC) is a technology that processes atmospheric air, removes CO2 and purifies it. According to the Center for Carbon Removal, "DAC systems can be thought of as artificial trees. Where trees extract CO2 from the air using photosynthesis, DAC systems extract CO2 from the air using chemicals that bind to CO2 but not to other atmospheric chemicals (such as nitrogen and oxygen). As air passes over the chemicals used in DAC systems, CO2 "sticks" to these chemicals. When energy is added to the system, the purified CO2 'unsticks' from the chemicals, and the chemicals can then be redeployed to capture more CO2 from the air."

⁵ <http://governor.mt.gov/Newsroom/governor-bullock-announces-opportunities-for-colstrip-and-regional-coal-impacted-workers>

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The 2007-2008 Energy and Telecommunications Interim Committee of the Legislature produced a [report](#) about carbon sequestration opportunities in Montana. During the 2009 Montana legislative session, Montana lawmakers passed [Senate Bill No. 498](#) to establish regulations for CCUS in Montana. Montana is one of only a few states that have taken steps to implement carbon sequestration legislation (Chapter 474, Laws of 2009). While state law does not mandate the sequestration of carbon dioxide generated from sources, the law provides regulatory certainty to entities interested in pursuing the technology. The law codifies Montana's intent to have jurisdiction over a sequestration program and establishes a state regulatory program.

COAL RELATED TAXES PAID

The EQC next approached the requirements of SJ 5 with a focus on taxes and the contribution of coal to Montana's tax base. Like the coal discussion itself, the financial data to date also focuses largely on Colstrip. In late 2015, the Department of Revenue (DOR) prepared an analysis that summarized the annual tax revenue from Colstrip Units 1 and 2 and, in 2016, the Legislative Fiscal Division prepared a similar analysis. The estimates prepared show the Colstrip Units 1 and 2 tax contribution between \$14.2 million and \$17 million. Based on that information, by July 1, 2022, the time in which those units are now legally required to shut down, Montana will see lost tax revenue between \$14.2 million and \$17 million. Those estimates also both include impacts from mining less coal at the Rosebud Mine. They do not contemplate the potential contributions of other power coming online.

Montana imposes two taxes on electricity. The electrical energy producer's license tax is a tax on electricity generated in the state. The wholesale energy transactions tax is a tax on electricity sent over transmission lines in the state. These taxes are the same for any type of power plant—coal, wind, etc. Coal-fired generation now represents 61 percent and 52 percent of the total taxes collected.

There are also three taxes on coal production in Montana: the coal severance tax, the resource indemnity tax, and the coal gross proceeds tax. In addition, the federal government collects royalties on every ton of coal mined on federal lands located in the state. The federal government forwards about half of the royalty revenues to Montana, and the state deposits the money in the state general fund, with 25 percent deposited in a mineral impact account dedicated to local governments.

In terms of where the tax revenue goes, the state deposits revenue from the electrical energy producer's license tax, the wholesale energy transactions tax, and corporate income in the state general fund. The state splits the coal severance tax between state trust funds, the state general fund, and state special revenue funds that pay for, for example, state buildings and local coal impacts.

The state allocates revenue from the resource indemnity tax to state special revenue funds. Natural resource related programs benefit from the money. Coal represented about 77 percent of those collections. The state distributes the coal gross proceeds tax, a tax on coal, to the same taxing units as other property taxes that are divided between the state general fund, local governments, local special districts, school districts, and the university system.

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Extrapolating property taxes attributable to coal-fired power plants isn't a simple endeavor. The state determines the amount of property taxes a generation facility pays based on its market value, the assessment ratio applied to the market value, and the mills levied against the taxable value. Montana assigns all taxable property in Montana to a property class. Wind-powered electric generation facilities are class 14, taxed at 3 percent of market value. Most of the facilities at a coal-fired generation facility are class 13, taxed at 6 percent of market value, but the state taxes pollution control facilities differently. Facilities also likely include some class 4 real estate and some class 8 general business equipment, which the state taxes differently.

The transmission lines that come out of Colstrip further complicate property tax estimates. The Colstrip Transmission System consists primarily of twin 500-kV lines that carry electricity from Colstrip to Townsend, where those lines interconnect with the Bonneville Power Administration (BPA) transmission system. The Colstrip and BPA transmission lines ultimately deliver Colstrip power to the West Coast. The owners of the Colstrip Generating Station share in the ownership of the transmission lines as illustrated in **Figure 2**.

Colstrip Project Transmission Owners		
Ownership Rights (MW)		
	Colstrip to Broadview	Broadview to Townsend
NorthWestern Energy	822.8	468.5
Puget Sound Energy	746.0	758.6
Portland General Electric	307.2	312.4
Avista Corp	230.4	234.3
PacifiCorp	153.6	156.2
	2200 MW Path 8 Rating	

FIGURE 2: NORTHWESTERN ENERGY

An examination of the top 10 property owners by taxable value in Montana illustrates the role of the transmission lines and the owners. PSE transmission, for example, is among of the top 10 in terms of taxable value in a dozen Montana counties. PGE transmission is one of the top 10 in 10 Montana counties. Avista transmission is one of the top 10 in 8 Montana counties, excluding property in Sanders County, where Noxon Dam is located. That doesn't necessarily mean they are among the top property taxpayers, but it demonstrates value.

Another example, from 2005 to 2013, with the exception of 2008, PSE appealed the DOR's determination of market value for the company's centrally assessed property—about half of the value involved was in Rosebud County. The remainder, however, affected 18 other counties spread along the transmission line corridor, including Anaconda/Deer Lodge, Big Horn, Broadwater, Butte/Silver Bow, Granite, Golden Valley, Hill, Jefferson, Lewis & Clark, Meagher, Mineral, Missoula, Musselshell, Powell, Stillwater, Treasure, Wheatland, and Yellowstone counties.

The transmission lines and their value were potentially a factor in some of the debate that surrounded a [2015 study](#) completed by the Bureau of Business and Economic Research at the University of Montana. That study looked at potential impacts of the proposed federal Clean Power Plan. Their analysis, which estimated as much as a loss of more than \$500 million in annual income received by Montana households under certain

COAL IN MONTANA: CHANGING TIMES

scenarios in the proposed federal plan, contemplated the total deactivation of the transmission lines. In June 2018, the Bureau of Business and Economic Research released an [updated study](#) on the economic impact of the early retirement of Colstrip Units 3 and 4. The Chamber Foundation, NorthWestern Energy, Westmoreland Coal, and Talen Energy contributed to the study.

A few highlights of the Bureau of Business and Economic Research concerning the early retirement of Colstrip Units 3 and 4 include:

- an economy with, on average, almost 3,300 fewer jobs than would have been present if the units continued to operate through the 2028-43 period.
- a loss of income received by Montana households varying between \$250 and \$350 million per year, adding up to a total of about \$5.2 billion over the full 16 year period 2028-43. Losses in after-tax income, which is a better proxy of spending power, for Montana households would total almost \$4.6 billion over the same period.
- declines in annual gross sales by businesses and other organizations, or economic output, between \$700 and \$800 million, cumulating to \$12.5 billion over the full sixteen year period.
- a decline in population which occurs as workers and families migrate to other economic opportunities, growing to more than 7,000 people by year 2043.

The information in **Table 2** summarizes the bigger picture, based on information from the Department of Revenue, in terms of taxes paid to the state of Montana related to coalmines and coal-fired power plants.

Another aspect on the property tax issue and transmission is Montana's beneficial use tax. The tax is included in the overall property tax estimates. The tax is a result of BPA's, a federal, tax-exempt entity's, ownership of the transmission line moving west. Montana taxes utilities for their "beneficial use" of the BPA transmission lines between Townsend and Garrison. Montana then taxes the separate private interest in that tax-exempt property. In late 2017, the BPA and the Governor also joined to kick-off a [series of conversations](#) focused on developing a sustainable long-term strategy to support developing new renewable energy resources in Montana. The group intends to foster a regional understanding of opportunities and barriers to energy development. They have invited renewable energy developers, regulators, utilities, and public interest groups. Much of the discussion has focused on transmission capacity and related rates and tariffs paid to access the grid. Colstrip transmission lines and their future use are a significant factor in the conversation. The group released its [final report](#) in June 2018. The Montana Renewables Action Plan includes findings about the ability of Montana to provide renewable resources to the Pacific Northwest and recommendations to enable this resource development. A few highlights from the findings, include:

- Advocates for Montana renewables (state government, developers and public interest groups) are "pushing" the export of Montana renewables. There needs to be a corresponding interest from potential purchasers "pulling" for the acquisition of Montana renewables.
- The delivered cost of Montana wind resources to Pacific Northwest utilities appears to be competitive with other renewable resources. However, uncertainties about transmission and integration services can be impediments to securing contracts for Montana wind resources.

COAL IN MONTANA: CHANGING TIMES

- There is (or will soon be) a significant amount of transmission capacity – from existing available capacity, the planned retirement of Colstrip units 1 and 2, and relatively lowcost (compared to building new lines, though still in the \$ millions) transmission upgrades – to support the development of a substantial quantity of Montana renewables for export to the Pacific Northwest, but not necessarily all the way to the Interstate-5 (I-5) load centers.
- Some segments of unused transmission system capacity exist today.
- Transmission system capacity will become available as coal-fired generation at Colstrip retires.
- The Montana Intertie Agreement (MIA), originally conceived and written to move Colstrip generation to loads, has provisions that may need to be modified to facilitate future use of capacity on the BPA Eastern Intertie and the Colstrip Transmission System (CTS). BPA and the CTS parties agree that CTS parties can use their existing capacity rights under the MIA to move power they acquire other than Colstrip power, but some modification to the MIA is required to provide for third-party wheeling.
- Assuming transmission service requests to pay for the investments, incremental available transmission capacity can be added with three projects:
 - BPA Remedial Action Scheme (RAS) installations - ~ \$2 million per site
 - Colstrip Transmission Upgrade - ~\$252 million
 - Montana-to-Washington Project - ~\$140 million
- The existing transfer capability of the Colstrip Transmission System can, with relatively minor investments (compared to new line builds), support a one-for-one replacement of Colstrip generation with new resources, including variable energy resources.
- As long as the Colstrip 500-kV transmission system remains intact and with proper enhancements, steady state and dynamic studies indicate new transmission lines are not required to reliably maintain high transfer capability.
- The 500-kV system is also essential for reliable load service both within Montana and for supporting exports to the Pacific Northwest.
- New generation must participate in Remedial Action Schemes, or RAS, the ability to quickly drop generation to protect the stability of the transmission system, and coordinate with the Colstrip Transmission System Acceleration Trend Relay (ATR) as long as the ATR or its replacement are required for the operation of the transmission system.
- Under steady state conditions, review of the publicly available studies performed to date did not identify thermal limit violations for any of the Colstrip retirement scenarios considered. None of the studies identified new transmission lines as being required (as long as the 500-kV system is intact) in order to support the integration of new resources, including variable energy resources.
- Review of the available studies that conducted dynamic stability analysis also found that the system performed reliably under stress, with no voltage excursions. Specific location and resource design will be reviewed for any necessary frequency response when replacement generation is identified.
- Adequate voltage support in local areas may be a concern following Colstrip generation retirement. However, the location of replacement generation may help address it. Voltage control can be provided by a number of means, including generators, switched capacitors and reactors, static VAR compensators, pumped storage, or synchronous condensers.

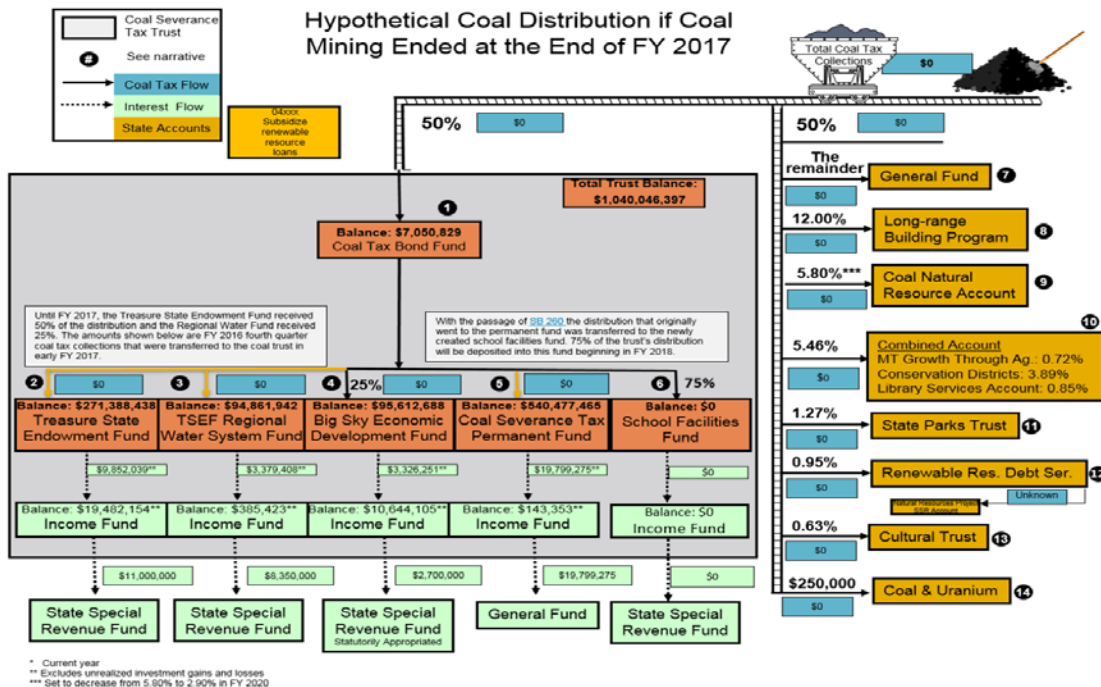
COAL IN MONTANA: CHANGING TIMES

- Blackstart, sub-synchronous resonance mitigation, RAS, and Western Electricity Coordinating Council path rating requirements can be addressed at the time of Colstrip unit retirements when the location and type of replacement generation is known.
- Variable energy resources will need to participate in RAS, provide local voltage support and potentially frequency response. Retaining Colstrip units to serve as synchronous condensers (to provide voltage support and inertia) may be an option. The choice to exercise it would depend on detailed engineering studies when replacement generation location and characteristics are identified and all owners agree that it represents the best value alternative for provision of voltage support.

Snapshot of Individual Taxes

State Severance Tax

The coal severance tax is imposed on all coal mined in Montana, pursuant to 15-35-103, MCA. Producers of more than 50,000 tons of coal per year pay a quarterly severance tax on all production in excess of 20,000 tons. Producers of less than 50,000 tons per year are exempt from the tax. Tax rates depend on the heat content (BTUs) of the coal and the method of extraction. The value of coal to which the severance tax is applied is the “contract sales price”.



The contract sales price is the price of coal extracted and prepared for shipment “free on board”, less the amount required to pay production taxes. Production taxes include the state severance tax, the resource indemnity trust and ground water assessment tax, local gross proceeds taxes, federal reclamation taxes, and the federal Black Lung Tax. The contract sales price includes royalties up to \$0.15 per ton paid to federal and state governments or Indian tribes and all royalties paid to other mineral rights owners. The DOR collects the tax. The state distributes the tax pursuant to 15-35-108, MCA.

❖ **FY 2016: \$60.4 million**

COAL IN MONTANA: CHANGING TIMES

Federal Royalty (49% distributed to Montana)

Under the federal Mineral Leasing Act of 1920, the federal government collects royalties on every ton of coal mined on federal lands located in the state. The Interior Department's Office of Natural Resources Revenue forwards about half of the royalty revenues to Montana. Montana deposits the money in the state general fund, with 25 percent deposited in a mineral impact account dedicated to local governments. The state distributes the tax pursuant to 17-3-240, MCA.

❖ **FY 2016: \$20.9 million**

Gross Proceeds Tax

A statewide 5 percent yearly flat tax is imposed on coal gross proceeds, pursuant to 15-23-703, MCA. State and local governments do not levy or assess any mills against the reported gross proceeds of coal. The gross proceeds of coal are determined by multiplying the number of tons produced by the contract sales price. One-half of the contract sales price of coal sold by a coal producer who extracts less than 50,000 tons of coal in a calendar year is exempt from taxation. Local county treasurers collect the tax. The revenue is proportionally distributed to the appropriate taxing jurisdictions in which production occurred based on the total number of mills levied in fiscal year 1990.

❖ **FY 2016: \$20.8 million**

Resource Indemnity Trust and Ground Water Assessment Tax

The state created a resource indemnity trust fund to indemnify the citizens of Montana for the loss of long-term value resulting from the depletion of natural resources and for environmental damage caused by mineral development. All businesses that mine or extract minerals within Montana are subject to the annual tax on the percentage of the gross value of the product, pursuant to 15-38-104, MCA. The tax rate is 0.4 percent for coal. Proceeds from the resource indemnity tax funded the trust until the trust balance reached \$100 million, which occurred in December 2001. Deposits from the resource indemnity tax ceased at that point, and the balance has remained at \$100 million. Income from the trust fund pays for environmental and natural resource programs.

❖ **FY 2016: \$1.8 million**

Electrical Energy Producer's License Tax

Each person or organization engaged in generating, manufacturing, or producing electrical energy in Montana pays an electrical energy producer's license tax (15-51-101, MCA). The state levies the tax of \$0.0002 per kilowatt-hour (or \$0.20 per megawatt-hour) against all electrical energy produced within the state. The state allows a deduction for "actual and necessary" energy use by the plant for the production of the energy. The revenue goes to the general fund. A total of \$4.31 million in taxes was due for FY 2016, and coal-related companies had a tax liability of \$3.6 million, which comprised 83.5 percent of total taxes due. DOR records don't provide a breakdown into energy types, but the DOR used an estimate of the share of energy generated in Montana that comes from coal.

❖ **FY 2016: \$2.62 million**

COAL IN MONTANA: CHANGING TIMES

Wholesale Energy Generation Tax

The Legislature, grappling with the changes brought about by the restructuring of Montana's electric industry in 1997, reduced the property tax rate applied to electrical generation facilities and imposed a replacement tax called a wholesale energy transaction tax (Title 15, chapter 72, part 1, MCA). In 1999, the Legislature reduced the tax rate on electrical generation property from 12 percent to 6 percent. To partly replace the reduction, the state developed a wholesale energy transaction tax. The state imposes the tax at a rate of 0.015 cents per kilowatt-hour on electricity transmitted by a transmission service provider in the state. The state deposits revenue from the tax in the state general fund. The total tax liability for 2016 of coal-related companies was \$3.4 million. The companies comprised 93.9 percent, or \$3.2 million, of the tax liability. The DOR used an estimate of energy generated using coal.

❖ **FY 2016: \$1.8 million**

Corporate Income Tax and Individual Income Tax

Montana's corporate income tax is a franchise tax paid by corporations doing business in Montana. The rate of the tax is 6.75 percent calculated on net income earned in Montana. Corporate income tax revenue goes to the general fund. Due to confidentiality concerns, the DOR was unable to release corporate income tax. The tax information included in this report also does not consider the income taxes paid by employees of the coalmines or coal-fired power plants.

Property Tax

In Montana, there are 14 different classes of property. Coal mined in Montana is subject to a gross proceeds tax. However, some property owned by mines or coal-fired generating units likely also provides some level of property tax in the form of Class 4 property, which includes industrial land improvements and Class 8 property, including property used for business purposes, and potentially other classes. *The DOR estimated the total property tax paid by the companies that own coalmines and coal-fired power plants. The estimates, therefore, include property that is not coal-related. NorthWestern Energy, for example, shows its total property tax in 2016 at \$136 million. NorthWestern owns only 30 percent of Colstrip Unit 4. They show \$3.6 million in taxes to Rosebud County, where the plant is located. Avista reports \$9.3 million in property taxes in Montana, but that also includes their ownership of the Noxon Rapids Dam.

NorthWestern Energy, Portland General Electric, Puget Sound Energy, Avista Corporation, and PacificCorp – all owners of Colstrip Units 1-4 – also pay property taxes based on their ownership of the Colstrip transmission lines. In the event that Colstrip Units 1-4 close, use of the transmission lines for the export of energy will be a significant piece of the tax puzzle.

❖ **FY 2016: \$316 million (total for utilities and mines) FY 2016: \$5 million (total for only mines)**

COAL IN MONTANA: CHANGING TIMES

Taxes Paid by Coal Mines and Coal-Fired Power Plants in Montana			
Tax	Coal Total (FY 2016)	Distribution	% of Total Attributed to Coal
Coal Severance Tax	\$60,359,000	(See Link)	100% (See Link)
Federal Mineral Royalties	\$20,889,000	75% general fund 25% local governments	74%
Coal Gross Proceeds Tax	\$20,757,000	Proportionally to appropriate tax jurisdiction	100%
Resource Indemnity Trust and Ground Water Assessment Tax	\$1,796,000	Net earnings and receipts appropriated by the Legislature, provided that the fund balance is not less than \$100 million. (See Link)	77%
Electrical Energy Producer's License Tax	\$2,620,000	General fund	61%
Wholesale Energy Generation Tax	\$1,780,000	General fund	52%
Property Tax	\$316,000,000 \$5,000,000 (mines)	Proportionally to appropriate tax jurisdiction	20%
Total	\$424.2 million Less Coal-Fired Generation Property Tax: \$113.2 million		

TABLE 2: DOR

COAL IN MONTANA: CHANGING TIMES

COAL FOR EXPORT

Montana coal generates electricity around the world, and the state is home to the nation’s largest coal reserves, but the planned closure of coal-fired electric plants around the U.S. will affect the industry and the revenue it generates.

A snapshot of coal production in Montana is included in **Figure 3**.

In 2015, Montana sent about half of its coal production by rail to other states where it was burned in coal-fired power plants, according to the EIA. Since 2007, Michigan, Minnesota, and Montana used about three-quarters or more of all the coal mined in Montana for energy generation as demonstrated in **Figure 4**. The remainder likely was either exported to western Canada, where much of it continued on to Asia or was exported through traders and brokers. Most Montana coal that goes overseas is shipped to the Westshore Terminal, a British Columbia coal port off the shore of Vancouver.

Traders and brokers don’t consistently report the final destination of coal exports, and the EIA provides only estimates of coal exports by brokers and traders.⁶ Since 2011, those estimates show increasing amounts of Montana coal exported out of the country. Because the EIA estimates coal exported through brokers and traders some slight discrepancies between coal production numbers or totals overall in Montana and coal shipped to U.S. power plants appear. Estimates show that much of the coal from Signal Peak, for example, is exported out-of-the country and that much of the coal from Spring Creek is either exported out of the country or sold to brokers.

Montana Coal Production in Million Tons

2007	43.2
2008	44.9
2009	39.6
2010	44.7
2011	42
2012	36.7
2013	42.2
2014	44.5
2015	42.1
2016	32.4

FIGURE 3: MONTANA COAL COUNCIL

⁶ Ibid.

COAL IN MONTANA: CHANGING TIMES

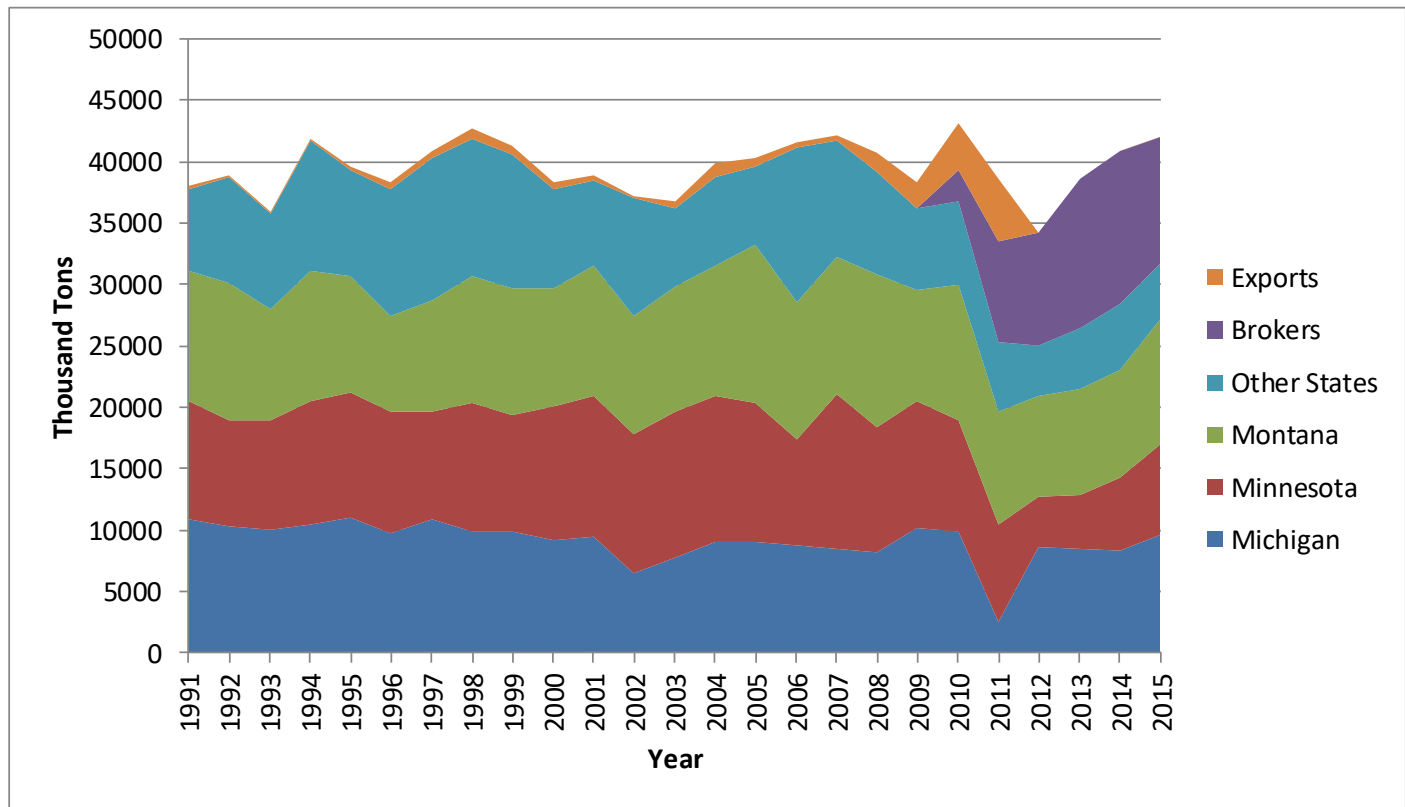


FIGURE 4 – DISPERSION OF MONTANA MINED COAL -- MONTANA DEQ

In 2017, Montana coal production also increased over the historical low number in 2016. In December 2017, coal production was about 5 percent ahead of 2016 numbers, according to EIA data. The Montana coal Council attributes the increased production to Spring Creek. Exports to Asia, primarily South Korea and Japan, fueled the 2017 uptick, according to Cloud Peak, the owner of the Spring Creek mine. Coal production in 2017 in the US increased over 2016 in five major coal-producing regions. The largest regional increase was in the Powder River Basin, where production increased 8 percent in 2017. EIA attributes the 2017 increases in U.S. coal production in part to the bankruptcy-caused restructuring of several major coal producers, which resulted in lower production costs.⁷

MONTANA COAL OVERSEAS

In recent years, coal exports have provided a growth sector for U.S. coal, including Montana coal. The EIA reported that the U.S. exported 97 million short tons of coal in 2017, a 61 percent increase from the 2016 level. Exports to Asia more than doubled from 15.7 million short tons in 2016 to 32.8 million short tons in 2017.⁸

⁷ <https://www.eia.gov/outlooks/steo/report/coal.php>

⁸ <https://www.eia.gov/todayinenergy/detail.php?id=35852>

COAL IN MONTANA: CHANGING TIMES

In Montana, continued growth in exports, however, is largely dependent upon new or expanded ports. In 2017, the Department of Ecology in Washington denied the environmental permits necessary for the expansion of the Millennium Bulk Terminal based in Longview, Wash., saying it would cause “significant and unavoidable harm” to the environment. Lighthouse Resources, which owns Montana’s Decker Mine, is attempting to develop the port. If completed, the terminal could export 44 million metric tons of coal.

Montana joined four other states in filing a [friend of the court brief](#) supporting Lighthouse Resource’s lawsuit against the state of Washington, arguing that Washington is interrupting coals sales in other states, like Montana, and violating the Commerce Clause of the U.S. Constitution. The joint amicus brief begins:

“In 2016, the States of Wyoming and Montana generated tax revenues of just over \$800 million from coal mining and coal-power generation. These revenues fund essential services to the citizens of the States, including water and highway infrastructure and education. Coal is a critical source of income to the fiscal health of these two states and for the provision of basic services necessary for the health and well-being of their citizens. In addition to the specific interests of Wyoming and Montana, the additional amici states have a broad interest in ensuring that no single state can engage in a pattern of discrimination that results in control over any other state’s ability to engage in a lawful activity involving interstate or foreign commerce. The Defendants’ unconstitutional actions threaten these interests”

MONTANA’S COAL INDUSTRY TODAY

Both the burning and mining of Montana coal remains under the spotlight in 2018. Speculation about the future also changes daily, as developments in the industry change the economic and political outlook.

One of the largest producers of coal in the U.S. has said it may face Chapter 11 bankruptcy. Over the last year, the value of a single stock share in Westmoreland Coal Company dropped 97 percent. Westmoreland Coal in May 2018 provided a [report](#) to the Securities and Exchange Commission estimating the life of Montana’s Absaloka mine until 2022 and the life of the Rosebud Mine to end in 2029. The company also announced that it secured a new financing commitment for \$110 million from an ad hoc group of the company’s existing secured creditors, which will allow for the development of a restructuring plan to “better ensure the long-term viability of Westmoreland.”⁹

Cloud Peak Energy in January 2018 announced it will start supplying a power plant in Fukushima Prefecture, sending nearly a quarter of its exports to Japan. The coal will power two coal gasification plants that will begin operation in 2020. Cloud Peak exported about 4.5 million tons of coal in 2017 from its Spring Creek Mine, about nine times more than the previous year, according to reporting in the Wall Street Journal.

In early 2018, Rocky Mountain Power indicated that it planned to exit the Hardin Generating Station; coal from the Absaloka mine fuels the plant. However, in May 2018, media reports indicated that data processing and block chain interests are interested in using power generated at the Hardin facility.

⁹ <http://westmoreland.com/2018/05/westmoreland-secures-110-million-in-new-financing/>

COAL IN MONTANA: CHANGING TIMES

On June 28, 2018, Talen Energy, the operator of the Colstrip facility, notified the Montana Department of Environmental Quality that Colstrip Units 3 and 4 were emitting an unsafe level of certain pollutants, and were shut down. At the time of the mailing of this report, the units remained offline.

Actions in other states that use coal-fired electricity generated in Montana or import Montana coal to burn in other facilities also continue to change.

The Washington Carbon Emissions Fee and Revenue Allocation Initiative ([Initiative No. 1631](#)) could significantly increase the cost of Colstrip power. The initiative is on the November ballot in Washington. If enacted, the proposal would charge pollution fees on sources of greenhouse gas pollutants and use the revenue to reduce pollution, promote clean energy, and address climate impacts. Under the proposal, Washington levies a \$15 per ton fee on large carbon emitters in the state starting in 2020. It includes power generated at Colstrip and used by utilities in Washington. The fee increases each year by \$2 per ton plus inflation until the state's 2035 greenhouse gas reduction goal is met.

In February, Consumer Energy, which uses a significant amount of Montana coal to supply electricity to 6.6 million of Michigan's 10 million residents, agreed to phase out electricity production from coal by 2040.

In mid-May Michigan's two largest utilities also reached an agreement with the group Clean Energy, Healthy Michigan to keep a renewable energy initiative off the ballot in November. The group agreed to drop the ballot drive in exchange for a commitment from the utilities to rely on 25 percent renewable energy by the year 2030, and to increase energy efficiency by 25 percent by 2030. The utilities will incorporate the agreement into plans that they must file with the Michigan Public Service Commission. Utilities in Michigan use coal mined from a number of Montana mines, including Spring Creek and Decker.

The tables below attempt to capture data about Montana coal use in other states. They are based on information from an EIA database that tracks where coal mined in the U.S. is burned. The tables list the coal-fired power plants in the U.S. that burned Montana coal since 2008. An outlook on those power plants is included, based on utility or energy company and public utility commission and regulatory data.

The first table for 2016 coal shows where 23.2 million tons, or about 72% of the 32.4 million tons of coal mined in Montana, was dispersed. That is consistent with overall estimates that power plants across the U.S. burn about half of the coal mined in Montana, leaving about a quarter burned in Colstrip.

The second table shows that between 2008 and 2015 Montana coal also went to the plants listed in the 2016 table. The information, however, isn't repeated in the second table, but for example, nearly all the coal mined at Rosebud was burned at Colstrip between 2008 and 2016, and coal from the Absaloka Mine was sent to the Sherburne facility every year since 2008.

The tables do not account for overseas exports, sales through brokers or traders, or future gains that could be attributable to new energy demand. They demonstrate only where Montana coal was burned in U.S. power plants. Two tables are included--one for 2016 providing a snapshot in time for Montana coal exports and a second demonstrating the diversity in Montana coal exports.

WHICH U.S. POWER PLANTS BURNED MONTANA COAL IN 2016?

Coal Plant	Megawatts	Outlook	Owner Position	MT Coal Used
TES Filer City Station CMS Energy, MI	73 MW	Consumers Energy says the coal and biomass plant will be converted to natural gas in 2018.	CMS Energy is transitioning to clean energy sources and retired its seven oldest coal-fired generating plants. The company plans to phase out production from coal by 2040.	In 2016, the facility used about 144,402 tons of coal from Signal Peak.
DTE-BRSC Shared Storage DTE Energy, MI	1,664 MW Belle River 1,547 MW St. Clair	Belle River is scheduled to retire in 2030. St. Clair is scheduled to retire between 2020 and 2023.	In May, DTE Energy , Michigan's largest electricity supplier, announced plans for an 80 percent reduction in carbon emissions and the closure of all of its coal-fired power plants by 2050.	In 2016, 2.1 million tons of Decker Mine coal shipped to the facilities – about 49 percent of its average annual production.
Presque Isle Power Plant We Energies, MI	359 MW Unit 5 & 6: 55 MW Unit 7-9: 83 MW Units 1 & 2: Retired Units 3 and 4: Retired	The plant is expected to be retired by 2020 and replaced by two natural gas generating stations. In October 2017, the Michigan Public Service Commission approved a request to build two gas plants and once complete allow for closure of the plants.	We Energies announced in 2017 it will shut down its Pleasant Prairie coal-fired power plant (1,200 MW) in 2018, citing pressures from inexpensive natural gas and stagnant demand. The utility also announced it would be investing in renewable energy, with plans to have 350 MW of solar online by 2020.	In 2016, the plant received 631,587 tons of Spring Creek coal.
Clay Boswell Minnesota Power, Minn.	1,025 MW Units 1 and 2: 70 MW Unit 3: 350 MW Unit 4: 535 MW	The Minnesota PUC in 2016 approved Minnesota Power's 15-year resource plan, calling for retiring two older units at Clay Boswell by 2022, 2 years earlier than the utility proposed. Units 3 and 4 are not scheduled for retirement.	Minnesota Power says its long-term goal is to transition from about 75 percent coal to 1/3 coal, 1/3 renewables, and 1/3 natural gas, a strategy officials are calling EnergyForward. Ten years ago, Minnesota Power generated about 95 percent of its electricity from coal.	In 2016, the facility used about 1.3 million tons of Montana coal. The plant has used coal from the Decker Mine, the Spring Creek Mine, and the Rosebud Mine.

WHICH U.S. POWER PLANTS BURNED MONTANA COAL IN 2016?

Coal Plant	Megawatts	Outlook	Owner Position	MT Coal Used
Sherburne County Xcel Energy and Southern Minnesota Municipal Power Agency, Minn.	2,238 MW Unit 1: 680 MW Unit 2: 682 MW Unit 3: 876 MW	In 2016, the Minnesota Public Utilities Commission approved a plan to retire the Sherburne Unit 2 by 2023 and Unit 1 by 2026. Unit 3 is not scheduled for retirement.	<p>Xcel is closing two of its coal units in Pueblo a decade ahead of schedule. Xcel is requesting bids for 1,000 MW of wind, 700 MW of solar, and 700 MW of natural gas under its Colorado Energy Plan.</p> <p>SMMPA's main source of electricity is its 41 percent share of Unit 3. It sells to 18 municipal utilities.</p>	In 2016, 3.8 million tons of Montana coal was shipped to the Sherburne County plant – about 70 percent of the average annual production at the Absaloka Mine.
Stanton Station Great River Energy, North Dakota	198 MW	The plant shut down in 2017. Great River Energy announced in 2016 that it would close the plant rather than undertake expensive upgrades. It is scheduled for demolition in 2018.	<p>Great River Energy provides electricity to 28 cooperatives serving 1.7 million customers. It remains dependent on fossil fuel plants, primarily coal, for baseline generation, but wind has increasingly become an investment of choice.</p>	In 2016, the plant received 397,710 tons of Spring Creek coal.
Coronado Salt River Project, Arizona	773 MW Unit 1: 389 MW Unit 2: 384 MW	SRP is in ongoing discussions with EPA on regional haze requirements at the facility.	Four utilities, including SRP , agreed to close the Navajo Generating Station by 2019 due to competition from cheaper natural gas.	In 2016, about 475,000 tons of Spring Creek Coal went to Coronado.
Centralia TransAlta, Wash.	1,340 MW Units 1 & 2: 670 MW	Based on an MOU with Washington state, TransAlta will shut down the first unit at Centralia in 2020. The second will stop burning coal in 2025.	<p>TransAlta in 2017 announced a strategy to accelerate the transition to gas and renewable generation.</p>	In 2016, the facility received 2.5 million tons of Spring Creek coal or about 15 percent of the mine's average annual production.

<p>Colstrip Generating Station</p> <p>Talen Energy, Puget Sound Energy, Portland General, Avista, PacifiCorp, and NWE, Montana</p>	<p>2,094 MW</p> <p>Units 1 & 2: 307 MW</p> <p>Units 3 & 4: 740 MW</p>	<p>Units 1 and 2 will close by July 1, 2022, under a legal settlement. No retirement date is scheduled for Units 3 and 4. Under a plan approved by the Washington Utilities and Transportation Commission, Puget Sound Energy, the largest owner of the Colstrip plant, will pay down its debts from Units 3 and 4 by 2027.</p>	<p>PSE: In 2016, 37 percent of the company’s fuel mix for electricity came from coal.</p> <p>PGE: PGE will cease serving customers with power from Colstrip by the end of 2035.</p> <p>Avista: Avista is poised to be acquired by Hydro One of Ontario. In 2015, Ontario banned coal-fired electricity.</p> <p>PacifiCorp: PacifiCorp’s 2015 energy plan includes ending coal generation at 10 units by 2029. By 2034, the company will reduce reliance on coal by 2,800 megawatts.</p> <p>NWE: 60 percent of generation from wind and water in 2016. 22 percent from owned thermal and the remainder from contract thermal.</p> <p>Talen: In August 2017, Talen Energy Corp. informed the co-owners of the plant that it planned to operate the facility and keep it open.</p>	<p>In 2016, 8.5 million tons, or 85 percent of the coal mined at Rosebud, was used at the Colstrip Generating Station.</p>
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- The information in this table was compiled using the U.S. Energy Information Administration Beta Database. Projects published in Beta are not final and are for comment only. The coal data browser and database is available [here](#). Totals may not equal sum of components because of independent rounding.
- The U.S. coal data are collected and prepared for release by the Office of Oil, Gas, and Coal Supply Statistics, U.S. Energy Information Administration (EIA). The data are compiled from the following EIA survey source: Form EIA-923, “Power Plant Operations Report” and the U.S. Department of Labor, Mine Safety and Health Administration, Form 7000-2, “Quarterly Mine Employment and Coal Production Report.”
- The categories used in the database are for coal receipts, with one exception. Coal distributed to industrial plants includes a small amount of coal consumed by coal preparation plants.
- The EIA in its Annual Coal Distribution Report includes estimates of coal exports data by brokers/traders. The coal exports by brokers/traders are estimated. The data in EIA Form 923 indicate that starting in 2011, large amounts of Montana coal were exported out of the country, or exported by brokers to locations unknown. Information as to where broker exported coal went is not available. This table does not include coal that went overseas.

WHICH ADDITIONAL U.S. POWER PLANTS BURNED MONTANA COAL BETWEEN 2008-2015?

Coal Plant	Megawatts	Outlook	MT Coal Used
Michigan -- In 2016, coal-fired power plants provided 36 percent of Michigan's electricity generation; 2 years earlier, they had provided 50 percent of the state's electricity. Twenty-five coal units in the state are scheduled to shut down by 2020. EIA			
Karn-Weadock	2,100 MW	Consumers Energy is closing seven of its coal-fired plants. Closures include Karn-Weadock (two units, 310 MW). The closure will leave Consumers with five units operating: three at the 1,450-MW Campbell plant and two (511 MW) at Karn-Weadock.	Absaloka; Spring Creek
BC Cobb	320 MW	Closed 2016.	Absaloka; Spring Creek
Monroe	3,066 MW	DTE says it plans to close Monroe in 2040.	Decker; Spring Creek
Wyandotte	73 MW	Can burn coal, natural gas, and tire-derived fuel.	Decker; Spring Creek
River Rouge	651 MW	One unit retired in November 2015, and the other is planned for retirement in 2023.	Spring Creek
James De Young	62 MW	Retired in 2016 and replaced with natural gas.	Spring Creek
Shiras	77 MW	In 2017, Marquette Board of Light & Power officials said the Shiras coal-fired steam plant may no longer be a cost-effective generating asset in the long term.	Spring Creek
Minnesota -- About 39 percent of utility-scale electricity generation in Minnesota came from coal-fired electric power plants in 2016, down from 44 percent in 2015. Almost all of Minnesota's coal supply comes by rail from Wyoming and Montana. EIA			
Syl Laskin	110 MW	Converted to natural gas.	Decker; Signal Peak/Bull Mountain
Taconite Harbor Energy Cntr.	150 MW	Idled in 2016 with full closure planned in 2020.	Decker; Spring Creek
Hoot Lake	139 MW	According to a 15-year resource plan, Otter Tail Power will close Hoot Lake in 2021.	Spring Creek

WHICH ADDITIONAL U.S. POWER PLANTS BURNED MONTANA COAL BETWEEN 2008-2015?

Coal Plant	Megawatts	Outlook	MT Coal Used
<p>Ohio -- Ohio is among the top five coal-consuming states in the nation. Twice as much coal is consumed in Ohio as is produced there. In 2015, 15 percent of the state's coal-fired generation capacity was retired. However, in 2016, coal still fueled almost three-fifths of the state's power generation. EIA</p>			
FirstEnergy Ashtabula	256 MW	Closed in 2015.	Signal Peak/Bull Mountain
FirstEnergy Eastlake	1,257 MW	Closed in 2015.	Signal Peak/Bull Mountain
FirstEnergy WH Sammis	2,210 MW	Units 1-4, about 720 MW of capacity, will retire in May 2020. Units 5-7 will continue to provide 1,490 MW of baseload generation.	Signal Peak/Bull Mountain
FirstEnergy Lakeshore	245 MW	Closed in 2015.	Signal Peak/Bull Mountain
FirstEnergy Bay Shore	136 MW	Bay Shore Units 2-4 were deactivated in 2012. Additional units to be sold or closed by 2020.	Signal Peak/Bull Mountain
Avon Lake	766 MW	NRG announced in 2017 a corporate reorganization that allowed GenOn Energy, a subsidiary of NRG, to file Chapter 11 bankruptcy. The plant's future will be determined by GenOn after its emergence from bankruptcy.	Spring Creek
Niles	266 MW	Closed in 2012.	Spring Creek
<p>Pennsylvania -- Pennsylvania has the nation's fifth-largest coal-fired electric generating fleet. Many of the state's coal-fired generating plants are older, and, with the increased availability of economic natural gas, one-third of Pennsylvania's coal-fired generating capacity shut down between 2010 and the end of 2016. EIA</p>			
FirstEnergy Bruce Mansfield	2,490 MW	The plant was idled in February 2016, and restarted for some periods in 2017. The company is looking to potentially sell the plant.	Signal Peak/Bull Mountain
New Castle Plant	330 MW	Converted to natural gas.	Spring Creek
Hatfields Ferry Power Station	1,710 MW	Closed in 2017.	Spring Creek

WHICH ADDITIONAL U.S. POWER PLANTS BURNED MONTANA COAL BETWEEN 2008-2015?

Coal Plant	Megawatts	Outlook	MT Coal Used
Chewswick Power Plant	565 MW	In 2017 the Sierra Club filed suit against the state Department of Environmental Protection for failure to enforce drinking water standards at the site. The plant continues to operate.	Spring Creek
Wisconsin -- In 2016, coal provided 52 percent of the state's net electricity generation. EIA			
Valley	280 MW	Converted to natural gas.	Signal Peak/Bull Mountain
Alma Site	400 MW (remaining)	Alma Station and JP Madgett Station are part of the Alma site. Alma Station is retired. John P. Madgett continues to operate.	Signal Peak/Bull Mountain
Nelson Dewey Generating Station	200 MW	Closed in 2015.	Spring Creek
Arizona – The Navajo Generating Station is scheduled to close in 2019, removing nearly two-fifths of Arizona’s coal-fired capacity from service. EIA			
Apache Station	605 MW	Units can burn coal or natural gas.	Decker
Cholla	1,129 MW	Unit 2 (289 MW) closed in 2015. PacifiCorp plans to retire Unit 4 (414 MW) by 2024. Unit 1 (113 MW) and Unit 3 (312 MW) remain in operation.	Spring Creek
North Dakota -- In 2016, about 71 percent of North Dakota’s net electricity generation came from coal. In 2015, North Dakota had 5.3 percent of the nation’s recoverable coal reserves at producing mines and accounted for 3.2 percent of U.S. coal production. EIA			
RM Heskett	100 MW	Units 1 and 2 continue to operate.	Absaloka
South Dakota – Coal’s contribution has fallen from more than half the state’s net electricity generation in 2008 to one-fifth in 2016. EIA			
Big Stone	475 MW	In June 2008, the Sierra Club filed a lawsuit against Otter Trail Power, alleging violations of the Clean Air Act. The case has since been dismissed.	Absaloka

WHICH ADDITIONAL U.S. POWER PLANTS BURNED MONTANA COAL BETWEEN 2008-2015?

Coal Plant	Megawatts	Outlook	MT Coal Used
<p>Texas -- Coal-fired power plants historically accounted for about one-third of net electricity generation, but, in 2015, with older coal plants reducing operations or closing, coal supplied about one-fourth of generation. EIA</p>			
Gibbons Creek	470 MW	The Texas Municipal Power Agency in 2017 told the Electric Reliability Council of Texas that it plans to operate the plant for only 5 months of the year.	Rosebud
<p>Montana -- Montana produces almost 5 percent of the nation's coal from half a dozen mines. In 2015, about one-fourth of the coal mined in Montana was consumed in the state, and all but a small fraction of that coal was used to generate electric power. About half of Montana's coal production was sent by rail to other states in 2015. The remaining one-fourth was exported to western Canada, where much of it continued on to Asia. Montana has the nation's largest estimated recoverable coal reserves and holds one-fourth of the nation's demonstrated coal reserve base. EIA</p>			
Hardin Generating Station	116 MW	Rocky Mountain Power recently announced it may close the facility in early 2018 unless purchased by another company.	Absaloka
<p>Colorado -- Coal-fired power plants provide just over half of the state's net generation, and natural gas provides almost one-fourth. Electricity from renewable sources has more than doubled since 2010 to around one-fifth of the state's net electricity generation in 2016, led by increased wind power. EIA</p>			
Valmont	186 MW	Xcel stopped burning coal at the facility in March 2017.	Signal Peak/Bull Mountain
<p>Iowa -- Iowa's five largest power plants by capacity are all coal-fired, and coal is the primary fuel used for electricity generation. As recently as 2008, coal accounted for three-fourths of Iowa's net electricity generation. In 2016, for the first time in decades, coal-fired plants produced less than half of the electricity generated in the state. EIA</p>			
Streeter Station	88 MW	Can burn natural gas or coal.	Signal Peak/Bull Mountain
<p>Indiana -- More than four-fifths of Indiana's electricity generation has historically been fueled by coal. In 2016, only 7 of every 10 MWh was generated by coal, while the 2016 share of net generation from natural gas more than doubled from two years earlier, to nearly 2 of every 10 MWh. Nine of the state's 10 largest power plants are still coal-fired, but more than 1,000 MWs of older coal-fired generating capacity was retired during 2016. EIA</p>			
Rockport	1,300 MW	Indiana Michigan Power Co. said in a 2015 resource plan they plan to keep the plant open through at least 2028 by renewing a lease and upgrading pollution controls.	Signal Peak/Bull Mountain

WHICH ADDITIONAL U.S. POWER PLANTS BURNED MONTANA COAL BETWEEN 2008-2015?

Coal Plant	Megawatts	Outlook	MT Coal Used
State Line Energy	515 MW	Closed in 2012.	Decker; Spring Creek
Missouri -- Coal fuels about three-fourths of Missouri's net electricity generation, and 8 of the 10 largest power plants in the state are coal-fired. Coal's share of net generation has declined slightly as some older coal-fired plants have shut down or switched to natural gas. EIA			
Asbury	213 MW	Empire District Electric wants to more than triple the amount of energy its gets from wind and close its Asbury coal plant in 2019.	Spring Creek
James River Power Station	253 MW	Converted to gas and/or idled.	Spring Creek
West Virginia -- Coal-fired electric power plants accounted for 94 percent of West Virginia's net electricity generation in 2016. EIA			
FirstEnergy Harrison Power Station	1,984 MW	Fully operational.	Spring Creek
FirstEnergy Pleasants Power Station	1,300 MW	The West Virginia Public Service Commission is considering approval of the power plant transfer by First Energy to its subsidiaries, Mon Power and Potomac Edison.	Spring Creek
New York -- Since 2000, coal has been providing progressively less of New York's net electricity generation because new generating capacity has been mostly natural gas-fired. In recent years, less than 5 percent of New York's net electricity generation has been fueled by coal. EIA			
Cayuga Operating Company	323 MW	Upstate New York Power Producers sought PSC approval to repower Cayuga with natural gas, but failed. In 2016, Upstate sold both the Cayuga and Somerset plants to Riesling Power LLC, a wholly owned subsidiary of Beowulf Energy LLC.	Spring Creek
Somerset Operating Co.	655 MW	In 2016, Upstate sold both the Cayuga and Somerset plants to Riesling Power LLC, a wholly owned subsidiary of Beowulf Energy LLC.	Spring Creek

WHICH ADDITIONAL U.S. POWER PLANTS BURNED MONTANA COAL BETWEEN 2008-2015?

Coal Plant	Megawatts	Outlook	MT Coal Used
Oregon – In 2016, Oregon enacted legislation that requires two large investor-owned utilities operating in the state to supply 50 percent of the state’s electricity from renewable sources by 2040. The law also requires these utilities to phase out electricity from coal by 2030. EIA			
Boardman	550 MW	Planned for retirement in 2020.	Spring Creek

- The information in this table was compiled using the U.S. Energy Information Administration Beta Database. Projects published in Beta are not final and are for comment only. The coal data browser and database is available [here](#).
- Totals may not equal sum of components because of independent rounding.
- The U.S. coal data are collected and prepared for release by the Office of Oil, Gas, and Coal Supply Statistics, U.S. Energy Information Administration (EIA). The data are compiled from the following EIA survey source: Form EIA-923, “Power Plant Operations Report” and the U.S. Department of Labor, Mine Safety and Health Administration, Form 7000-2, “Quarterly Mine Employment and Coal Production Report.”
- The categories used in the database are for coal receipts, with one exception. Coal distributed to industrial plants includes a small amount of coal consumed by coal preparation plants.
- The EIA in its Annual Coal Distribution Report includes estimates of coal exports data by brokers/traders. The coal exports by brokers/traders are estimated. The data in EIA Form 923 indicate that starting in 2011, large amounts of Montana coal were exported out of the country, or exported by brokers to locations unknown. Information as to where broker exported coal went is not available. This table does not include coal that went overseas.
- Between 2008 and 2015, Montana coal also went to the plants listed in the 2016 table. The information, however, was not repeated in the second chart. For example, nearly all the coal mined at Rosebud was burned at Colstrip between 2008 and 2016. Coal from the Absaloka Mine also was sent to the Sherburne facility every year since 2008. Decker coal shipped to Clay Boswell annually since 2008, with the exception of 2011. Decker coal also annually goes to shared storage for St. Clair and Belle River. Every year, Spring Creek coal has gone to Presque Isle, Clay Boswell, Centralia, Coronado, and, with the exception of 2008, Stanton, Belle River, and St. Clair

COAL IN MONTANA: CHANGING TIMES

CONCLUSION

Coal production and usage in Montana has fluctuated over time. The Montana coal industry, however, largely exists to support the generation of electricity, and coal production for electric generation plants across the nation is down as older coal plants close and utilities evaluate the future of existing plants. Low natural gas prices coupled with cheaper renewables mean that natural gas, wind, and solar also are producing more and more electricity. In areas of the U.S., particularly the West Coast, there is a growing demand for renewable energy and a reluctance to continue supporting coal. Air quality regulations and other policies also have accelerated the recent trend of coal plant closures.

The coal industry in the U.S., and particularly in Montana, see a growing opportunity in export markets overseas. The future of proposed coal ports could significantly affect coal production in Montana. In 2017, the United States exported 96.95 million short tons of coal to at least 42 countries, according to the EIA. Montana mines continue to establish economic ties to potential coal markets in Asia.

The future of Montana coal economics may largely depend on greenhouse gas regulations for electric generation, the amount of U.S. coal-fired generation in operation, natural gas prices, and coal export markets.¹⁰

¹⁰ “Understanding Energy in Montana: A Guide to Electricity, Natural Gas, Coal, Petroleum, and Renewable Energy Produced and Consumed in Montana,” Jeff Blend, Montana Department of Environmental Quality draft report and updates before Energy and Telecommunications Interim Committee, May 2018.