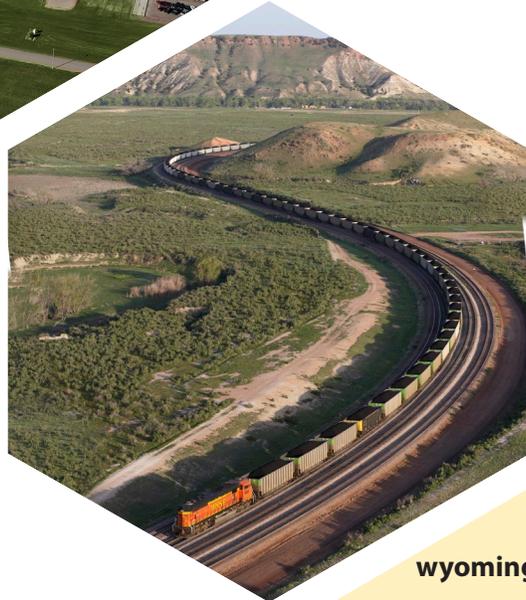


# The 2016-17 Concise Guide To Wyoming Coal



**WMA**  
WYOMING MINING  
ASSOCIATION



*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 42 percent of the nation's coal.*



*Coal is still a significant source of energy and generated 33 percent of the nation's electricity in 2015.*



## **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 show 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 2016**

The challenges for Wyoming's coal industry increased in 2016. Lower natural gas prices combined with a hostile regulatory environment and mild weather conditions have prompted utilities throughout the country to decrease coal consumption. Three major coal companies with operations in Wyoming are reorganizing their businesses as a result. This has meant layoffs at Wyoming mines. Approximately 700 direct coal mining jobs have been lost so far this year with many more contract employees and vendors.

Despite these obstacles, coal is still a significant source of energy and generated 33 percent of the nation's electricity in 2015. While difficult market and regulatory conditions continue to put pressure on Wyoming's mines, they remain the low-cost industry 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 14 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, provided 20 percent of all coal mined in the United States. In total, Wyoming produced over 375 million tons of coal in 2015, down 4.3 percent from 2014.

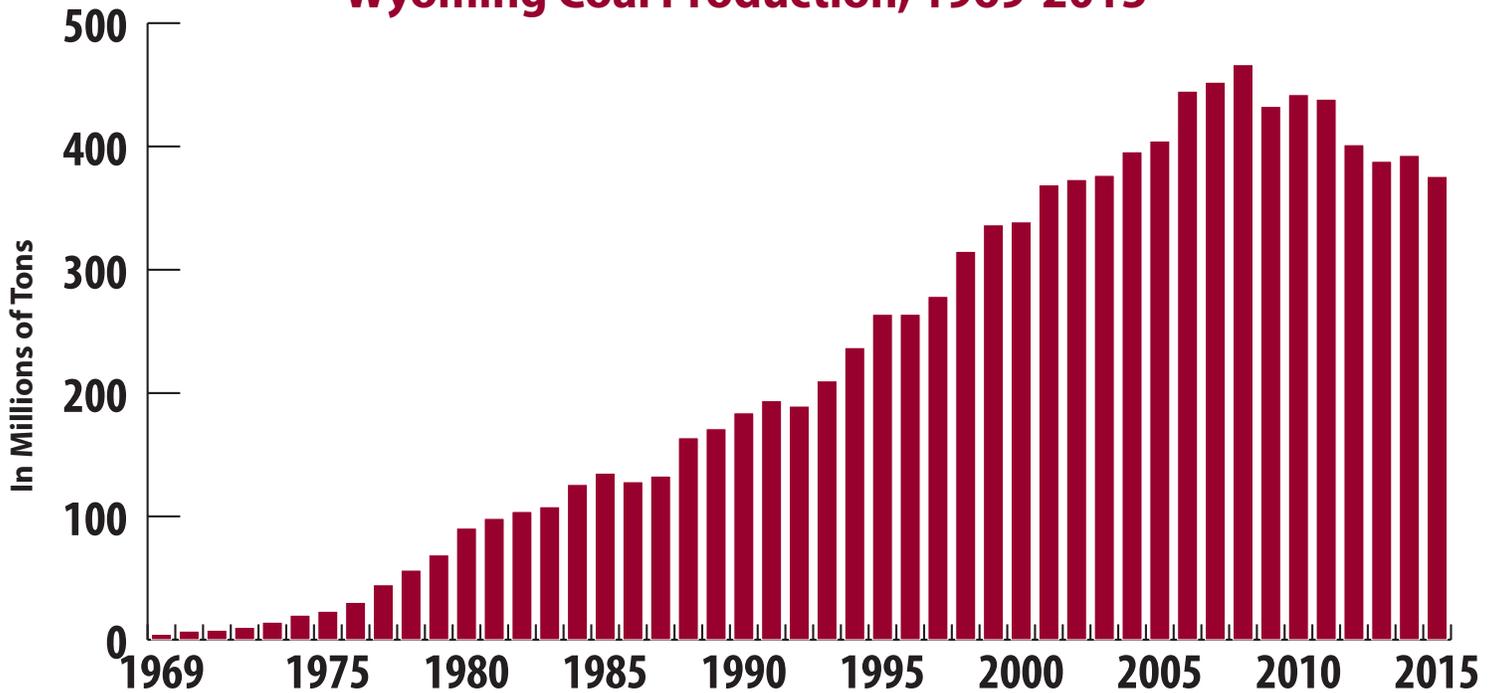
## **Wyoming's Coal Resources**

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.

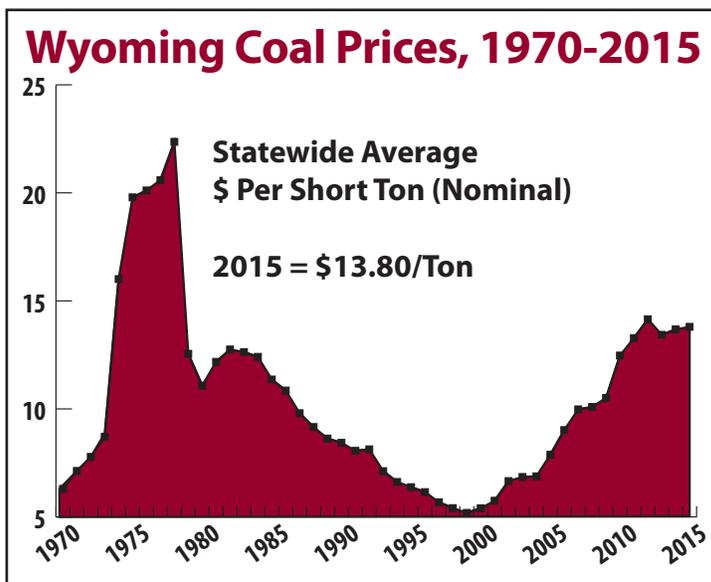
During 2015, 342 million tons of coal were moved by unit trains to energy markets in 28 states across the country. Another 25 million tons were consumed by power plants in Wyoming. Unit trains are single destination trains with up to 150 cars. Up to 80 unit trains leave the PRB daily. On average, coal is mined at the staggering rate of 12 tons per second. Trains do not stop to be loaded, but move through

## Wyoming Coal Production, 1969-2015



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.

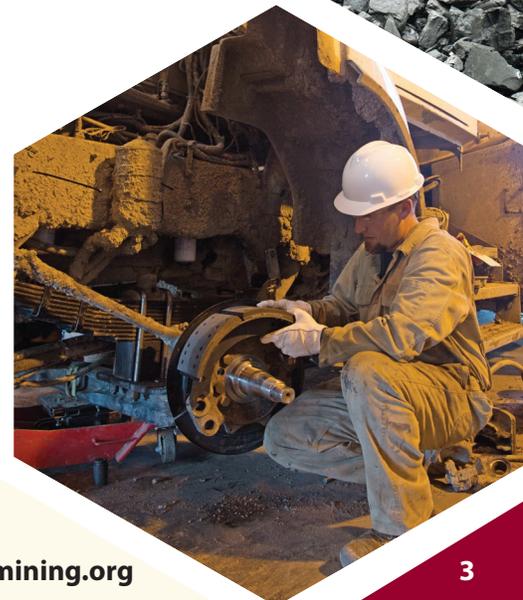
Wyoming producers experienced growth in coal prices in the first decade of the twenty-first century. Recent advances in production technology for natural gas have dampened coal demand and production has slowed. The average price for 8800 BTU Wyoming coal in 2015 was \$13.80 per ton, up 12 cents per ton from 2014. Many newly constructed power plants are designed to operate on natural gas. Yet coal will 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” (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 to run them.



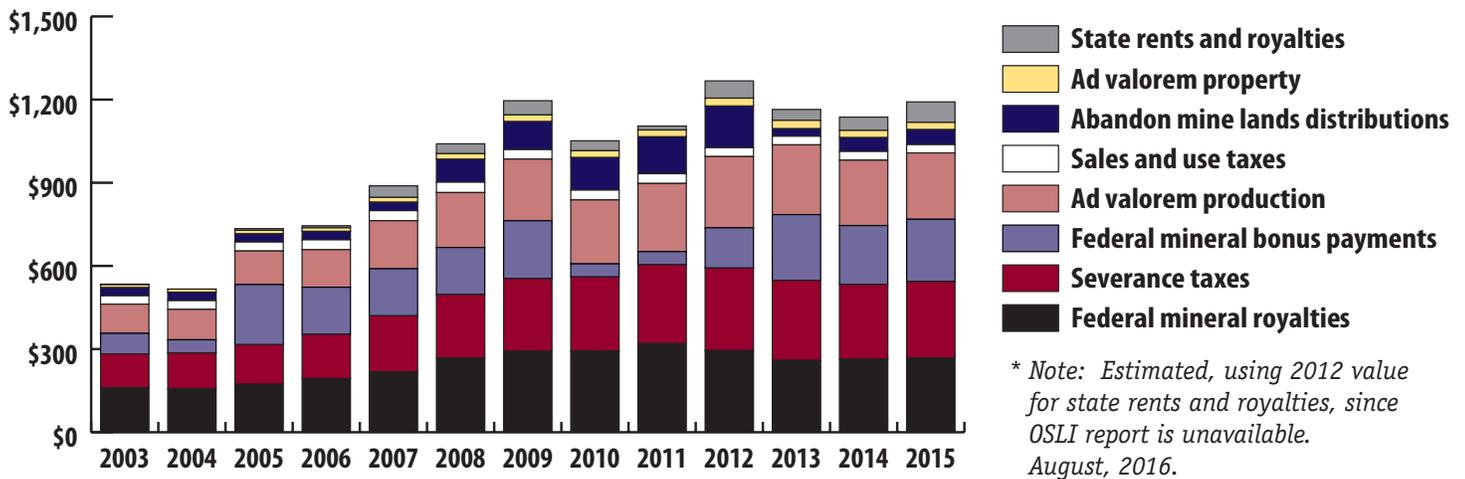
## Outlook for the Future

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 2016 predicts that in the absence of major climate legislation, U.S. coal production might still be near current levels in 2040. Electrical power generation is by far the largest consumer of coal in the United States, using about 91 percent of all coal mined.

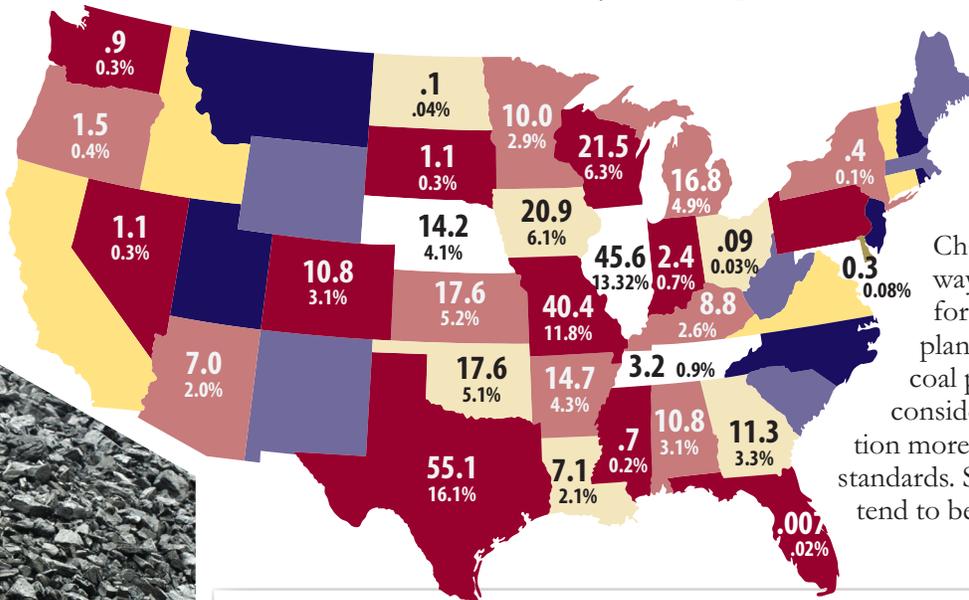
Wyoming remains a national focal point of coal technology development and research. The State of Wyoming has invested \$15 million in a public/private partnership with several utility cooperatives to build the Wyoming Integrated Test Center (ITC) at the Dry Fork Power Plant near Gillette, Wyoming. The ITC will be used to test Carbon Capture, Utilization and Sequestration technologies. The real world testing at the ITC will use 20 MW of actual coal-based flue gas. It is hoped that research at the ITC will lead to new opportunities for petro-chemicals from coal as well as commercial uses of carbon dioxide.



# Trend in Wyoming State and Local Government Revenue



## Coal Shipments From Wyoming, 2015



## Regulatory Environment

The federal regulatory environment remains very challenging. The implementation of the Environmental Protection Agency's Clean Power Plan (CPP) will have a direct impact on Wyoming's coal industry. Challenges to this law are still working their way through the court system. But as states are forced to cut CO2 emissions, coal-fired power plants will be targeted. The CPP has many US coal producers unnerved, and power generators are considering if it is worth making coal fired generation more compliant with the stricter carbon emissions standards. States charged with making the deepest cuts tend to be major users of Wyoming coal.

Possible changes to the Bureau of Land Management's Coal Leasing Program could have impacts, as well. An increase in royalty rates paid on leased coal or artificially inflated Fair Market Value pricing would drive up costs of mining. Others issues, such as the Office of Surface Mining Reclamation and Enforcement's proposed Stream Protection Rule has the potential to negatively affect Wyoming coal operations, as well.

## 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. Coal mining companies pay taxes, royalties and fees to all branches of government, federal, state and local. Coal's estimated contribution to Wyoming in 2015 was almost \$1.2 billion. The collected revenue reflects a \$54 million (or 4.8 percent) increase from

State	Wyoming Coal (Tons)	%	State	Wyoming Coal (Tons)	%
Texas	55,132,952	16.12%	Louisiana	7,139,472	2.09%
Illinois	45,554,545	13.32%	Arizona	6,971,039	2.04%
Missouri	40,406,560	11.81%	Tennessee	3,226,894	0.94%
Wisconsin	21,549,930	6.30%	Indiana	2,397,724	0.70%
Iowa	20,852,305	6.10%	Oregon	1,476,476	0.43%
Kansas	17,619,655	5.15%	Nevada	1,149,220	0.34%
Oklahoma	17,597,097	5.14%	South Dakota	1,101,054	0.32%
Michigan	16,842,580	4.92%	Washington	935,426	0.27%
Arkansas	14,695,071	4.30%	Mississippi	711,936	0.21%
Nebraska	14,157,766	4.14%	New York	419,914	0.12%
Georgia	11,310,222	3.31%	Maryland	267,191	0.08%
Alabama	10,756,038	3.14%	North Dakota	128,085	0.04%
Colorado	10,752,561	3.14%	Ohio	91,151	0.03%
Minnesota	9,979,175	2.92%			
Kentucky	8,825,879	2.58%	<b>Total</b>	<b>342,047,918</b>	<b>100%</b>

2014. However, this number is a bit of a statistical anomaly, since there is a six- to twelve-month time lag between production and tax collections and reporting. The full impact of the slow-down in production will not be seen until next year.

A 2012 revision to the Surface Mining Control and Reclamation Act (SMCRA) changed the allocation of Abandoned Mine Land (AML) funds to Wyoming only and limited the annual AML fund payment to the State to no more than \$15 Million. The FAST Act (2015 Transportation bill) included an amendment to SMCRA that affected AML funding to Wyoming in three ways. It eliminated the annual limitation on payments to Wyoming meaning Wyoming will receive the full amount of the annual distribution. The amendments required payment to Wyoming of the two remaining prior balance payments to the State that were withheld as a result of the limitation on payments. The prior balance funding was for a total of \$165.4 million which is the total of the two prior balance payments of \$82.7 million each that were withheld. All prior balance funding has now been paid to the State. The amendments also paid the AML reclamation in-lieu funds that were withheld as a result of the limitation on payments. This amount for AML reclamation was \$76.5 million. AML payments to all states has been subject to sequestration of about 7% since 2013.

Wyoming's 18 operating coal mines employed a total of 6,646 workers in 2015, a one percent increase from 2014. However, as previously mentioned, recent layoffs will mean that the current numbers are significantly less. Employment growth has recently been 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 \$85,990 before benefits – almost twice the statewide average wage of \$46,299 per worker. Estimates indicate that each coal industry position drives the need for three additional jobs in the state. The decrease in both coal, and oil and gas jobs has brought down the average for all workers in the state this year.

## 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.

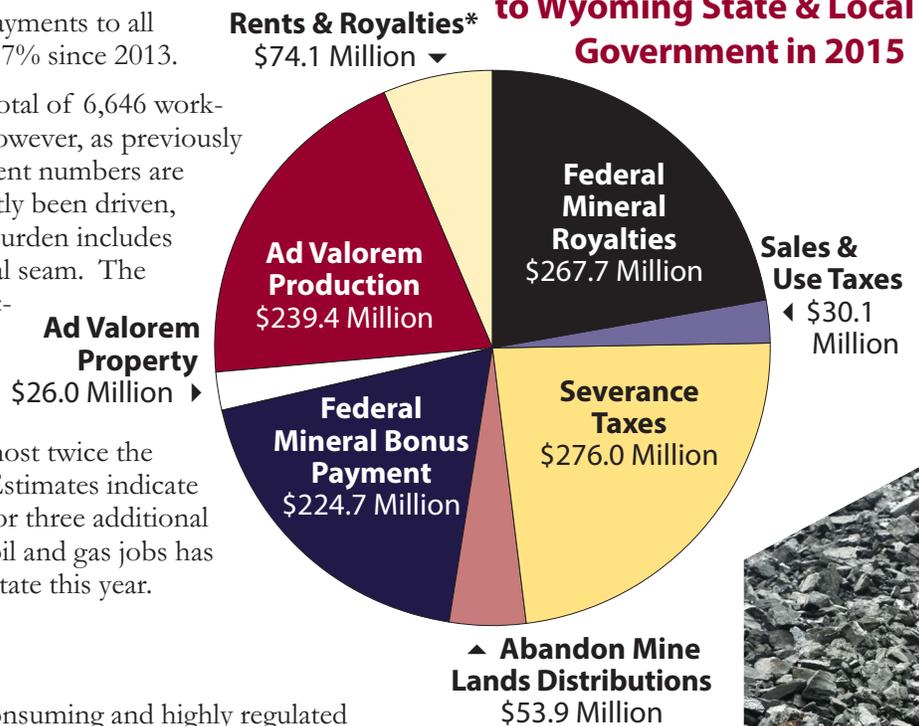
The BLM assesses each proposal to determine the coal's market value and scope of the application, and establishes sale parameters. Interested companies submit competitive bids, with the lease usually being awarded to the highest bidder. BLM also has the right to decline offers which are deemed insufficiently 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 coal lease approved was in 2012, and the final bonus bid payment will be made in 2017.

Wyoming has received over \$2 billion in coal bonus bid dollars over the period from 2003-2015. The money has been used to fund schools, highways and community colleges across the state. Most new schools built in the last decade have been built with coal bonus bid revenue. Every county in Wyoming has benefited from new school and facilities construction.

*Coal's estimated contribution to Wyoming in 2015 was almost \$1.2 billion in taxes paid. The collected revenue reflects a \$54 million (or 4.8 percent) increase from 2014. The full impact of the slow-down in production will not be seen in the numbers until next year.*

## Contributions of Coal to Wyoming State & Local Government in 2015



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



*Reclamation at Wyoming coal mines has been recognized as the best in the nation. Reclamation specialists strive to build sustainable natural ecosystems using innovative methods and new techniques to further enhance reclaimed areas.*



*The coal mining average wage in Wyoming was almost \$86,000 in 2015, while the average earnings overall statewide was just about \$46,300.*



## 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.

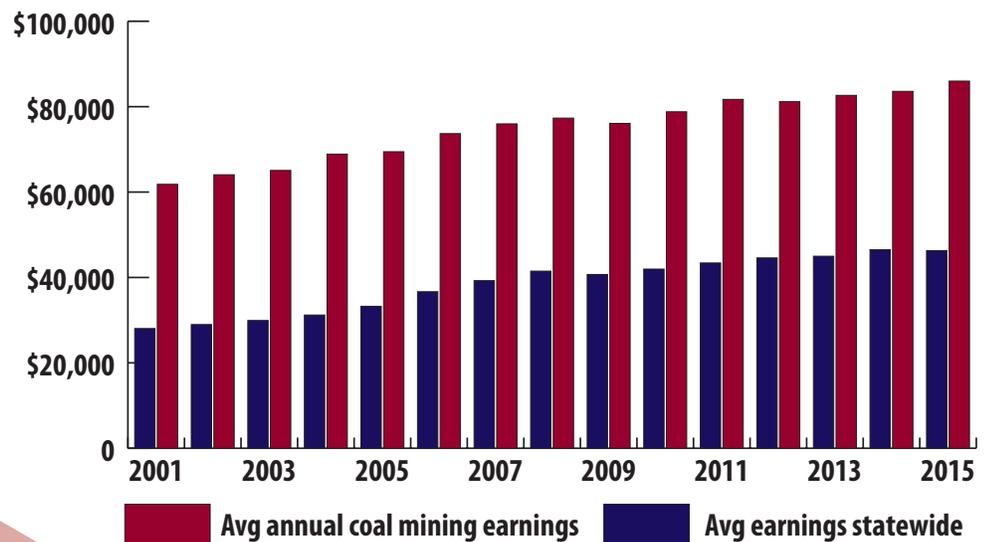
Approved seed mixtures used in reclamation promote higher vegetative output than what is found on pre-mined land, attracting animals and plants to re-establish and promote a sustainable ecosystem. The success of reclamation is apparent on reclaimed land in the Powder River Basin and at other sites across 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.

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, 2001-2015

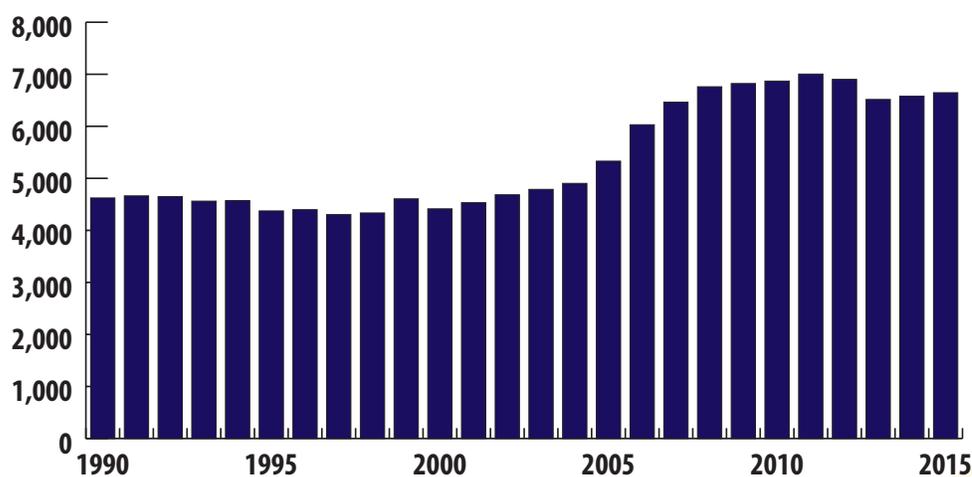


# 2015 Wyoming Coal Production by County

Location/Operator	Mine	Employees	Production
<b>Campbell County</b>			
Alpha Coal West, Inc.*	Belle Ayr Mine	286	18,318,629
Alpha Coal West, Inc.*	Eagle Butte Mine	290	19,649,723
Buckskin Mining Co.	Buckskin Mine	218	13,601,471
Cloud Peak Energy LLC	Antelope Coal Mine	632	35,167,152
Cloud Peak Energy LLC	Cordero Rojo Complex	521	22,871,977
Peabody Caballo Coal LLC	Caballo Mine	133	11,402,155
Peabody Energy Rawhide Mine	Rawhide Mine	195	15,167,996
Powder River Coal Co.	North Antelope/Rochelle Complex	1,428	109,343,913
Thunder Basin Coal Co. LLC	Black Thunder Mine	1,622	99,452,352
Thunder Basin Coal Co. LLC	Coal Creek Mine	153	7,840,491
Western Fuels of Wyoming, Inc.	Dry Fork Mine	80	6,369,206
Wyodak Resources Develop. Corp.	Wyodak Mine	68	4,140,386
<b>Carbon County</b>			
Arch of Wyoming, LLC	Elk Mountian Mine	8	
Arch of Wyoming, LLC	Seminole II Mine	10	
<b>Hot Springs County</b>			
Grass Creek Coal Co.	Grass Creek Mine		
<b>Lincoln County</b>			
Westmoreland Kemmerer Inc.	Kemmerer Mine	292	4,470,864
<b>Sweetwater County</b>			
Black Butte Coal Co.	Black Butte and Lucite Hills	181	2,735,308
Bridger Coal Co.	Surface operations	226	2,073,197
Bridger Coal Co.	Underground operations	303	3,090,175
<b>Total</b>		<b>6,646</b>	<b>375,694,995</b>
<b>Tons/employee</b>	<b>56,529</b>		

\* Alpha Coal West was acquired by Contura Energy in 2016.

## Wyoming Coal Employment, 1990-2015



*The Concise Guide to Wyoming Coal is produced by the Wyoming Coal Information Committee of the Wyoming Mining Association. Cheyenne, Wyoming, August, 2016.*



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