WYOMING MINING ASSOCIATION

The 2014-15 Concise Guide to WYOMING COAL

A Culture of Safety

Safety remains a top priority and core cultural value for Wyoming's coal mining industry. In fact, Wyoming coal mines are recognized as some of the safest mining operations in the nation. Safe mines are productive mines, and at the end of the day our goal is for every employee to arrive home safely.

All mines employ dedicated safety professionals, and all employees are trained in proper safety practices to foster a safe work environment.

- All new employees attend 40 hours of safety training prior to their first day on the job.
- All employees participate regularly in safety refresher training.
- Every shift starts with walk-around safety inspections.

Data from the Bureau of Labor Statistics shows that working in a Wyoming coal mine is safer than a number of common occupations. On average, a coal miner can expect to work their entire career without a lost-time accident, defined as a non-fatal workplace illness or injury resulting in at least one day away from work to recuperate.

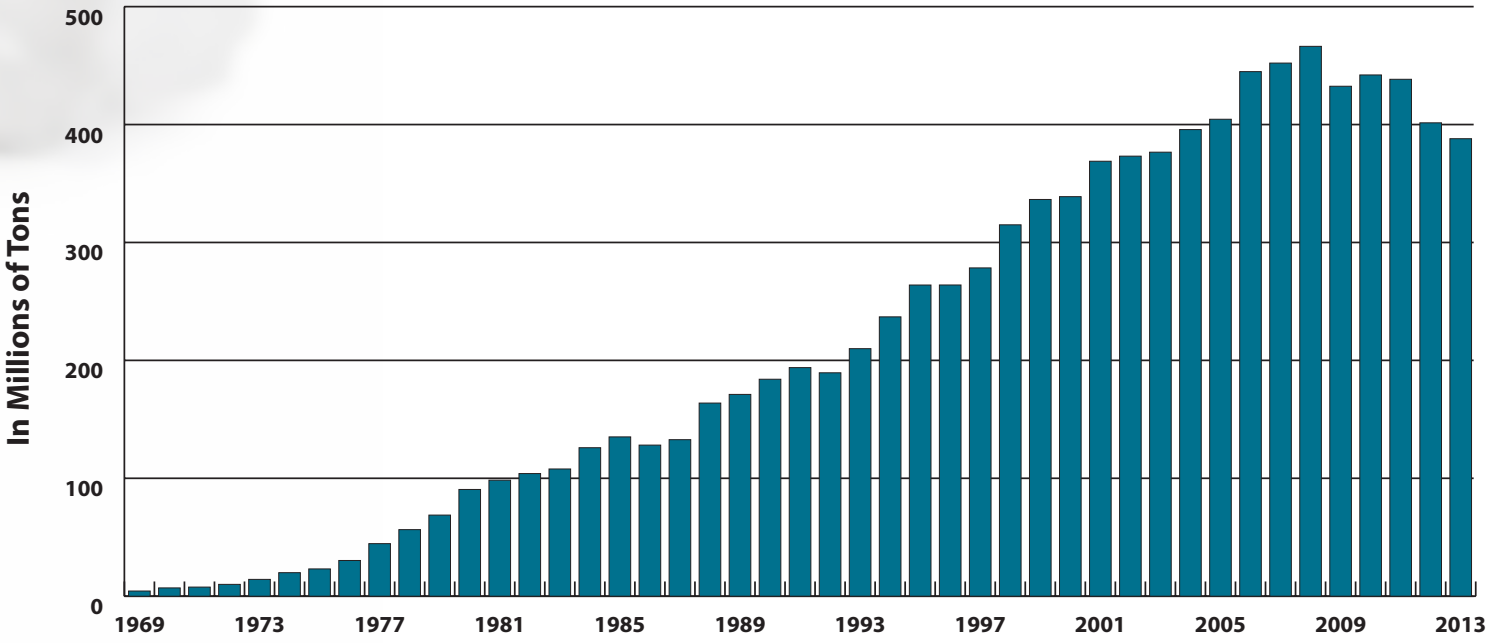
Welcome to the Concise Guide, an educational effort to raise awareness of the economic contribution and value of Wyoming's coal industry.

Wyoming has led the nation in coal production since 1986 and currently mines 39 percent of the nation's coal.

Wyoming Coal Industry in 2014

Despite economic challenges, coal remains a significant source of energy, generating 39 percent of the nation's electricity in 2013. While challenging market and regulatory conditions have put pressure on the industry, Wyoming mines are still low-cost leaders. As the nation's preeminent coal producer, Wyoming is home to 9 of the top 10 producing mines in the nation. Wyoming coal is a secure, abundant and affordable source of fuel that accounts for 15 percent of US domestic electric power generation. Wyoming has led the nation in coal production since 1986. Two Wyoming mines alone, North Antelope Rochelle and Black Thunder, provide 20 percent of all coal mined in the United States. In total, Wyoming produced approximately 388 million tons of coal in 2013, down 3.3 percent from 2012.

Wyoming Coal Production, 1969-2013

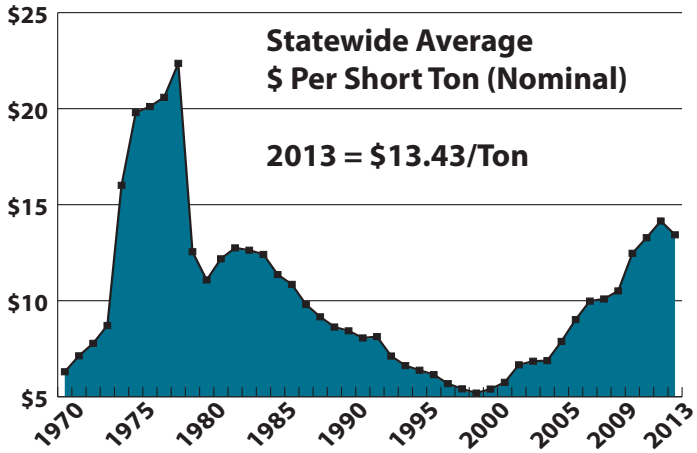


Wyoming's Coal Resources

Wyoming is home to over 1.4 trillion tons of total coal resources in seams ranging in thickness from five feet to some in excess of 200 feet in the Powder River Basin (PRB). Recent estimates give Wyoming more than 165 billion tons of recoverable coal. While other regions of the country also have considerable resources, Wyoming's growth as the center of the nation's coal production has been driven by several factors:

- Low sulfur composition of the coal.
- Lower production costs due to the coal's proximity to the surface.
- World-class recoverable coal seams.

Wyoming Coal Prices, 1970-2013



In 2013, Wyoming power plants consumed 25 million tons of coal and unit trains transported 347 million tons of coal to utility markets in 29 states. Unit trains are single destination trains with up to 150 cars. Up to 80 unit trains leave the PRB daily. On average, coal is mined at the staggering rate of 12 tons per second. Trains do not stop to be loaded, but move through the loading chute at up to 2 mph. It takes less than one minute to load a train car and about an hour and a half to load a unit train.

Wyoming coal prices grew from 2000-2012 and then declined by 5 percent to $13.43 per ton in 2013. Production has slowed since 2008, primarily attributed to changes in economic and market conditions. Increased production and the lower cost of natural gas continue to create an option for power generators who have the flexibility to meet customer demand using a combination of both natural gas and coal plants. While new generating capacity across the U.S. is being fueled primarily by natural gas, coal plants are optimizing generating capacity at newer plants and coal continues to provide the majority of the nation's baseload capacity. Coal currently provides 39 percent of electricity in the United States, compared to natural gas at 27 percent.

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Technology and the Future

Coal is a reliable and economically efficient energy source that will continue to be used for decades. The Department of Energy's Annual Energy Outlook 2014 predicts coal's share of energy production in 2040 will be 35 percent, compared to about 40 percent today. Electrical power generation is by far the largest consumer of coal in the United States, using about 91 percent of all coal mined.

Wyoming remains a national focal point of coal technology development and research.

- Dry Fork's 422 MW power-generation plant near Gillette uses state of the art environmental technology.
- DKRW continues to advance its clean coal project near Medicine Bow.
- New developments are expected in Integrated Gasification Combined Cycle (IGCC) technology to further enhance the efficiency of coal-fired generation.
- The University of Wyoming School of Energy Resources is conducting research to understand carbon capture and sequestration (CCS) processes.
- In 2012, the Wyoming State Legislature redirected $10 million of Abandoned Mine Land funds to the University Wyoming School of Energy Resources for clean coal research.
- Since 2007 almost $41 million has been awarded by the Clean Coal Task Force for research in areas such as development of new technologies that reduce emissions from coal, integration of carbon capture technologies, and pilot-scale demonstrations of emerging technologies.
- LINC Energy is working on a pilot project using underground coal gasification technology in the Powder River Basin.
- As international demand for coal grows, Wyoming producers continue efforts to expand shipping ports to facilitate export sales.
- Environmental Protection Agency regulation of CO2 emissions on new and existing coal fired power plants have the potential to negatively impact Wyoming's coal industry. As rules designed to restrict coal use are implemented, Wyoming production and revenues to state and local governments will decrease.

Local Benefits

Coal is an important source of income for Wyoming and is the state's second largest source of tax revenue for state and local governments. Coal mining companies pay taxes and royalty payments to all branches of government, federal, state and local. Coal's estimated contribution to Wyoming in 2013 was over $1.1 billion in taxes paid. The collected revenue reflects a $103 million (or 8 percent) decrease from 2012.

A 2012 revision of federal statutes changed the allocation of Abandoned Mine Land (AML) funds to coal producing states like Wyoming. In 2013, Wyoming received only $26.9 million in AML funds, down from over $150 million in the previous year. The state no longer receives "prior year replacement" funds. Future AML funding will be capped at $27 million annually, regardless of production or the amount of AML tax paid into the fund by Wyoming companies. The current AML tax rate is $0.28 per ton on surface mined coal. Wyoming's AML staff estimates Wyoming will lose $718 million over the next 10 years unless changes can be made in the federal statutes. Wyoming's Congressional Delegation is working to address this issue.

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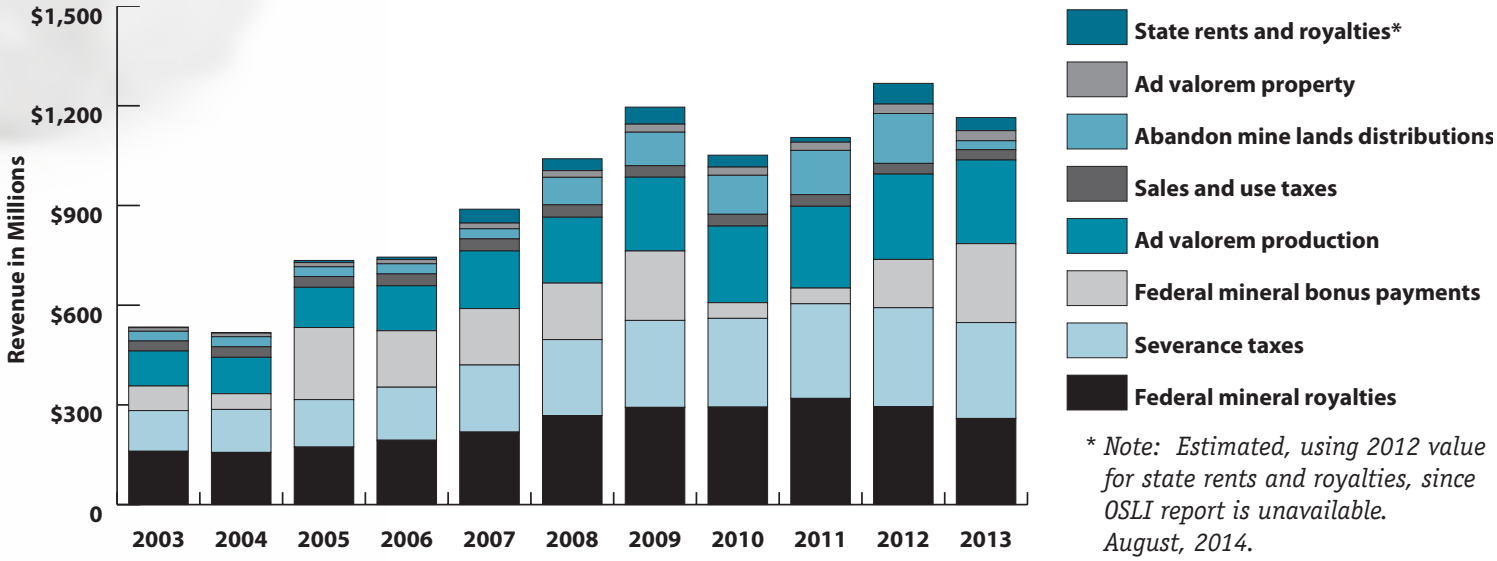
Trend in Wyoming State and Local Government Revenue

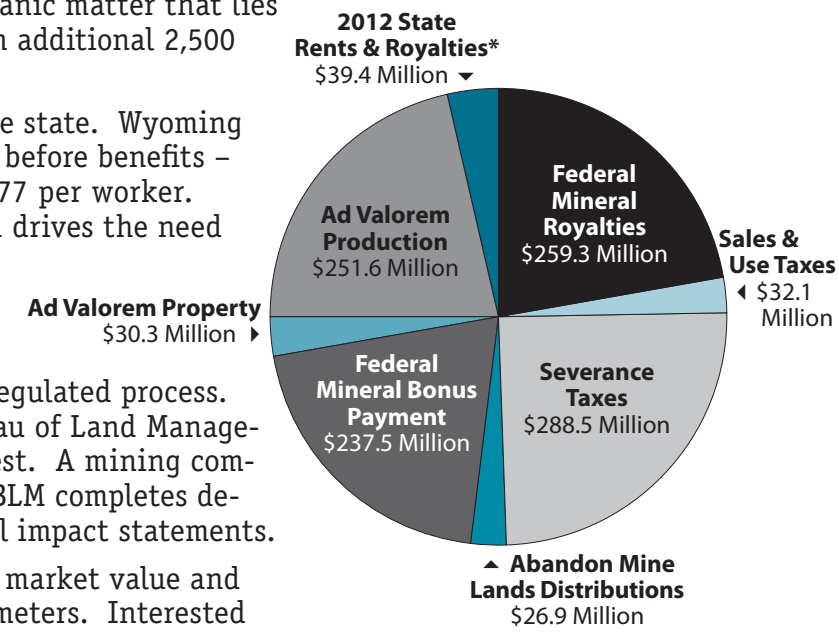


** Note: Estimated, using 2012 value for state rents and royalties, since OSLI report is unavailable. August, 2014.*

Wyoming's 20 coal mines employed a total of 6,516 workers in 2013, a 44 percent increase over the past 10 years, but down 5.6 percent from 2012. Employment growth was driven, in part, by increased overburden removal. Overburden includes the soil and organic matter that lies above the coal seam. The industry also employs an additional 2,500 contractors directly.

Coal industry jobs are among the best paying in the state. Wyoming coal miners take home an average wage of $82,654 before benefits – almost twice the statewide average wage of $44,977 per worker. Estimates indicate that each coal industry position drives the need for three additional jobs in the state.

Coal contributed $1.16 Billion in State & Local Government Revenue in Wyoming in 2013.



** Note: Using 2012 value for state rents and royalties.*

Lease Bonus Bids

Leasing federal coal reserves is a detailed, highly regulated process. Each proposed lease is requested through the Bureau of Land Management (BLM) in a Lease by Application or LBA request. A mining company nominates proposed tracts for lease and the BLM completes detailed environmental assessments or environmental impact statements.

The BLM assesses proposals to determine the coal's market value and scope of the application, and establishes sale parameters. Interested companies submit competitive bids, with the lease usually awarded to the highest bidder. BLM also has the right to decline offers which are deemed insufficiently low.

Successful bidders for a coal lease pay a bonus bid for each ton of reserves. This is an additional payment on top of the royalty paid to the federal government when the coal is mined. This payment is split between the state and federal government and is paid out over a five-year period. At any given time, there are potential new leases in the application process. The last payment on coal leased to date will be in 2017.

Wyoming has received over $2 billion in coal bonus bid dollars since 1992. These funds go to schools, highways and community colleges across the state. In fact, money from coal bonus bids has funded construction of new schools in every county in Wyoming.

Recent economic and regulatory uncertainty has impacted Wyoming coal producers' decisions on leasing new tracts.

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Reclamation

Reclaimed mining lands represent sustainable development in action. Reclamation is done contemporaneously in a multi-stage process once the recoverable coal is removed. Highly trained specialists employed by the mines manage the reclamation, and state and federal personnel provide oversight to ensure compliance with all applicable laws.

Reclamation stages include:

- Backfilling the void with overburden
- Contouring the filled surface
- Replacing topsoil and preparing the surface
- Preparing the seedbed and sowing approved seed mixtures
- Monitoring plant growth and fauna populations.

Approved seed mixtures used in reclamation promote higher vegetative output than what is found on pre-mined land, attracting animals and plants to re-establish and promote a sustainable ecosystem. The success of reclamation is apparent on reclaimed land in the PRB, which now provides crucial winter habitat for elk and other indigenous species. One reclaimed site is part of a conservation easement established through the Rocky Mountain Elk Foundation.

Land which houses facilities such as mine shops, coal plants and long-term roads and ponds cannot be reclaimed until long-term use is complete. Year-to-year reclamation focuses on all other areas as demonstrated by comparison of current disturbance and reclamation.

Reclamation goes beyond just restoring contours and reseeding native plant species. Reclamation specialists strive to build sustainable natural ecosystems using innovative methods and new techniques to further enhance reclaimed areas. Some examples include:

- Re-establishment of water features and storage in reclaimed streams, stock ponds and wetlands.
- Replacement of sage grouse breeding grounds.
- Establishment of mosaic patterns in grassland and shrubland reclamation.
- Replacement of rock outcrops and providing prey base habitats for eagles and other predators.
- Reconstruction of prairie dog towns and reclamation of mountain plover habitat.

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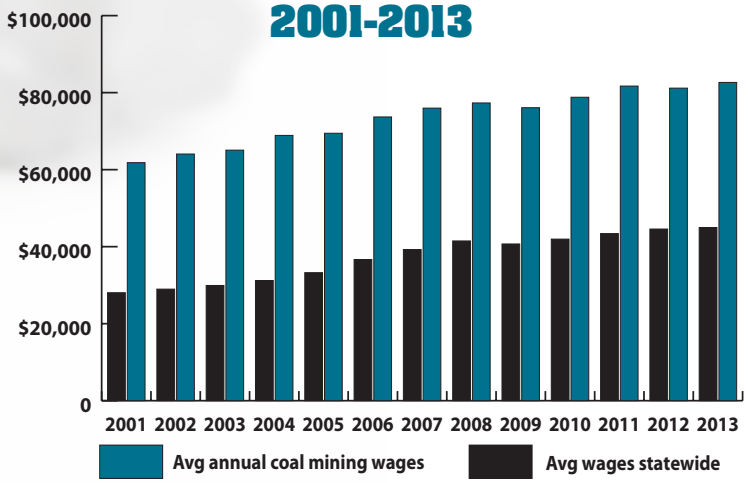
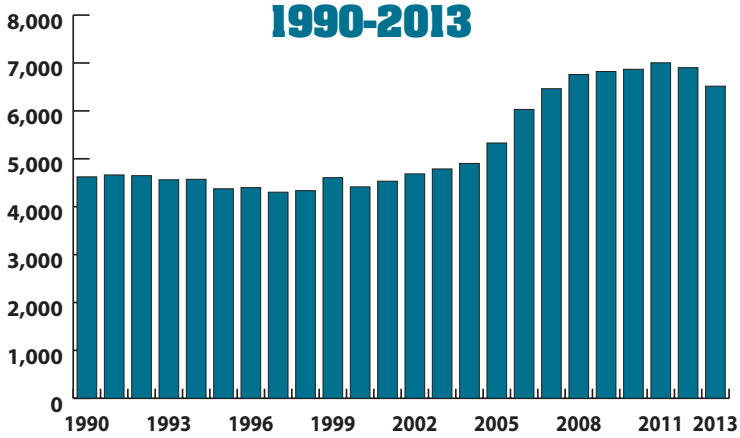
Average Job Wages Over Time 2001-2013



Wyoming Coal Employment 1990-2013



2013 Wyoming Coal Production by County

Location/Operator	Mine	Employees	Production (Millions of Tons)
Campbell County			
Alpha Coal West, Inc.	Belle Ayr Mine	283	18.3
Alpha Coal West, Inc.	Eagle Butte Mine	259	19.9
Buckskin Mining Co.	Buckskin Mine	330	15.0
Cloud Peak Energy LLC	Cordero Rojo Complex	603	36.7
Peabody Energy	Caballo Mine	149	9.0
Peabody Energy	Rawhide Mine	203	14.2
Peabody Energy	North Antelope/Rochelle Complex	1,340	111.0
Thunder Basin Coal Co. LLC	Black Thunder Mine	1,591	100.7
Thunder Basin Coal Co. LLC	Coal Creek Mine	148	8.5
Western Fuels of Wyoming, Inc.	Dry Fork Mine	78	5.4
Wyodak Resources Develop. Corp.	Wyodak Mine	65	4.3
Carbon County			
Arch of Wyoming, LLC	Elk Mountain Mine	6	0
Arch of Wyoming, LLC	Seminoe II Mine	10	0
Converse County			
Cloud Peak Energy LLC	Antelope Coal Mine	556	31.4
Hot Springs County			
Grass Creek Coal Co.	Grass Creek Mine	3	0.03
Lincoln County			
Westmoreland Kemmerer Inc.	Kemmerer Mine	289	4.6
Sweetwater County			
Black Butte Coal Co.	Black Butte and Lucite Hills	185	3.7
Bridger Coal Co.	Surface operations	178	0.8
Bridger Coal Co.	Underground operations	224	4.4
Uinta County			
Haystack Coal Co.	Haystack Mine	16	0
	Total	**6,516**	**388.0**
Tons/employee	**59,545**		

Source: State Inspector of Mines of Wyoming, 2014

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The Concise Guide to Wyoming Coal is produced by the Wyoming Coal Information Committee of the Wyoming Mining Association. Cheyenne, Wyoming, August, 2014.