

# WYOMING COAL

The 2017-18 Concise Guide



WYOMING MINING  
ASSOCIATION

[wyomingmining.org](http://wyomingmining.org)

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



## 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 safety briefings and walk-around 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.

## Wyoming Coal Industry in 2017

The challenges for Wyoming's coal industry continue in 2017. Low natural gas prices, the aggressive regulatory regimen of the previous administration, and subsidized renewable power have prompted utilities throughout the country to decrease coal consumption.

Despite these obstacles, coal is still a significant source of energy, generating 30.4 percent of the nation's electricity in 2016, declining one and a half percent from 2015. Even so, Wyoming coal is responsible for generating 44 percent of all coal fired electricity production in the nation. While challenging market and regulatory conditions continue to put pressure on the industry, Wyoming's mines remain America's low-cost industry leaders.

Three coal companies required Chapter 11 reorganization in 2016 and have since successfully emerged. Of the 1,000 Wyoming mining jobs lost in the economic downturn of 2016, about one-third have been recovered and the industry is settling into a new operating environment. Wyoming's coal industry is currently leaner and more efficient than ever.



**Wyoming has led the nation in coal production since 1986 and currently mines 44 percent of the nation's coal.**

As the nation's preeminent coal producer, Wyoming is home to 8 of the top 11 producing mines in the nation. Wyoming coal is a secure, abundant and affordable source of fuel that accounts for 13.3 percent of U.S. domestic electric power generation. Wyoming has led the nation in coal production since 1986. Two Wyoming mines, North Antelope Rochelle and Black Thunder, provide 28.6 percent of all coal mined in the United States. In total, Wyoming produced over 297 million tons of coal in 2016, down 20.8 percent from 2015.

## 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 from the Wyoming Geological Survey 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 is attributed to 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.

During 2016, 267 million tons of coal moved by unit trains (single destination trains with up to 150 cars) to energy markets in 27 states across the country. Wyoming power plants consumed another 23 million tons during the year. 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 speeds up to two mph. It takes less than one minute to load a train car and about ninety minutes to load a unit train.

The average price for Wyoming coal in 2016 was \$13.47 per ton, down 33 cents per ton from 2015. Most newly constructed power plants are designed to operate on natural gas. Yet coal will continue to provide a significant portion of the “base load” generating capacity for the foreseeable future. It is important to note that the nation’s power plants have limited ability for “fuel switching” or changing between natural gas and coal for power. Many existing plants are either not designed to operate on natural gas and/or they do not currently have a pipeline to deliver the quantity of gas needed for operations.

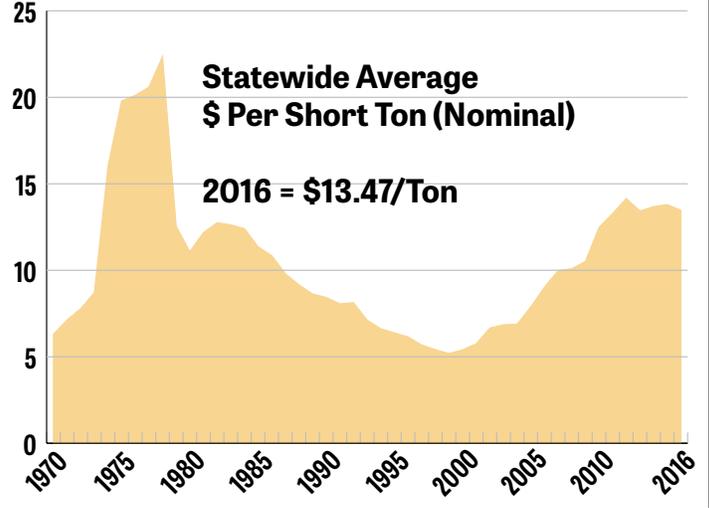
### Outlook for the Future

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 2017 predicts that in the absence of major climate legislation, U.S. coal production could remain constant through 2050. Electrical power generation is by far the largest consumer of coal in the United States, using about 91 percent of all coal mined.

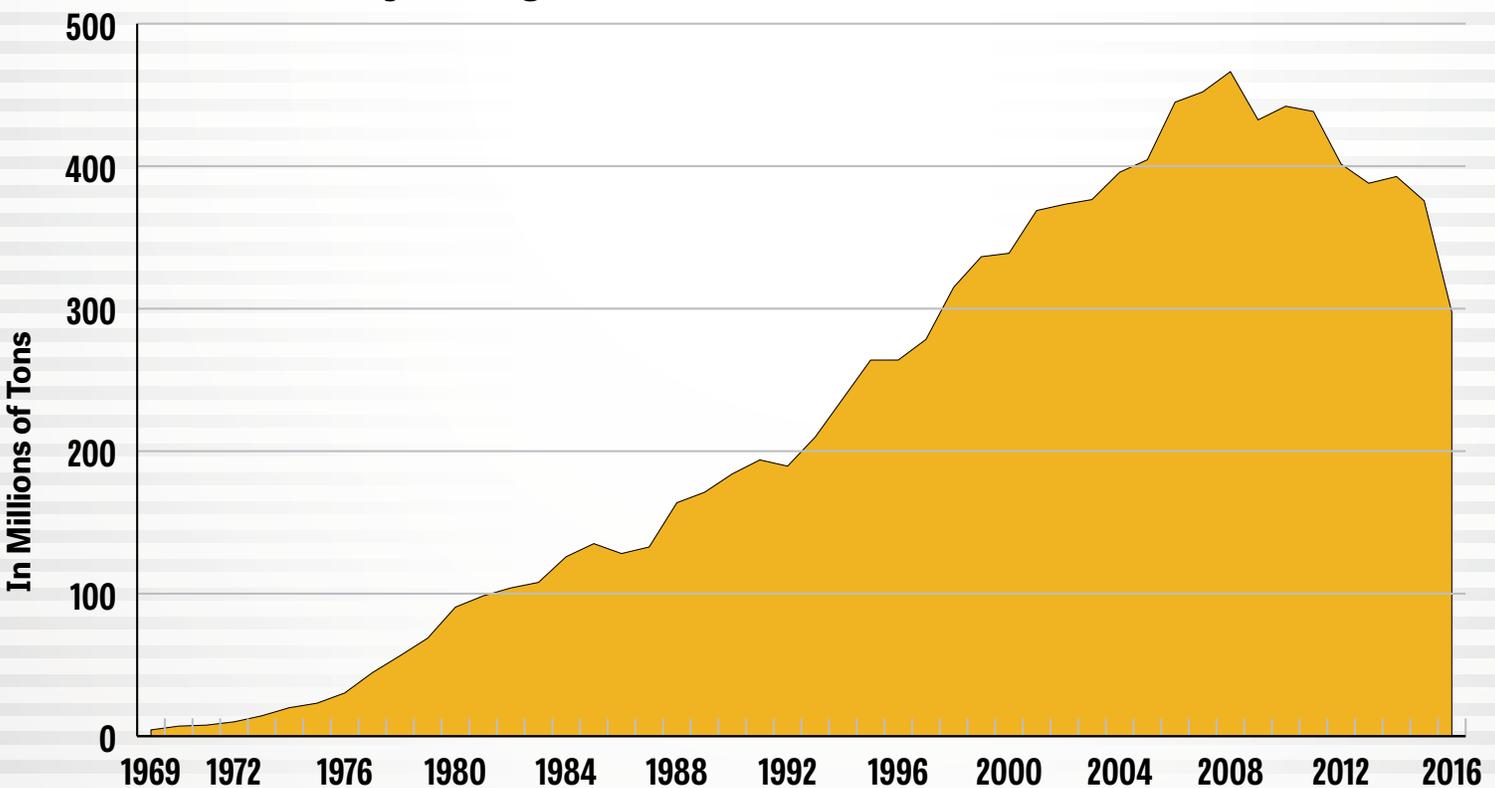
Wyoming remains a national focal point of coal technology development and research. The State of Wyoming has invested \$15 million in a public/private partnership with several utility cooperatives to study the capture, sequestration and management of carbon emissions. Real-world testing at the Wyoming Integrated Test Center (ITC) will use 20 MW of actual coal-based flue gas. It is anticipated that research conducted at the ITC will lead to new opportunities for petro-chemicals from coal as well as commercial uses of carbon dioxide.

**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. Estimates from the Wyoming Geological Survey give Wyoming more than 165 billion tons of recoverable coal.**

### Wyoming Coal Prices, 1970-2015

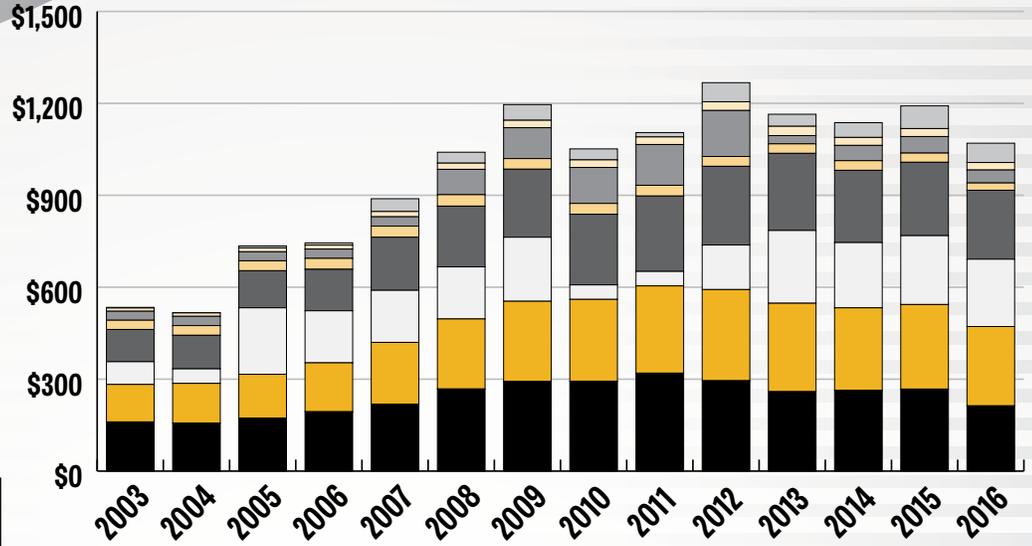


### Wyoming Coal Production, 1969-2016



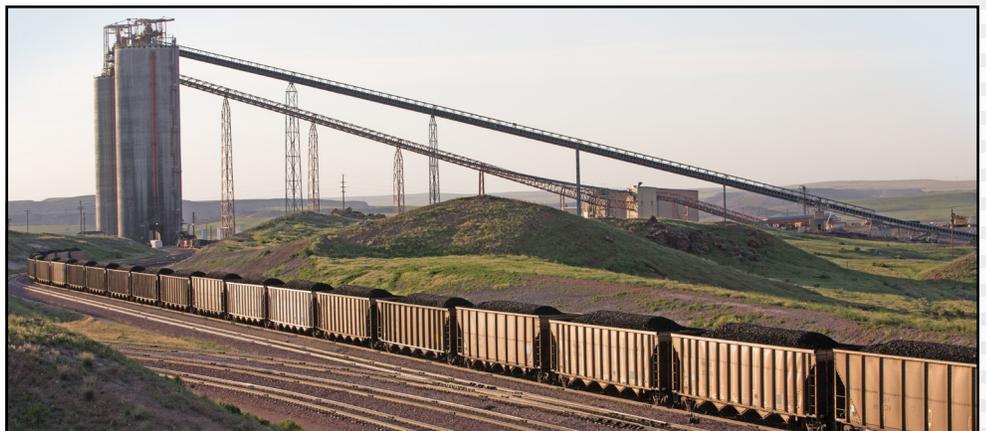
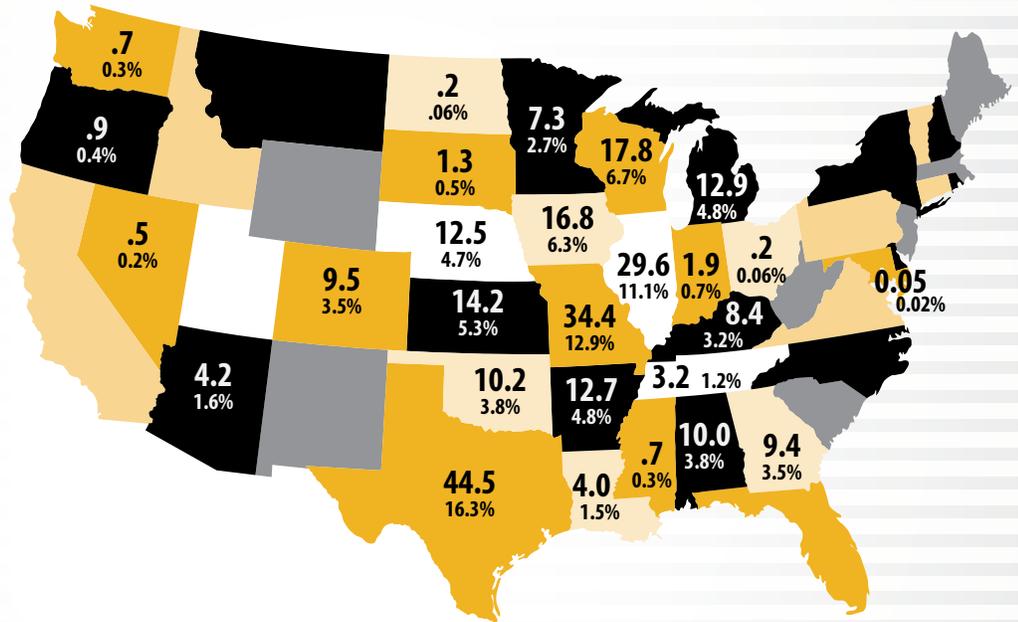
# Trend in Wyoming State and Local Government Revenue, 2003-2016

-  State rents and royalties
-  Ad valorem property
-  Abandon mine lands distributions
-  Sales and use taxes
-  Ad valorem production
-  Federal mineral bonus payments
-  Severance taxes
-  Federal mineral royalties



State	Wyoming Coal (Tons)	%
Texas	43,464,113	16.28
Missouri	34,354,855	12.87
Illinois	29,615,565	11.09
Wisconsin	17,799,792	6.67
Iowa	16,787,367	6.29
Kansas	14,224,357	5.33
Michigan	12,896,246	4.83
Arkansas	12,734,872	4.77
Nebraska	12,545,115	4.70
Oklahoma	10,152,255	3.80
Alabama	10,009,117	3.75
Colorado	9,460,062	3.54
Georgia	9,400,302	3.52
Kentucky	8,449,813	3.16
Minnesota	7,259,524	2.72
Arizona	4,175,303	1.56
Louisiana	3,956,941	1.48
Tennessee	3,179,464	1.19
Indiana	1,905,618	0.71
South Dakota	1,333,080	0.50
Oregon	993,906	0.37
Washington	700,625	0.26
Mississippi	677,421	0.25
Nevada	531,244	0.20
North Dakota	169,218	0.06
Ohio	168,025	0.06
Maryland	58,673	0.02
<b>Total</b>	<b>267,002,873</b>	<b>100 %</b>

## Coal Shipments From Wyoming, 2016



During 2016, 267 million tons of coal moved by unit trains (single destination trains with up to 150 cars) to energy markets in 27 states across the country.



Coal is an important source of income for Wyoming and is the second largest source of tax revenue for state and local governments after natural gas.

### Regulatory Environment

The federal regulatory environment remains challenging. While recent changes from the new administration have offered some relief, pending implementation and uncertainty of the Environmental Protection Agency's Clean Power Plan (CPP) is directly impacting Wyoming's coal industry. Challenges to this rule are still working their way through the court system, and a review of the Plan is underway. But some states are still considering implementing options for the reduction of CO<sub>2</sub> emissions. Power generators must consider if it is viable to bring coal fueled generation into compliance with stricter carbon emissions standards. States charged with making the deepest cuts under the CPP tend to be major users of Wyoming coal.

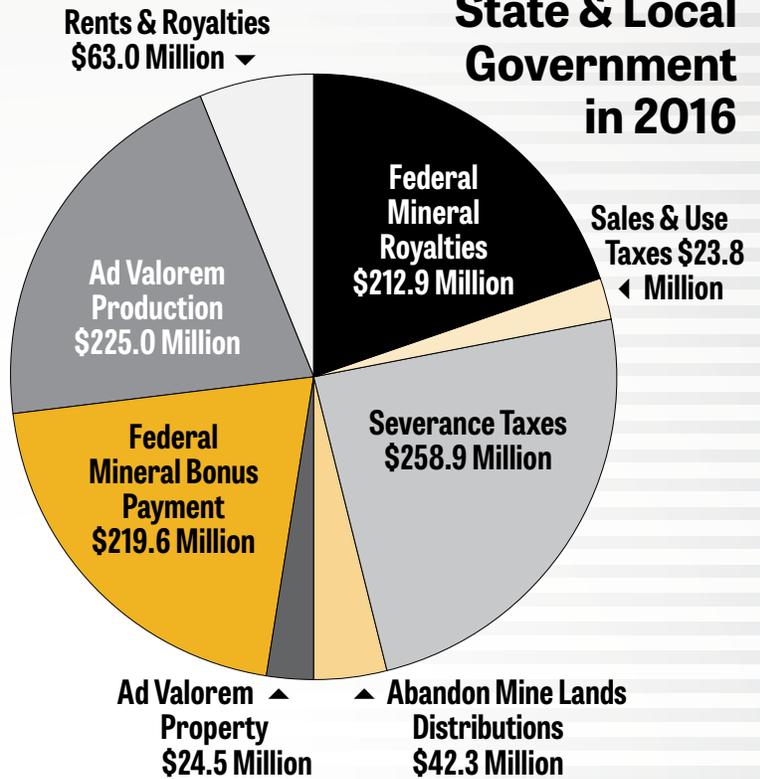
The recent withdrawal of the Bureau of Land Management's moratorium on the leasing of federal coal is a positive development for the industry. Relief has also come with the deferral of the Office of Surface Mining Reclamation and Enforcement's ill-advised Stream Protection Rule and the repeal of the Office of Natural Resources Revenue rule increasing royalty rates.

### Local Benefits

Coal is an important source of income for Wyoming and is the second largest source of tax revenue for state and local governments after natural gas. Coal mining companies remit taxes and royalty payments to all branches of government, federal, state and local. Coal's estimated contribution to Wyoming in 2016 was just over \$1 billion in taxes, royalties and fees. The collected revenue reflects a \$121.7 million (or 10.2 percent) decrease from 2015. This number highlights the magnitude of the slowdown in Wyoming's coal industry, since there is a 6-12month time lag between production and tax collections and reporting.

In 2017, Wyoming received \$42.3 million in Abandon Mine Lands (AML) funds, down 21.6 percent from 2016. The state no longer receives "prior year replacement" funds. Changes in the law mean that future AML funding will not be linked to production,

## Contributions of Coal to Wyoming State & Local Government in 2016



regardless of the amount generated by the AML tax (\$0.28 per ton on surface mined coal) paid by companies. Wyoming's AML staff estimates that Wyoming will lose \$718 million over the next 10 years unless changes can be made in the statutes.

Wyoming's 16 operating coal mines employed a total of 5,682 workers in 2016, down 14.5 percent from 2015. Coal industry jobs are among the best paying in the state. Wyoming coal miners take home an average wage of \$85,520 excluding benefits – almost twice the statewide average wage of \$46,840 per worker. Estimates indicate that each coal industry position drives the need for three additional jobs in the state.

### Lease Bonus Bids

Leasing federal coal reserves is a detailed, time consuming and 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 who can economically and viably mine the coal submit competitive bids, with the lease being awarded to the

highest bidder or rejected, as the BLM 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 this time, there are a limited number of potential leases in the application system. The last payment on coal leased to date will be \$5.3 million in 2018. Unless new leases are approved, state revenue from coal will be significantly impacted.

Wyoming has received more than \$2.2 billion in coal bonus bid dollars since 2003. The money has been used to fund schools, highways and community colleges across the state. Most new schools built in the last decade were built with coal bonus bid revenue. Every county in Wyoming has benefited from new school and facilities construction.

## 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 at Wyoming coal mines has been recognized as the best in the nation.

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.



**Highly trained specialists employed by the mines manage the reclamation, and state and federal personnel provide oversight to ensure compliance with all applicable laws.**

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 Powder River Basin and at other sites across Wyoming, such as PacifiCorp's project near the Dave Johnson power plant at Glenrock.

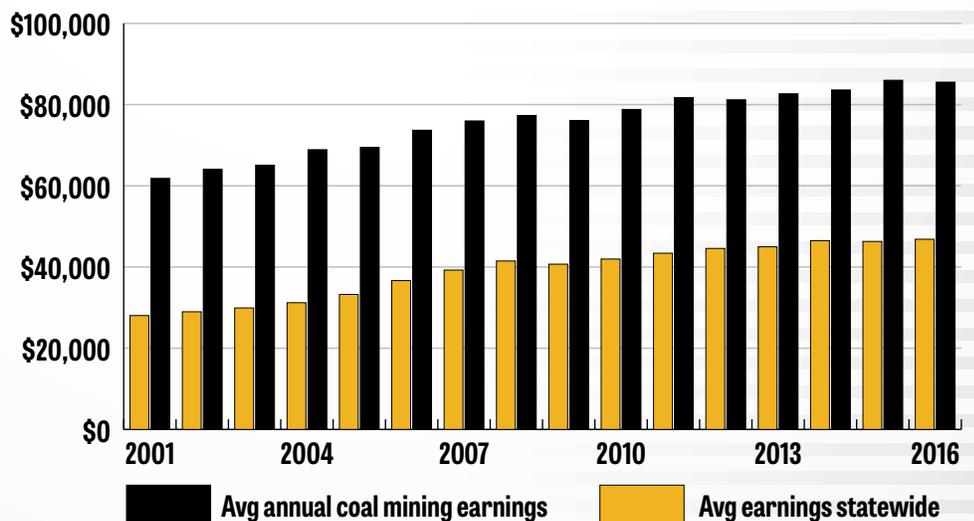
Land which houses facilities such as mine shops, coal plants, long-term roads, and ponds cannot be reclaimed until long-term use is complete. Year-to-year reclamation focuses on all other areas as demonstrated by comparison of current disturbance and reclamation.

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.

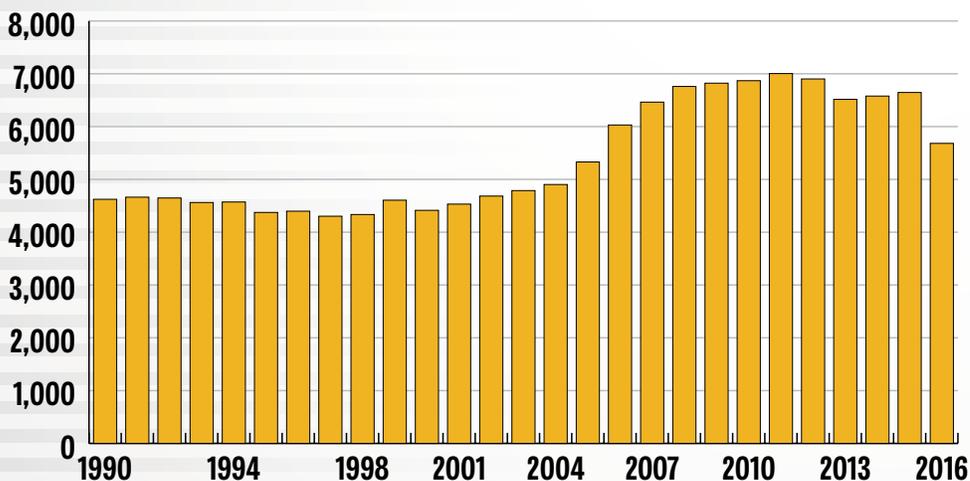
## Average Job Wages Over Time, 2001-2016



# 2016 Wyoming Coal Production by County

Location/Operator	Mine	Employees	Production
<b>Campbell County</b>			
Buckskin Mining Co.	Buckskin Mine	146	7,130,579
Cloud Peak Energy LLC	Antelope Coal Mine	567	29,807,165
Cloud Peak Energy LLC	Cordero Rojo Complex	437	18,332,046
Contura Energy	Belle Ayr Mine	224	14,883,779
Contura Energy	Eagle Butte Mine	270	19,003,004
Peabody Caballo Coal LLC	Caballo Mine	152	11,221,557
Peabody Energy Rawhide Mine	Rawhide Mine	98	8,079,139
Powder River Coal Co.	North Antelope/Rochelle Complex	1,285	92,863,811
Thunder Basin Coal Co. LLC	Black Thunder Mine	1,255	67,889,781
Thunder Basin Coal Co. LLC	Coal Creek Mine	137	8,179,632
Western Fuels of Wyoming, Inc.	Dry Fork Mine	82	6,135,456
Wyodak Resources Develop. Corp.	Wyodak Mine	65	3,717,414
<b>Carbon County</b>			
Arch of Wyoming, LLC	Elk Mountian Mine	5	
Arch of Wyoming, LLC	Seminole II Mine	5	
<b>Hot Springs County</b>			
Grass Creek Coal Co.	Grass Creek Mine		
<b>Lincoln County</b>			
Westmoreland Kemmerer Inc.	Kemmerer Mine	288	4,105,900
<b>Sweetwater County</b>			
Black Butte Coal Co.	Black Butte and Lucite Hills	167	2,160,163
Bridger Coal Co.	Surface operations	220	2,449,926
Bridger Coal Co.	Underground operations	279	1,542,452
<b>Total</b>		<b>5,682</b>	<b>297,501,894</b>
<b>Tons/employee</b>	<b>52,359</b>		

## Wyoming Coal Employment, 1990-2016



Of the 1,000 Wyoming mining jobs lost in the economic downturn of 2016, about one-third have been recovered and the industry is settling into a new operating environment.

## Selected References

*The Concise Guide to Wyoming Coal is produced by the Wyoming Coal Information Committee of the Wyoming Mining Association. Cheyenne, Wyoming, August, 2017.*

Foulke, Thomas, Roger Coupal and David Taylor. *Economic Trends in Wyoming's Mineral Sector: Coal, 2nd edition*. University of Wyoming Extension Bulletin B-1116R. Laramie, Wyoming. December, 2013.

U.S. Department of Energy, Energy Information Administration. *Annual Coal Report, 2015 (November 2016)*. DOE/EIA-0584 (2016). <http://www.eia.gov/coal/annual/pdf/acr.pdf>. Accessed: August, 2017.

United States Department of Energy, Energy Information Administration. *Annual Energy Outlook 2017 with projections to 2050*. #AEO2017. <https://www.eia.gov/outlooks/aeo/>. Accessed: August, 2017.

United States Department of Labor, Bureau of Labor Statistics. *Quarterly Census of Employment and Wages*. Online at: <http://data.bls.gov/>. Accessed August, 2017.

Wyoming, State of, Department of Administration & Information. *Wyoming 2017-Just the Facts*. Available from: [http://eadiv.state.wy.us/Wy\\_facts/facts2017.pdf](http://eadiv.state.wy.us/Wy_facts/facts2017.pdf). Accessed August, 2017.

Wyoming, State of, Department of Employment. Office of Mine Inspector. *Annual Report of the State Inspector of Mines, 2017*. Available from: <http://wyomingworkforce.org/employers-and-businesses/mines/Pages/mining-information.aspx>. Accessed August, 2017.

## WMA Wyoming Coal Information Committee

- **Contura Energy**  
Mike Lepchitz • 307.687.3240 • [W.Lepchitz@conturaenergy.com](mailto:W.Lepchitz@conturaenergy.com)
- **Arch Coal Inc.**  
Deck Slone • 314.994.2717 • [dslone@archcoal.com](mailto:dslone@archcoal.com)
- **Black Butte Coal Company**  
Steve Gili • 307.382.6200 • [s.gili@aecoal.com](mailto:s.gili@aecoal.com)
- **Buckskin Mining Company**  
Matt Young • 307.682.9144 • [matt.young@kiewit.com](mailto:matt.young@kiewit.com)
- **Cloud Peak Energy**  
Rick Curtsinger • 307.687.6000 • [rick.curtsinger@cldpk.com](mailto:rick.curtsinger@cldpk.com)
- **PacificCorp-Rocky Mountain Power**  
Rita Meyer • 307.632.7025 • [Rita.Meyer@rockymountainpower.net](mailto:Rita.Meyer@rockymountainpower.net)
- **Peabody Energy**  
Vic Svec • 314.342.3400 • [vsvec@peabodyenergy.com](mailto:vsvec@peabodyenergy.com)
- **Western Fuels**  
Beth Goodnough • 307.682.8051 • [bgoodnough@westernfuels.org](mailto:bgoodnough@westernfuels.org)
- **Westmoreland Kemmerer, Inc.**  
Shane Gant • 307.828.2204 • [sgant@westmoreland.com](mailto:sgant@westmoreland.com)
- **Wyodak Resources Development Corp.**  
Marc Ostrem • 307.687.8916 • [marc.ostrem@blackhillscorp.com](mailto:marc.ostrem@blackhillscorp.com)
- **Wyoming Mining Association**  
Travis Deti • 307.635.0331 • [tdeti@wyomingminning.org](mailto:tdeti@wyomingminning.org)