CONCISE GUIDE TO **WYOMING COAL**

WYOMING MINING ASSOCIATION

2022-2023

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

wyomingmining.org

WELCOME

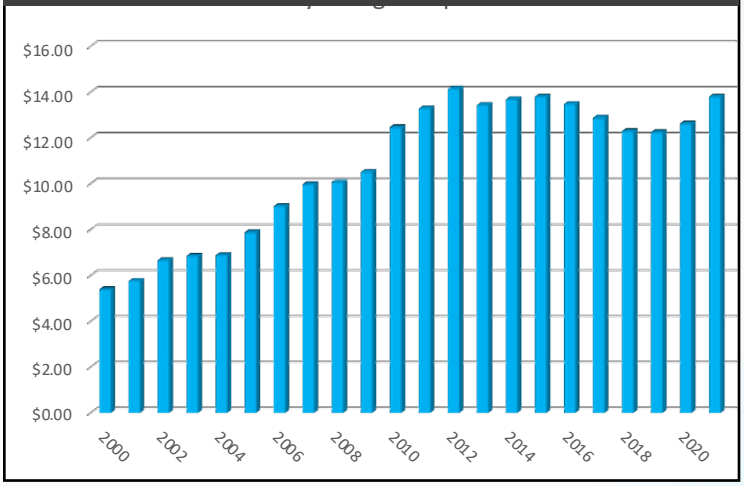
The Concise Guide highlights the economic contribution and value of Wyoming's coal industry.

A CULTURE OF SAFETY

Safety is a core cultural value for Wyoming's coal mining industry, and Wyoming coal mines are recognized as some of the safest mining operations in the nation. Safe mines are productive mines, and the Wyoming coal industry is committed to providing a safe working environment for all employees and contractors.

- All Wyoming coal mines employ dedicated safety professionals, and all employees are trained in proper safety practices to foster a safe work environment that builds and maintains the culture of safety.
- 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.
- Employees earn safety bonuses to encourage safe and vigilant work practices.
- The federal Mine Safety and Health Administration regulates all Wyoming mines.
- In the continued COVID-19 environment, all coal mining operations have policies and procedures in place to maintain a safe working environment for their miners.

WYOMING COAL PRICES (2000-2021)



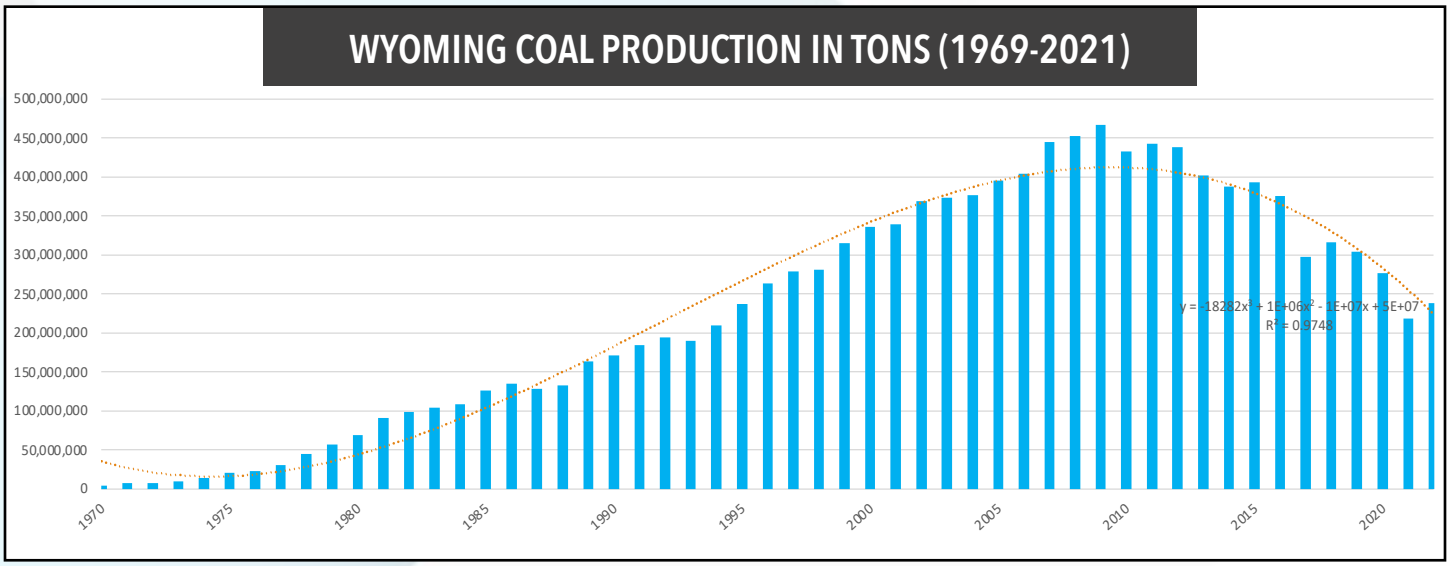
WYOMING has led the nation in coal production SINCE 1986 and currently mines 41% OF AMERICA'S COAL.

WYOMING COAL INDUSTRY IN 2022

Wyoming has led the nation in coal production since 1986. Today, the industry continues to operate in an environment of long-term structural change. Strong competition with low natural gas prices and new combined-cycle natural gas generation capacity weakened coal's market share over the past two decades. Coal production in the United States peaked in 2008 at 1.17 billion tons and has since declined 40 percent. Conversely, natural gas consumption for electrical power generation grew a staggering 120 percent between 2005 and 2020. Additionally, increased competition from heavily subsidized renewables, restrictive regulation and state energy portfolio mandates in customer states eroded the demand for Wyoming coal. Following a near-term low in coal production in the 2020 pandemic year, renewed demand for electricity has pushed up natural gas prices significantly and re-energized demand for lower cost thermal coal. Wyoming coal production increased by 20 million tons in 2021, up 9.1 percent over the previous year.

Additionally, coal provides stable baseload generating capacity that can help compensate for the unreliability of renewable electricity production. Despite the uncertainties, coal remains a secure, abundant and affordable source of fuel and a significant source of energy, generating an estimated 22 percent of the nation's electricity. Based on estimates by the Energy Information Administration, coal's share of power generation will drop to about 5 percent of total electricity generation by 2050.

Wyoming's mines, operating leaner and more efficient than ever, remain America's low-cost industry leaders and will continue to offer low-cost fuel for power generating facilities with long operating life-spans. Home to eight of the nation's top 10 producing mines, Wyoming provides about 50 percent of all thermal coal used for electricity production in the nation. That translates to about 7.9 percent of U.S. domestic electric power generation.



WYOMING provides about 50% OF ALL THERMAL COAL used for electricity production in the NATION.

WYOMING'S COAL RESOURCES

Wyoming is home to over 1.4 trillion tons of total coal resources in seams ranging in thickness from 5 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 hold considerable resources, Wyoming's position as the nation's largest and most productive coal region 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.
- Efficient rail infrastructure.

During 2021, 214 million tons of coal moved by unit trains (single destination trains with up to 150 cars) to energy markets in 24 states across the country. Wyoming power plants consumed another 19 million tons during the year, and 5 million tons went to other uses.

- On average, coal is mined at the staggering rate of 12 tons per second.
- On average, 10 unit trains leave the PRB daily (down significantly from higher production years).
- Rather than stopping, trains are loaded as they 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.

While most newly constructed power plants are designed to operate on natural gas, coal will continue to provide a significant portion of "baseload" generating capacity for the foreseeable future. Fuel switching, or changing between natural gas and coal for power, is limited as many existing plants are either not designed to operate on natural gas or they do not currently have a pipeline to deliver the quantity of gas needed for operations.

The estimated average price for Wyoming coal in 2021 was $13.80 per ton, up $1.55 per ton from 2020. The sharp and unexpected increase in natural gas prices in the fall of 2021 spurred demand for Wyoming coal. Spot prices jumped to over $33 per short ton in the 4th quarter of 2021 before returning to normal levels in the 2nd quarter of 2022. Prices had stabilized at just over $16 per ton in the 3rd quarter of 2022. Wyoming mines adapted quickly to meet demand, including a significant increase in hiring. However, rail service was unable to adapt adequately resulting in a lack of necessary cars to meet increased utility demands. Inconsistent service by the railroads caused mines to revise production figures downward and has resulted in stranded tonnage and significant lost revenue to the state of Wyoming and local governments. Reliable and timely rail service remains a considerable barrier to increased production for Wyoming's PRB coal mines even with demand for coal being high.

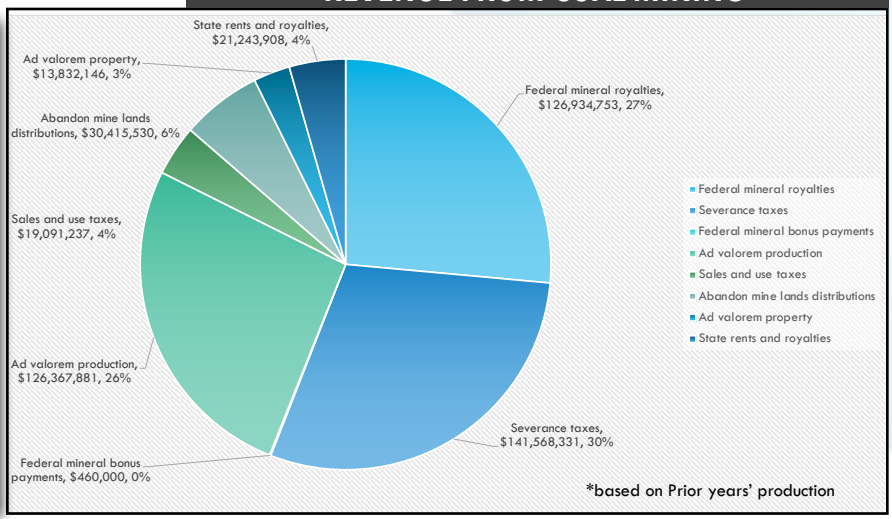
OUTLOOK FOR THE FUTURE

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 2022 predicts that U.S. coal production for electricity will remain viable as a strong fuel source in America's energy mix. Coal was the power source for about 19 percent of the nation's electricity in 2020. Electrical power generation is by far the largest consumer of coal in the United States, using about 82 percent of all coal mined.

Wyoming has emerged as a national leader in coal technology development and research. The State of Wyoming has partnered with several utility cooperatives to create a $21 million public-private partnership to study the capture, sequestration and management of carbon emissions at the Wyoming Integrated Test Center (ITC). Using 20 MW of coal-based flue gas power generation, research conducted at the ITC is discovering new and more economical ways to capture CO2 from post-combustion processes as well as commercial uses of carbon dioxide. Teams in the final round of the NRG COSIA Carbon XPRIZE completed testing in late 2020 and the facility welcomed new projects from MTR and GTI in 2021. Since coming online in 2019, the Wyoming ITC has attracted more than $100 million in carbon management projects.

Other projects are being pursued throughout the state and at the University of Wyoming School of Energy Resources (SER) to unlock the untapped potential of Wyoming's coal resource for innovative carbon and composite materials to create products ranging from car and airplane parts to medical devices and building products. The Wyoming Innovation Center (WyIC) broke ground this year and is expected to feature two buildings and seven demonstration sites for pilot plants. The WyIC will focus on eval-

2021 ESTIMATED STATE AND LOCAL REVENUE FROM COAL MINING*



uating the commercial viability of high-value nonfuel, low- or zero-emissions products made from coal and extracting rare earth elements found in the fly ash of coal burned at local power plants. WyIC's first tenant is the National Energy Technology Laboratory. The University of Wyoming SER Resources continues its research work on Carbon Capture, Use and Storage (CCUS) technology, as well as carbon engineering and in-situ mining techniques of critical minerals and rare earths from coal and other sediments.

WYOMING has emerged as a NATIONAL LEADER in coal TECHNOLOGY DEVELOPMENT AND RESEARCH.

REGULATORY & TAX ENVIRONMENT

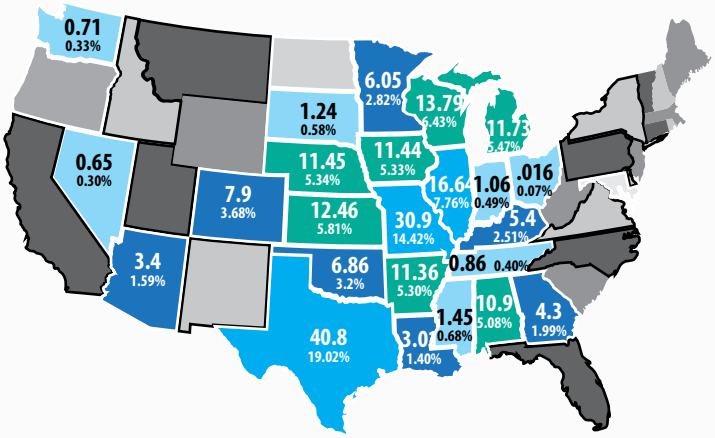
The industry is experiencing significant regulatory and policy pressure from the Biden Administration. Even with the US Supreme Court curtailing the Environmental Protection Agency's (EPA) perceived authority to regulate CO2 under the Clean Air Act, the agency has signaled its intention to move ahead. with its intention to replace the American Clean Energy (ACE) rule promulgated under the Trump Administration as a replacement to the Clean Power Plan (CPP). While it is currently unclear what this will look like, we can be assured it will place great pressure on utilities to further reduce coal use at generating facilities across the country. The agency has also resurrected the Waters of the US (WOTUS) rule which will further add to the regulatory burden on the coal industry. A federal judge has also reinstituted a moratorium on the US Bureau of Land Management's Federal Coal Leasing program, in effect placing any new leasing of federal coal assets on hold.

Several pieces of legislation have been introduced in Congress that threaten the long-term health of the coal industry. Two bills that would have significant effect on Wyoming coal would reinstitute a moratorium on the Federal Coal Leasing Program, as well as to eliminate the option of self-bonding. Also, Congress has widely been rumored to be considering in developing a so called "Clean Energy Standard" that would accelerate the closure of coal generating facilities across the nation. In fact, this concept was formally part of the original Biden Administration "Build Back Better" Reconciliation package discussions. This standard would have an incredibly harmful impact on Wyoming coal production, as most of the coal in the state is used for domestic power consumption.

The industry is also closely watching congressional actions on tax related issues, that could have a damaging cost on operating budgets. The recently passed "Inflation Reduction Act" included a large increase in the Federal Black Lung Excise Tax, as well as eliminating certain extraction industry tax deductions that allow for price competitiveness. Yet despite the strong headwinds from Washington D.C. the industry remains optimistic that the reality of baseload generation will have to be factored into any long-term policy decisions, and that coal will play a vital role in America's energy mix for decades to come.

More locally, coal remains a prime source of revenue for state and local governments. Unfortunately, with the state of Wyoming continuing to face a troubling revenue picture for the foreseeable future, legislative efforts to increase tax burdens remain a concern for the industry.

COAL SHIPMENTS FROM WYOMING, 2021



2021			
Rank	State	Tons	Percent
1	TX	40,807,370	19.02
2	MO	30,931,366	14.42
3	IL	16,639,531	7.76
4	WI	13,789,219	6.43
5	KS	12,455,629	5.81
6	MI	11,728,596	5.47
7	NE	11,452,788	5.34
8	IA	11,438,672	5.33
9	AR	11,361,974	5.30
10	AL	10,899,235	5.08
11	CO	7,891,150	3.68
12	OK	6,863,865	3.20
13	MN	6,051,936	2.82
14	KY	5,379,932	2.51
15	GA	4,270,153	1.99
16	AZ	3,403,309	1.59
17	LA	3,011,579	1.40
18	MS	1,449,945	0.68
19	SD	1,244,367	0.58
20	IN	1,058,239	0.49
21	TN	861,403	0.40
22	WA	712,059	0.33
23	NV	649,303	0.30
24	OH	156,583	0.07
	Grand total	**214,508,203**	**100**
	WY	19,052,285	

COAL & COMMUNITY

LOCAL BENEFITS

Coal is the second most important source of revenue for Wyoming state and local governments, after oil. Coal mining companies remit taxes and royalty payments to all branches of government, federal, state and local. Coal's estimated contribution to Wyoming in 2021 was about $480 million in taxes, royalties and fees, reflecting a $66 million, or 12.1 percent, decrease from 2020. The decrease highlights the magnitude of the continued slowdown in Wyoming's coal industry in recent years. However, 2022 production looks to be stronger.

In 2021, Wyoming received $30.4 million in "certified in lieu" funds. These are monies that are authorized as "replacement" funds based on AML collections that are no longer distributed.

Employment in Wyoming's 15 operating coal mines increased 4 percent 2021. Wyoming coal mines employ 4,971 workers directly in the industry. This is down 29 percent from a peak of 7,004 employees in 2011. Coal industry jobs are among the best paying in the state with Wyoming coal miners collecting an average wage of $94,807 excluding benefits. A coal miner's take-home pay is almost twice the statewide average wage of $53,020 per worker. Estimates indicate that each coal industry position supports an additional two jobs in the service and supply sectors, bringing direct and indirect employment to more than 15,000 workers.

EMPLOYMENT in Wyoming's 15 operating coal mines INCREASED 4% or 190 employees in 2021.

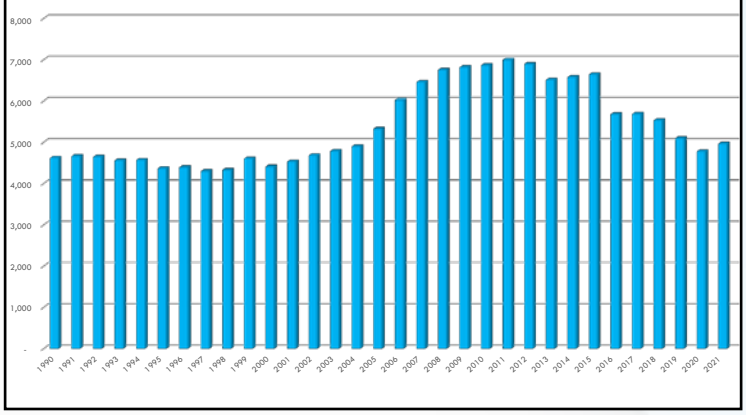
LEASE BONUS BIDS

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

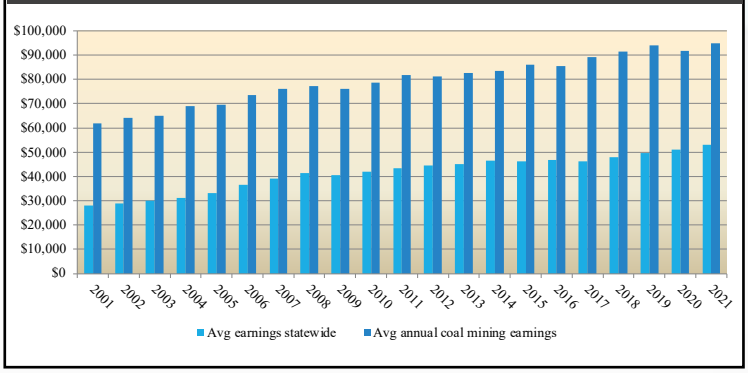
The BLM assesses proposals to determine the coal's market value, scope of the application and establishes sale parameters. Interested companies with the ability to economically and viably mine the coal submit competitive bids. The lease is either awarded to the highest bidder or rejected if the BLM deems the offer too 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. Coal lease payments are split between the state and federal government and paid out over a five-year period.

WY COAL MINING EMPLOYMENT (1990-2021)



WY WAGES | AVERAGE EARNINGS PER JOB, 2001-2021



Estimates indicate that EACH COAL INDUSTRY POSITION supports an additional TWO JOBS in the service and supply sectors.

Wyoming has received more than $2.3 billion in coal bonus bid dollars since 2003. The money has funded most new schools built in the last decade, as well as highways and community colleges across the state. Every Wyoming county has benefitted from these funds.

Unfortunately, as a result of decreased coal demand, this revenue stream has significantly declined. There was only one payment of $460,800 in 2021. There are only three potential leases currently on hold in the BLM LBA system. And with the reinstitution of the moratorium on leasing, State revenue from coal will continue to be impacted.

RECLAMATION

Reclaimed mine lands represent sustainable development in action, and Wyoming coal mine reclamation remains among the best in the world. 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 with multiple awards as the best in the nation. All Wyoming coal mines are fully bonded with the Wyoming Department of Environmental Quality. Reclamation stages include:

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

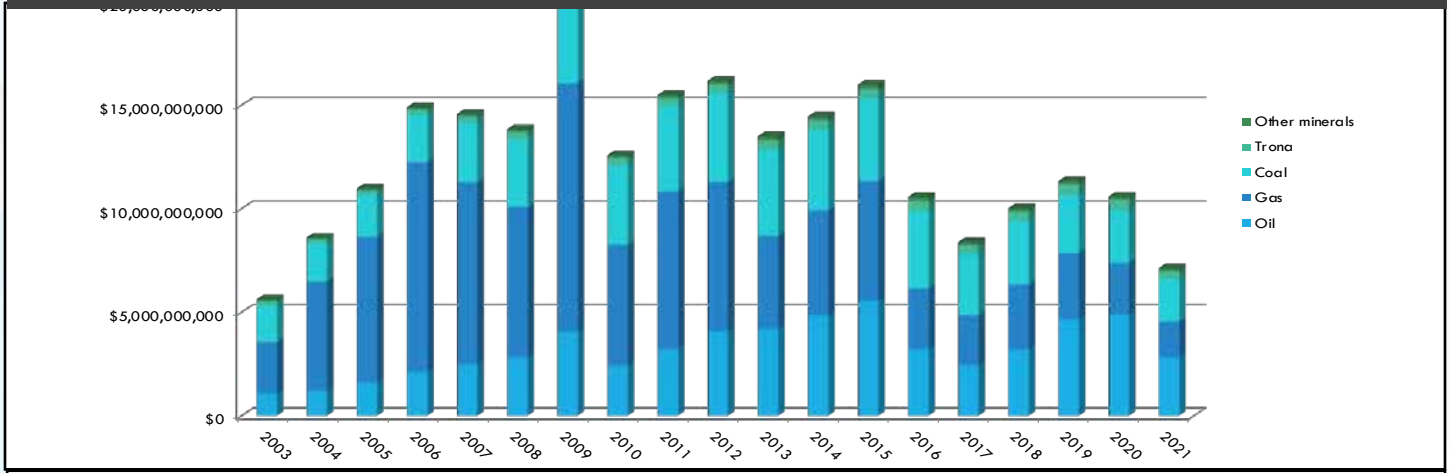
Approved seed mixtures used in reclamation promote higher vegetative output than what is found on pre-mined land, attracting animals and plants to re-establish and promote a sustainable ecosystem. The success of reclamation is apparent on reclaimed land in the Powder River Basin and at other sites across Wyoming, such as PacifiCorp's project near the Dave Johnson power plant at Glenrock, as well as Lincoln and Sweetwater Counties.

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

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.

TOTAL ASSESSED VALUATION OF WYOMING MINERAL PRODUCTION, 2003-2021



2021 WYOMING PRODUCTION BY COUNTY			
LOCATION/OPERATOR	**MINE**	**EMPLOYEES**	**PRODUCTION**
Campbell County			
Black Hills Energy	Wyodak	59	3,503,112
Buckskin Mining Co.	Buckskin Mine	178	10,639,487
Eagle Specialty Minerals LLC	Belle Ayr	256	14,449,608
Eagle Specialty Minerals LLC	Eagle Butte	222	13,549,294
Navajo Transitional Energy Co.	Antelope Mine	472	21,738,382
Navajo Transitional Energy Co.	Cordero Rojo Mine	271	12,867,638
Peabody Caballo Coal LLC	Caballo Mine	211	13,860,353
Peabody Caballo Coal LLC	Rawhide Mine	131	11,601,736
Peabody Powder River Mining LLC	North Antelope/Rochelle Complex	1,348	62,799,035
Thunder Basin Coal Co. LLC	Black Thunder Mine	949	59,359,967
Thunder Basin Coal Co. LLC	Coal Creek Mine	102	1,994,359
Western Fuels of Wyoming, Inc.	Dry Fork Mine	56	3,728,004
Lincoln County			
Kemmerer Operations Inc.	Kemmerer Mine	248	2,501,445
Sweetwater County			
Black Butte Coal Co.	Black Butte and Lucite Hills	145	1,771,411
Pacific Minerals dba Bridger Coal Co.	Surface operations	206	1,213,812
Bridger Coal Co.	Underground operations	117	3,062,824
		4,971	**238,640,467**

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