Financial Advisory Gaming & Hospitality Public Policy Research Real Estate Advisory Regional & Urban Economics

# POLICY BRIEF NO. 3: NEVADA & COMPETING STATES MINING OCCUPATIONS ANALYSIS

# **PREPARED FOR:**

Nevada Governor's Office of

ECONOMIC DEVELOPMENT

**Empowering Success** 

# 

May 2023

7219 West Sahara Avenue Suite 110 Las Vegas, NV 89117 Main 702-967-3188 www.rcgecon.com June 8, 2023

Mr. Kris Sanchez Deputy Director Nevada Governor's Office of Economic Development 555 E. Washington Avenue, Suite 5400 Las Vegas, NV 89101

Re: Nevada Mining Occupations Analysis ("the Study")

Dear Mr. Sanchez:

RCG Economics LLC ("RCG") is pleased to submit the above referenced Study to GOED ("the Client"), providing the regional economic and real estate advisory services and analyses specified in our scope of work.

RCG developed a high-level analysis and This memorandum covers historical and future projections of employment, occupation and wage projections for the mining industry in five western states: Nevada, Arizona, Utah, Colorado and Wyoming ("the Study Region"). Understanding the occupational needs of the industry is critical in developing the most effective labor and company attraction strategies needed for the continued health and evolution of the industry and the resiliency of Nevada's economy.

The Study was prepared under the assumptions listed in the attachment to this letter.

If you have any questions, please do not hesitate to contact us at your convenience by phone at 702-967-3188 ext. 101 or by email.

Regards,

a Economics LLC

RCG Economics LLC Attachment



REGIONAL & URBAN ECONOMICS PUBLIC POLICY RESEARCH GAMING & HOSPITALITY REAL ESTATE ADVISORY FINANCIAL ADVISORY Kris Sanchez June 8, 2023 Page 2

#### Attachment Standard Assumptions & Limiting Conditions

- 1. RCG prepared the Study deliverables from third-party economic information collected by RCG, as well as our internal economic, and demographic models, databases and sources.
- 2. The results of RCG's analyses apply only to the effective date of the Study deliverables. The success of the Clients' plans for the region will be affected by many related and unrelated economic and real estate market conditions within a local, regional, national and/or world context. We assume no liability for an unforeseen change in the local, regional or national economies. Accordingly, we have no responsibility to update the Study deliverables for events and circumstances occurring after the date of our Study deliverables.
- 3. Our deliverables are based on historical and current regional economic and industry benchmark information. Thus, variations in the future could be material and have an impact on the Study conclusions. Even if our Study's hypothetical assumptions were to occur, there will usually be differences between the estimated and actual results, because events and circumstances frequently do not occur as expected, and those differences may be material. These could include major changes in economic and market conditions; and/or terms or availability of financing altogether; and/or major revisions in current state and/or federal tax or regulatory laws.
- 4. If our Study deliverables are reproduced by the Client, they must be reproduced in their entirety.
- 5. RCG makes no representation or warranty as to the accuracy or completeness of the third-party information contained in the Study deliverables and shall have no liability for any representations (expressed or implied) contained in, or for any omissions from, our materials.
- 6. The working papers for this consulting assignment will be retained in RCG's files and will be made available for your reference. We will be available to support the analyses, as required.
- 7. The estimates in our Study may not be used in conjunction with any other report(s). The conclusions stated in our Study will be based on the existing and hypothetical plans developed by the public, and may not be separated into parts. The analysis has been prepared solely for the purpose, function and parties so identified in this engagement letter.
- 8. All exhibits and illustrations that are incorporated into the Study are for illustrative purposes only, to assist the reader in visualizing our research, but are not guaranteed to be exact.
- Unless otherwise stated in our Study deliverables, no effort has been made to determine the possible effect, if any, of future Federal, State or local legislation, including any environmental or ecological matters or interpretations thereof.
- 10. RCG has not performed an audit, review or examination or any other attest function (as defined by the AICPA) regarding any of the third-party parcel and economic benchmarks or demographic information used or included in the Study deliverables. Therefore, RCG does not express any opinion or any other form of assurance with regard to the same, in the context of our Study deliverables.

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#### Introduction

This memorandum covers historical and future projections of employment, occupation and wage projections for the mining industry in five western states: Nevada, Arizona, Utah, Colorado and Wyoming.

#### Nevada

Mining has played a significant part in Nevada's history and is expected to play a continued part in Nevada's future as well. Currently, Nevada is the leading gold producer in the United States, contributing to over 80 percent of U.S. gold production. In addition to gold, Nevada also has substantial reserves of silver, copper, gypsum, lithium and other minerals.

The continued global demand for gold in both industrial (a component used in electronics and jewelry) and non-industrial (investment) uses benefits Nevada. However, the gold market faces challenges including potential declining ore grades and increasing operational costs. Silver is also expected to increase in demand, especially for use in industrial uses including in solar panels, electronics and medical applications.

The state's lithium reserves present a significant opportunity due to the growing demand for lithium-ion batteries, essential in electric vehicles and renewable energy storage. However, extracting lithium can be capital-intensive, posing potential challenges for its development. The increased demand for electric vehicles is contributing to the demand for copper as well.

Figure 1 below details Nevada's Mining industry's share of overall employment and earnings from 1969 projected to 2033. Since 1985 Nevada's Mining Industry's share of overall earnings has outpaced its share of overall employment, indicating that mining jobs in Nevada tend to compensate workers more, on average, than other industries. According to Woods & Poole Economics, Nevada saw the highest employment and earnings levels in 1990 when Mining accounted for 1.87 percent of total employment and 2.42 percent of total earnings.



Figure 1: Share of Mining Industry Employment and Earnings,

Source: Woods & Poole

Figure 2 provides a heatmap of how Nevada's Mining Industry is geographically distributed across the state. The majority of the employment in 2021 was found in the northeast portion of the state with the highest concentration being found in Eureka County, followed by Elko, Humboldt and Lander.

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Figure 2: Mining, Quarrying, and Oil and Gas Extraction Workforce Map, Nevada 2021

Source: Lightcast Mining, Quarrying, and Oil and Gas Extraction Industry Snapshot: Q4 2022 Data Set

Since 2012 the overall level of Mining employment has decreased. According to data available from Lightcast, Nevada's Mining Industry employment decreased 4.1 percent from 2012 to 2022 (from 15,581 to 14,945, a decline of 635 jobs).

Table 1 provides an overview of the change in employment and average earnings per job across the Top 15 Mining NAICS Industry sub-sectors (ranked by 2022 employment size). Gold Ore Mining, the largest sub-sector, saw a 7.8 percent decrease over the ten-year period. This contraction was the leading contributor to the decrease in Mining Industry employment over that same time period. However, this decrease was partially offset by growth in other sub-sectors, most notably Silver Ore Mining (which increased by over 100 percent) as well as substantial increases in Crushed and Broken Limestone Mining and Quarrying, All Other Metal Ore Mining and All Other Nonmetallic Mineral Mining.

While employment saw a decrease over this timeframe, Average Earnings per job have increased by 26.5 percent (from \$99,544 to \$125,897 a rise of \$26,353). The largest increases were seen in Construction Sand and Gravel Mining (+81.5 percent), Other Crushed and Broken Stone Mining and Quarrying (+68.4 percent), and Other Chemical and Fertilizer Mineral Mining (+62.1 percent). While Gold Ore Mining decreased in overall employment, it remained the highest average paying sub-sector at \$133,330 with Silver Ore Mining (\$127,213) and Other Chemical and Fertilizer Mineral Mining (\$124,199) close behind.

Employment Average Earnings Per Job											
			,e.it Ch	ange	Change						
NAICS Industry	2022	2012	Total	%	2022	2012	Total	% %			
Gold Ore Mining	9.867	10,700	(833)	-7.8%	\$133,330	\$104,130	\$29,199	28.0%			
Support Activities for Metal Mining	2,308	2,265	43	1.9%	\$113,093	\$99,373	\$13,720	13.8%			
Copper, Nickel, Lead and Zinc Mining	675	655	19	2.9%	\$119,103	\$95,412	\$23,691	24.8%			
Construction Sand and Gravel Mining	470	410	60	14.7%	\$97,202	\$53,557	\$43,644	81.5%			
All Other Nonmetallic Mineral Mining	429	269	160	59.5%	\$95,570	\$65,761	\$29,809	45.3%			
Silver Ore Mining	414	205	209	101.7%	\$127,213	\$92,738	\$34,474	37.2%			
Other Chemical and Fertilizer Mineral Mining	228	445	(217)	-48.8%	\$124,199	\$76,641	\$47,558	62.1%			
Industrial Sand Mining	107	94	14	14.7%	\$111,716	\$75,161	\$36,554	48.6%			
Crushed and Broken Limestone Mining and Quarrying	100	59	41	69.6%	\$98,980	\$64,170	\$34,809	54.2%			
Clay and Ceramic and Refractory Minerals Mining	99	78	21	26.9%	\$102,228	\$86,619	\$15,609	18.0%			
Support Activities for Oil and Gas Operations	69	89	(19)	-21.8%	\$96,820	\$68,331	\$28,489	41.7%			
All Other Metal Ore Mining	61	16	45	273.5%	\$93,618	\$77,756	\$15,861	20.4%			
Other Crushed and Broken Stone Mining and Quarrying	49	33	16	47.5%	\$83,856	\$49,806	\$34,050	68.4%			
Support Activities for Nonmetallic Minerals (except Fuels) Mining	46	29	16	55.9%	\$120,582	\$127,829	-\$7,247	-5.7%			
Crude Petroleum Extraction	11	52	(41)	-78.4%	\$123,282	\$185,414	-\$62,133	-33.5%			

#### Table: 1 Nevada NAICS Mining Top 15 Sub-sectors Employment Changes 2012-2022

Source: Lightcast Industry Table Mining, Quarrying, and Oil Gas Extraction Q1 2023 Data Set April 2023

To provide a fuller understanding of the employment trends throughout Nevada, it is important to not only look at the macro growth of individual sub-sectors, but to also evaluate the micro-level supply and demand of individual occupations.

Table 2 provides an overview of the Top 10 (ranked by unique postings) most in-demand occupations in Nevada's mining industry for 2022. Industrial Engineering Technologists and Technicians were the most in-demand Occupation for Nevada's mining industry in 2022. According to the Bureau of Labor Statistics (BLS) "Industrial engineering technologists and technicians help engineers solve problems affecting manufacturing layout or production. They prepare machinery and equipment plans, design workflows, conduct statistical production studies, and analyze production costs."<sup>1</sup> This occupation typically requires an Associate's degree or a postsecondary certificate.

Of the Top 10 most in-demand occupations 50 percent required a Bachelor's degree or higher. Occupations that require a Bachelor's degree had an average median advertised salary of \$44.04 which is 53 percent higher than the average median advertised salary for non-degree requiring occupations (\$28.64).

Occupation	Unique Postings	Number of Employers	Hourly Median Advertised Salary					
Industrial Engineering Technologists and	105	Q	¢21 20					
Technicians		0	ΨΖ1.Ζ7					
First-Line Supervisors of Mechanics, Installers	102	13	\$22.25					
and Repairers	102	15	400.00					
Heavy and Tractor-Trailer Truck Drivers	70	10	\$25.11					
Mining and Geological Engineers, Including	70	7	¢50.71					
Mining Safety Engineers*	70	,	\$30.7 I					
Geoscientists, Except Hydrologists and	61	o	¢50.72					
Geographers*	61	0	\$30.72					
Maintenance and Repair Workers, General	60	13	\$30.83					
Civil Engineers	56	7	\$48.00					
Electricians	50	7	\$32.62					
General and Operations Managers*	48	9	\$32.37					
Managers, All Other*	45	10	\$38.40					

#### Table 2: Top 10 Mining Industry Job Postings, Nevada Jan 2022 – Dec 2022

Source: Lightcast Job Postings Table Q1 2023 Data Set

\*Typically requires a Bachelor's degree or higher

Table 3 provides forward-looking projections for the Top 10 occupations (as ranked by 2021 employment levels) that will be the most in-demand over the next decade (by 2031). The occupations with the highest

<sup>&</sup>lt;sup>1</sup> <u>https://www.bls.gov/ooh/architecture-and-engineering/industrial-engineering-technicians.htm#tab-2</u>

growth potential by 2031 are expected to be: First-Line Supervisors of Construction Trades and Extraction Workers (+72 percent), Industrial Machinery Mechanics (+46 percent) and Heavy and Tractor-Trailer Truck Drivers (+45 percent). Of all the highest demand and highest growth occupations only one, Mining and Geological Engineers, Including Mining Safety Engineers, requires a formal Bachelor's degree.

Description	Employment (2021)	Employment (2031)	Change	% Change	% of Industry Jobs (2021)	Median Hourly Earning s
Continuous Mining Machine Operators	3,672	3,982	310	8%	24.7%	\$29.58
Mobile Heavy Equipment Mechanics, Except Engines	862	972	109	13%	5.8%	\$29.52
Operating Engineers and Other Construction Equipment Operators	668	819	151	23%	4.5%	\$28.55
Crushing, Grinding, and Polishing Machine Setters, Operators and Tenders	615	653	38	6%	4.1%	\$28.71
Heavy and Tractor-Trailer Truck Drivers	604	874	269	45%	4.1%	\$23.45
Mining and Geological Engineers, Including Mining Safety Engineers*	475	481	6	1%	3.2%	\$47.48
Extraction Workers, All Other	442	513	71	16%	3.0%	\$22.46
First-Line Supervisors of Construction Trades and Extraction Workers	383	660	277	72%	2.6%	\$35.09
Excavating and Loading Machine and Dragline Operators, Surface Mining	359	394	35	10%	2.4%	\$23.24
Industrial Machinery Mechanics	320	467	146	46%	2.2%	\$29.03

#### Table 3: Top 10 Mining Industry Occupations, Nevada 2021 & 2031

Source: Lightcast Staffing Patterns Table Q4 2022 Data Set

\*Typically requires a Bachelor's degree or higher

While Nevada's Mining industry may experience some slower growth over the next 10 years, there will still be significant demand across the industry. There will be a need for employees both with and without postsecondary education backgrounds.

#### Arizona

Arizona, historically known as the Copper State, has a mining heritage dating back over a century. Arizona is one of the leading mining states in the United States, producing a wide variety of minerals, including copper, gold, silver, molybdenum and zinc. Arizona is the leading copper producer in the United States, contributing to more than 70 percent of the nation's total copper output in 2021. The state also has substantial reserves of molybdenum, silver and gold. Copper is likely to remain a significant opportunity and a source of continued demand, so long as ore grades remain sufficient for use and the cost of mining does not make it cost prohibitive. Arizona's molybdenum reserves also present an opportunity. Molybdenum is used as an alloying agent in steel and cast iron, which are critical to infrastructure and machinery. The demand for molybdenum may see sustained growth, particularly from emerging economies focusing on infrastructure development.

Figure 3 details Arizona's Mining industry's share of overall employment and earnings from 1969 projected to 2033. Arizona's Mining Industry's share of overall earnings have outpaced its share of overall employment, since 1969, apart from a brief period between 2000 to 20004. Mining jobs in Arizona tend to have higher compensation than other industries. According to Woods & Poole, Arizona saw the highest employment and earnings levels in 1974 when Mining accounted for 1.77 percent of total employment and 2.44 percent of total earnings.





Source: Woods & Poole

Figure 4 provides a heatmap of how Arizona's Mining Industry is geographically distributed across the state. Most of the employment in 2021 was found in the south portion of the state with the highest concentration being found in Greenlee County followed by Maricopa and Pima.



Figure 4: Mining, Quarrying, and Oil and Gas Extraction Workforce Map, Arizona 2021

Source: Lightcast Mining, Quarrying, and Oil and Gas Extraction Industry Snapshot Q4 2022 Data Set

Since 2012, the overall level of employment has decreased over time. According to data provided by Lightcast, Arizona's mining industry has decreased by 2.6 percent from 2012 to 2022 (from 12,727 to 12,394, a decline of 333 jobs).

Table 4 provides an overview of the change in employment and average earnings per job across the Top 15 (ranked by 2022 employment size) Mining NAICS Industry sub-sectors. Copper, Nickel, Lead and Zinc Mining, the largest sub-sector (accounting for over 80 percent of Mining industry employment), saw a 3.8 percent rise over the 10-year period. However, 9 out of the top 15 industries experienced contraction over the 10-year period. Most notably, Bituminous Coal and Lignite Surface Mining (which had the second most employees in 2012) dropped by 91 percent.

While employment saw a decrease over this timeframe, Average Earnings per job has increased by 26.8 percent (from \$93,800 to \$118,930 an increase of \$25,130). The largest increases were seen in: Support Activities for Oil and Gas Operations (+163.9 percent), Natural Gas Extraction (+108.5 percent) and Support Activities for Metal Mining (+80.4 percent). Copper, Nickel, Lead and Zinc Mining, the largest industry, had the fifth highest average earnings per job at \$121,449 falling only behind: Bituminous Coal and Lignite Surface Mining (\$166,998), Support Activities for Nonmetallic Minerals (except Fuels) Mining (\$148,295), Gold Ore Mining (\$147,913) and Natural Gas Extraction (\$125,736).

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		Emplo	0110118001	Average Earnings Per Job						
NAICS Industry			, Ch	ange			Char	nge		
	2022	2012	Total	percent	2022	2012	Total	%		
Copper, Nickel, Lead and Zinc Mining	10,426	10,040	385	3.8%	\$121,449	\$97,694	\$23,755	24.3%		
Construction Sand and Gravel Mining	432	354	78	22.0%	\$74,489	\$49,176	\$25,313	51.5%		
Support Activities for Nonmetallic Minerals (except Fuels) Mining	249	202	46	22.8%	\$148,295	\$130,332	\$17,963	13.8%		
Support Activities for Metal Mining	211	176	35	19.8%	\$106,487	\$59,013	\$47,474	80.4%		
Crushed and Broken Granite Mining and Quarrying	179	86	93	108.2%	\$82,876	\$50,994	\$31,883	62.5%		
Gold Ore Mining	173	174	(1)	-0.7%	\$147,913	\$104,093	\$43,820	42.1%		
Other Crushed and Broken Stone Mining and Ouarrving	122	309	(187)	-60.5%	\$105,250	\$77,365	\$27,886	36.0%		
Dimension Stone Mining and Quarrying	98	109	(11)	-10.5%	\$61,191	\$36,355	\$24,836	68.3%		
All Other Nonmetallic Mineral Mining	96	127	(81)	-24.6%	\$89,080	\$49,582	\$39,498	79.7%		
Support Activities for Oil and Gas Operations	75	131	(57)	-43.2%	\$109,780	\$41,606	\$68,173	163.9%		
Drilling Oil and Gas Wells	69	125	(56)	-44.5%	\$115,442	\$75,196	\$40,247	53.5%		
Industrial Sand Mining	47	110	(62)	-56.9%	\$51,927	\$77,472	-\$25,546	-33.0%		
Clay and Ceramic and Refractory Minerals Mining	45	14	31	220.6%	\$76,533	\$133,479	-\$56,947	-42.7%		
Natural Gas Extraction	43	79	(36)	-45.4%	\$125,736	\$60,294	\$65,442	108.5%		
Bituminous Coal and Lignite Surface Mining	40	451	(410)	-91.1%	\$166,998	\$109,114	\$57,884	53.0%		

#### Table 4: Arizona NAICS Mining Top 15 Sub-sectors, Employment Changes 2012-2022

Source: Lightcast Industry Table Mining, Quarrying, and Oil Gas Extraction Q1 2023 Data Set April 2023

Table 5 provides an overview of the Top 10 (ranked by unique postings) most in-demand occupations in Arizona's mining industry for 2022. Heavy and Tractor-Trailer Truck Drivers were the most in-demand for

Colorado's mining industry in 2022. According to the Bureau of Labor Statistics (BLS) "Heavy and tractortrailer truck drivers transport goods from one location to another. Most tractor-trailer drivers are long-haul drivers and operate trucks with a total weight exceeding 26,000 pounds for the vehicle, passengers and cargo. These drivers deliver goods over intercity routes that sometimes span several states."<sup>2</sup> This occupation does not require a secondary degree, but generally requires on the job training.

Of the Top 10 most in-demand occupations 40 percent required a Bachelor's degree or higher. For those occupations that require a Bachelor's degree where data was available, they had an average median advertised salary of \$36.59 which is 31 percent higher than the average median advertised salary for non-degree requiring occupations (\$27.83).

Occupation	Unique Postings	Number of Employers	Hourly Median Advertised Salary							
	i ostings	Employers								
Heavy and Tractor-Trailer Truck Drivers	362	10	\$39.57							
Electricians	151	7	\$26.08							
Industrial Engineering Technologists and	1/8	3	Inst Data							
Technicians	140	5	IIISI. Data							
Laborers and Freight, Stock, and Material	115	16	\$18.03							
Movers, Hand	115	10	¥10.00							
Mechanical Engineers*	110	5	Insf. Data							
Electrical Engineers*	106	6	\$33.17							
Managers, All Other*	104	10	\$40.00							
First-Line Supervisors of Mechanics, Installers	94	З	\$37.00							
and Repairers	74	5	<i>407.00</i>							
Civil Engineers*	92	7	Insf. Data							
Production Workers, All Other	91	12	\$18.46							

Source: Lightcast Job Postings Table Q1 2023 Data Set

\*Typically requires a Bachelor's degree or higher

Table 6 provides forward-looking projections for the Top 10 occupations (as ranked by 2021 employment levels) that will be the most in-demand over the next decade (by 2031). The occupations with the highest growth potential by 2031 are expected to be: First-Line Supervisors of Construction Trades and Extraction Workers (+22 percent), Continuous Mining Machine Operators (+18 percent) and Electricians (+18 percent). Only one of the Top 10 Occupations is expected to decrease over the next decade, Loading and

<sup>&</sup>lt;sup>2</sup> <u>https://www.bls.gov/ooh/transportation-and-material-moving/heavy-and-tractor-trailer-truck-drivers.htm#tab-2</u>

Moving Machine Operators, Underground Mining (-13 percent). None of the projected Top 10 Mining Industry Occupations in Arizona require postsecondary degrees.

Table 6: Top 10 Mining Industry Occupations, Arizona 2021 & 2031											
Description	Employment (2021)	Employment (2031)	Change	% Change	% of Industry Jobs (2021)	Median Hourly Earning s					
Continuous Mining Machine Operators	1,138	1,338	200	18%	9.5%	\$22.41					
Mobile Heavy Equipment Mechanics, Except Engines	1,124	1,239	114	10%	9.3%	\$28.65					
Operating Engineers and Other Construction Equipment Operators	974	1,118	144	15%	8.1%	\$23.09					
Heavy and Tractor-Trailer Truck Drivers	645	720	74	11%	5.4%	\$22.83					
First-Line Supervisors of Construction Trades and Extraction Workers	456	558	101	22%	3.8%	\$30.30					
Maintenance and Repair Workers, General	341	395	54	16%	2.8%	\$18.15					
Underground Mining Machine Operators, All Other	340	366	25	7%	2.8%	\$29.07					
Electricians	332	390	58	18%	2.8%	\$22.94					
Loading and Moving Machine Operators, Underground Mining	323	281	(42)	-13%	2.7%	\$27.82					
Excavating and Loading Machine and Dragline Operators, Surface Mining	308	342	34	11%	2.6%	\$22.47					

Source: Lightcast Staffing Patterns Table Q4 2022 Data Set

#### Colorado

Mining has been a significant part of Colorado's development and history. At one point, it was once the leading producer of gold in the United States, and it continues to be a major producer of a variety of minerals, including molybdenum, silver and coal. With the push to reduce carbon emissions globally the demand for coal will likely decline and put downward pressure on Colorado's mining industry. Colorado may be able to offset the reduction in coal demand through its gold, molybdenum and natural gas reserves.

Figure 5 details Colorado's Mining industry's share of overall employment and earnings from 1969 projected to 2033. Colorado's Mining Industry's share of overall earnings have outpaced its share of overall employment since 1969. Mining jobs in Colorado tend to have higher compensation than other

industries. According to Woods & Poole, Colorado saw the highest employment and earnings levels in 2014 when Mining accounted for 1.87 percent of total employment and 6.57 percent of total earnings.



Figure 5: Share of Mining Industry Employment and Earnings

Source: Woods & Poole

Figure 6 provides a heatmap of how Colorado's Mining Industry is geographically distributed across the state. Most of the employment in 2021 was found in the north and west portion of the state with the highest concentration being found in Weld County followed by Denver and Mesa Counties.

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Case	One	ida Bear l	Lake	,	3,	- (		Goshe	n e	Box Butte							Ante	lope	
						Carbon	Albany					Grant F	looker		Blaine	Garfiel	d	Madis	ion Cumi
	Box Elder	Cache	Llinta	Swee	twater				Banner	Morrill		Arthur		Logan	Custe	r Valley	Boo	ne	Colfax
		Weber	Ointa	1				Laramie		Cheyenn	ne	Keith	Lin	ala		ŀ	loward		Butler
		Davis	Summit	Daggett		Junior				Logan		Perkins	Link	.0111	Dawsor	Buffalo	Hall		Seward
	Tooele	Salt Lake			Moffat	Routt	Larime	er Weld	-		Phillips	Chase	Hayes	Fronti	er Pł	nelps	Adams	Fillmo	ore
		Utah	Duchesi	ne Llintab	Pio Blanco	Gran	nd Bould	ler	Morgan		Yuma	Dundy			Furnas	Frankl	in Nuc	colls	Ga
	luab		Carbon		Gart	ield Eagle C	lear Creek	Ada	ms		c	heyenne	e	Decatu	r P	hillips	Jewe	1	M
	Juno	Sanpete	e			Lake		Douglas Elbe	ert	Kit (	Carson	Sherman			Graham		Mitch	ell	Clay
	Millard	Sevier	Emery	Grand	Mesa Delta	Pitkin Lake	Park Te	ller El Paso	Linc	oln Che	yenne	Wallace		Gove	Trego	Ellis	Linco	n (	Dickinson
	Beaver	Piute	Wavne	$\mathbf{Y}$	Montrose		Fremor	nt	Crowley	Kiov	wa (	Greeley		Lane	Ness	Bar	ton	AcPher	rson
	Iron	Garfield	4 F	1	Ouray	Saguach	e Cust	Pueblo	Otero	Bent	н	lamilton	Finne	H	odgema E	n dwards	Rei	10 Ha	irvey
2021	1 Jobs		-	San Juan	Dolores	A	amosa	uerfano Las	s Animas	;		Gr	ant		Ford	Kiowa	Kingn	nan	bulle
	gt <b>5;89</b> 8	Kane	L	N	Nontezuma	Archuleta Conej	os			E	Baca I	Morton	Sewa	ard	Clark	Ba	rber	Sun	nner (
	4,708 to 1,437 to	5,897 5,707				Rio Arriba	Trac	Colfax		Cir	marron	Теха	IS	Beaver	Harp	er	Alfalfa		Kay
	713 to 3	1,436			San Juan	NO AITIDA	Taos		Unic	Da Da	allam	Hans	ford		Ellis		Major (	arfield	L L
Mohave	0 to 228	3 Coconino			McKinley	Los Alam	os	Mora H	larding	Ha	artley	Hutch	inson	Hem	ohill © Map	TileF US BR	Blaine	Lo,	gan

Figure 6: Mining, Quarrying, and Oil and Gas Extraction Workforce Map, Colorado 2021

Source: Lightcast Mining, Quarrying, and Oil and Gas Extraction Industry Snapshot Q4 2022 Data Set

Since 2012 the overall level of employment has decreased over time. According to data provided by Lightcast, Colorado's mining industry has decreased by 33.4 percent from 2012 to 2022 (from 31,017 to 20,645 a decline of 10,372 jobs).

Table 7 provides an overview of the change in employment and average earnings per job across the Top 15 (ranked by 2022 employment size) Mining NAICS Industry sub-sectors. Support Activities for Oil and Gas Operations, the largest sub-sector (accounting for over 40 percent of Mining industry employment), saw a 33.9 percent decrease over the ten-year period. Only, three out of the top 15 industries experienced growth over the 10-year period. Drilling Oil and Gas Wells (which had the fourth most employees in 2012) dropped by 61.5 percent.

While employment saw a decrease over this timeframe, Average Earnings per job has increased by 46.6 percent (from \$122,173 to \$179,050 a rise of \$56,877). The largest increases were seen in: Crude Petroleum Extraction (+79.1 percent), Crushed and Broken Granite Mining and Quarrying (+71.8 percent) and Construction Sand and Gravel Mining (+52.8 percent). Crude Petroleum Extraction (the second largest employment industry) had average earnings of \$332,703. The next closest sub-sector is All Other Nonmetallic Mineral Mining (ex: gypsum, soapstone, mica, talc and pyrophyllite)<sup>3</sup> with an average earnings per job of \$231,631.

<sup>&</sup>lt;sup>3</sup> https://www.ibisworld.com/classifications/naics/212399/all-other-nonmetallic-mineral-mining/

		Empl	oyment		Average Earnings Per Job					
NAICS Industry	AICS Industry			nge			Chan	ge		
	2022	2012	Total	%	2022	2012	Total	%		
Support Activities for Oil and Gas Operations	8,590	13,001	(4,412)	-33.9%	\$124,991	\$92,883	\$32,108	34.6%		
Crude Petroleum Extraction	4,679	6,307	(1,628)	-25.8%	\$332,703	\$185,780	\$146,923	79.1%		
Natural Gas Extraction	2,108	2,950	(842)	-28.5%	\$200,680	\$184,559	\$16,120	8.7%		
Drilling Oil and Gas Wells	979	2,546	(1,567)	-61.5%	\$122,271	\$97,649	\$24,622	25.2%		
Bituminous Coal Underground Mining	756	1,819	(1,064)	-58.5%	\$117,334	\$102,359	\$14,975	14.6%		
Construction Sand and Gravel Mining	714	679	35	5.2%	\$87,215	\$57,075	\$30,139	52.8%		
Gold Ore Mining	634	721	(88)	-12.1%	\$151,401	\$149,745	\$1,656	1.1%		
All Other Metal Ore Mining	612	939	(327)	-34.8%	\$123,575	\$96,177	\$27,398	28.5%		
Bituminous Coal and Lignite Surface Mining	339	482	(143)	-29.6%	\$123,517	\$91,450	\$32,067	35.1%		
Support Activities for Metal Mining	291	379	(87)	-23.1%	\$157,839	\$138,100	\$19,739	14.3%		
Dimension Stone Mining and Quarrying	220	241	(21)	-8.6%	\$57,019	\$41,859	\$15,160	36.2%		
Crushed and Broken Granite Mining and Quarrying	141	57	84	146.3%	\$90,982	\$52,971	\$38,012	71.8%		
Support Activities for Coal Mining	101	389	(288)	-74.0%	\$73,788	\$73,227	\$560	0.8%		
All Other Nonmetallic Mineral Mining	97	167	(70)	-41.8%	\$231,631	\$163,385	\$68,247	41.8%		
Potash, Soda and Borate Mineral Mining	88	0	88	N/A	\$216,184	\$0	\$216,184	N/A		

#### Table 7: Colorado NAICS Mining Top 15 Sub-sectors Employment Changes 2012-2022

Source Lightcast Industry Table Mining, Quarrying and Oil Gas Extraction Q1 2023 Data Set April 2023

\*Typically requires a Bachelor's degree or higher

Table 8 provides an overview of the Top 10 (ranked by unique postings) most in-demand occupations in Colorado's mining industry for 2022. Heavy and Tractor-Trailer Truck Drivers were the most in-demand for Colorado's mining industry in 2022. According to the Bureau of Labor Statistics (BLS) This occupation does not require a secondary degree, but generally requires on the job training.

Of the Top 10 most in-demand occupations 50 percent required a Bachelor's degree or higher. For those occupations that require a Bachelor's degree they had an average median advertised salary of \$48.89 which is 86 percent higher than the average median advertised salary for non-degree requiring occupations (\$26.26).

Table 8: Top 10 Mining Industry Job Postings, Colorado 2022										
Occupation	Unique Postings	Number of Employers	Hourly Median Advertised Salary							
Heavy and Tractor-Trailer Truck Drivers	434	37	\$26.95							
Accountants and Auditors*	151	37	\$38.52							
Production Workers, All Other	150	24	\$26.52							
Industrial Engineering Technologists and Technicians	144	28	\$24.98							
Managers, All Other*	123	38	\$56.00							
Computer Occupations, All Other*	113	21	\$57.23							
Laborers and Freight, Stock and Material Movers, Hand	99	25	\$19.75							
Civil Engineers*	88	11	\$55.38							
Human Resources Specialists*	84	27	\$37.29							
First-Line Supervisors of Construction Trades and Extraction Workers	76	18	\$33.11							

Source: Lightcast Job Postings Table Q1 2023 Data Set

\*Typically requires a Bachelor's degree or higher

Table 9 provides forward-looking projections for the Top 10 occupations (as ranked by 2021 employment levels) that will be the most in-demand over the next decade (by 2031). The occupations with the highest growth potential by 2031 are expected to be: Derrick Operators, Oil and Gas (+11 percent) and General and Operations Managers (+9 percent). 5 of the Top 10 most in-demand occupations are expected to experience a decline, with the largest decline expected to be seen in Service Unit Operators, Oil and Gas. According to the BLS Service Unit Operators "Operate equipment to increase oil flow from producing wells or to remove stuck pipe, casing, tools, or other obstructions from drilling wells. Includes fishing-tool technicians."<sup>4</sup> Three of the projected Top 10 occupations require a Bachelor's Degree.

<sup>&</sup>lt;sup>4</sup> <u>https://www.bls.gov/ooh/about/data-for-occupations-not-covered-in-detail.htm</u>

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Description	Employment (2021)	Employment (2031)	Change	% Change	% of Industry Jobs (2021)	Median Hourly Earning s
Service Unit Operators, Oil and Gas	2,030	1,545	(485)	-24%	10.0%	\$24.71
First-Line Supervisors of Construction Trades and Extraction Workers	1,274	1,202	(73)	-6%	6.3%	\$36.10
Roustabouts, Oil and Gas	1,133	1,165	33	3%	5.6%	\$22.47
Accountants and Auditors*	709	696	(12)	-2%	3.5%	\$37.44
Heavy and Tractor-Trailer Truck Drivers	634	637	2	0%	3.1%	\$23.70
Operating Engineers and Other Construction Equipment Operators	598	592	(6)	-1%	3.0%	\$23.48
Petroleum Engineers*	548	537	(11)	-2%	2.7%	\$62.33
General and Operations Managers*	503	548	45	9%	2.5%	\$54.54
Continuous Mining Machine Operators	474	479	5	1%	2.3%	\$29.45
Derrick Operators, Oil and Gas	457	507	50	11%	2.3%	\$19.11

#### Table 9: Top 10 Mining Industry Occupations, Colorado 2021 & 2031

Source: Lightcast Staffing Patterns Table Q4 2022 Data Set

#### Utah

Utah is a leading producer of copper, gold, silver, molybdenum and potash. It also has considerable coal and oil shale reserves. Copper offers an opportunity for the state's mining industry as the demand for electric vehicles and renewable energy technologies may provide increased demand, so long as the ore grades are sufficient for industrial uses. Potash mining in Utah presents a unique opportunity. With its use in fertilizers, demand for potash may grow as global food demand rises. However, the state may also see decreased demand for coal as a result of declining consumption and an increased push for cleaner alternatives.

Figure 7 details Utah's Mining industry's share of overall employment and earnings from 1969 projected to 2033. Utah's Mining Industry's share of overall earnings have outpaced its share of overall employment since 1969. Mining jobs in Utah tend to have higher compensation than other industries. According to Woods & Poole, Utah saw the highest employment and earnings levels in 1981 when Mining accounted for 1.76 percent of total employment and 3.34 percent of total earnings.



Figure 7: Share of Mining Industry Employment and Earnings Utah 1969-2033

Source: Woods & Poole

Figure 8 provides a heatmap of how Utah's Mining Industry is geographically distributed across the state. Most of the employment in 2021 was found in the north-east portion of the state with the highest concentration being found in Salt Lake followed by Duchesne and Uintah Counties.

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#### Figure 8: Mining, Quarrying, and Oil and Gas Extraction Workforce Map, Utah 2021

Source: Lightcast Mining, Quarrying, and Oil and Gas Extraction Industry Snapshot Q4 2022 Data Set

Since 2012 the overall level of employment has decreased over time. According to data provided by Lightcast, Utah's mining industry has decreased by 25.9 percent from 2012 to 2022 (from 12,735 to 9,430 a decline of 3,304 jobs).

Table 7 provides an overview of the change in employment and average earnings per job across the Top 15 (ranked by 2022 employment size) Mining NAICS Industry sub-sectors. Support Activities for Oil and Gas Operations, the largest sub-sector (accounting for over 22 percent of Mining industry employment), saw a 45.9 percent decrease over the ten-year period. Only 6 out of the top 15 industries experienced growth over the 10-year period. The largest decrease was seen in the Crude Petroleum Extraction sub-sector which decreased by 64.2 percent. However, there were some sub-sectors that experienced substantial growth including: Bituminous Coal and Lignite Surface Mining (+478.3 percent) and Construction Sand and Gravel Mining (+61.9 percent).

While employment saw a decrease over this timeframe, Average Earnings per job has increased by 14.4 percent (from \$90,876 to \$104,007 a rise of \$13,131). The largest increases were seen in: Construction Sand and Gravel Mining (+91.3 percent) and Other Chemical and Fertilizer Mineral Mining (+69.4 percent).

	Employment					Average Earnings Per Job				
NAICS Industry			Cha	ange			Chan	ge		
	2022	2012	Total	%	2022	2012	Total	%		
Support Activities for Oil and Gas Operations	2,075	3,837	(1,762)	-45.9%	\$81,933	\$73,550	\$8,383	11.4%		
Construction Sand and Gravel Mining	1,324	818	507	61.9%	\$89,093	\$46,584	\$42,510	91.3%		
Copper, Nickel, Lead and Zinc Mining	1,230	1,639	(410)	-25.0%	\$106,480	\$96,122	\$10,358	10.8%		
Bituminous Coal Underground Mining	930	1,587	(657)	-41.4%	\$104,456	\$89,501	\$14,956	16.7%		
Support Activities for Metal Mining	620	834	(214)	-25.7%	\$153,899	\$140,382	\$13,517	9.6%		
Crude Petroleum Extraction	537	1,500	(963)	-64.2%	\$151,105	\$122,924	\$28,182	22.9%		
Drilling Oil and Gas Wells	431	809	(377)	-46.7%	\$94,735	\$93,624	\$1,111	1.2%		
Iron Ore Mining	359	0	359	N/A	\$112,928	\$0	\$112,928	N/A		
Natural Gas Extraction	301	302	(1)	-0.4%	\$153,965	\$136,409	\$17,556	12.9%		
Support Activities for Coal Mining	232	208	24	11.6%	\$103,086	\$124,238	-\$21,152	-17.0%		
Other Chemical and Fertilizer Mineral Mining	211	102	109	106.9%	\$80,090	\$47,266	\$32,824	69.4%		
Bituminous Coal and Lignite Surface Mining	187	32	155	478.3%	\$112,398	\$93,531	\$18,867	20.2%		
Phosphate Rock Mining	136	144	(8)	-5.9%	\$144,272	\$103,965	\$40,307	38.8%		
All Other Nonmetallic Mineral Mining	127	206	(78)	-38.2%	\$88,841	\$89,851	-\$1,010	-1.1%		
All Other Metal Ore Mining	127	111	16	14.5%	\$95,713	\$69,525	\$26,188	37.7%		

#### Table 10: Utah NAICS Mining Top 15 Sub-sectors, Employment Changes 2012-2022

Source: Lightcast Industry Table Mining, Quarrying and Oil Gas Extraction Q1 2023 Data Set April 2023

Table 11 provides an overview of the Top 10 (ranked by unique postings) most in-demand occupations in Utah's mining industry for 2022. Heavy and Tractor-Trailer Truck Drivers were the most in-demand for Utah's mining industry in 2022. According to the Bureau of Labor Statistics (BLS) This occupation does not require a secondary degree, but generally requires on the job training.

Of the Top 10 most in-demand occupations 20 percent required a Bachelor's degree or higher. For those occupations that require a Bachelor's degree they had an average median advertised salary of \$35.03

which is 45 percent higher than the average median advertised salary for non-degree requiring occupations (\$24.11).

Table 11: Top 10 Mining Industry Job Postings, Utah 2022									
Occupation	Unique Postings	Number of Employers	Hourly Median Advertised Salary						
Heavy and Tractor-Trailer Truck Drivers	87	7	\$42.95						
Laborers and Freight, Stock and Material Movers, Hand	85	12	\$19.45						
Managers, All Other*	67	12	\$45.54						
Production Workers, All Other	63	12	\$26.95						
Accountants and Auditors*	45	6	\$24.52						
Maintenance and Repair Workers, General	42	10	\$19.50						
Customer Service Representatives	35	13	\$15.45						
Bookkeeping, Accounting and Auditing Clerks	34	6	Insf. Data						
Automotive Service Technicians and Mechanics	31	6	\$24.98						
Construction Laborers	30	11	\$19.51						

Source: Lightcast Job Postings Table Q1 2023 Data Set

\*Typically requires a Bachelor's degree or higher

Table 12 provides forward-looking projections for the Top 10 occupations (as ranked by 2021 employment levels) that will be the most in-demand over the next decade (by 2031). The occupations with the highest growth potential by 2031 are expected to be: Roustabouts, Oil and Gas (+84 percent), Service Unit Operators, Oil and Gas (+52 percent) and Heavy and Tractor-Trailer Truck Drivers (+51 percent). All of the Top 10 most in-demand occupations are expected to experience an increase. Only one of the projected Top 10 occupations for Utah require a Bachelor's Degree.

	· · · · · · · · · · · · · · · · · · ·					
Description	Employment (2021)	Employment (2031)	Change	% Change	% of Industry Jobs (2021)	Median Hourly Earning s
Excavating and Loading Machine and Dragline Operators, Surface Mining	1,001	1,157	156	16%	11.3%	\$22.77
Underground Mining Machine Operators, All Other	490	541	51	10%	5.5%	\$29.44
First-Line Supervisors of Construction Trades and Extraction Workers	484	679	195	40%	5.5%	\$29.86
General and Operations Managers <sup>*</sup>	446	585	139	31%	5.0%	\$30.79
Service Unit Operators, Oil and Gas	433	660	227	52%	4.9%	\$33.81
Heavy and Tractor-Trailer Truck Drivers	365	551	186	51%	4.1%	\$23.35
Operating Engineers and Other Construction Equipment Operators	364	493	129	36%	4.1%	\$23.09
Roustabouts, Oil and Gas	246	453	207	84%	2.8%	\$22.81
Mobile Heavy Equipment Mechanics, Except Engines	204	266	62	30%	2.3%	\$27.45
Industrial Machinery Mechanics	200	287	88	44%	2.2%	\$28.41

#### Table 12: Top 10 Mining Industry Occupations, Utah 2021 & 2031

Source: Lightcast Staffing Patterns Table Q4 2022 Data Set

\*Typically requires a Bachelor's degree or higher

#### Wyoming

Wyoming has a substantial mining industry, due to its reserves of coal, natural gas and trona. Wyoming is the country's largest coal producer, contributing to approximately 40 percent of the nation's total coal. The future of Wyoming's mining industry faces significant challenges over the next decade due to global energy transition which is reducing the overall demand for coal. This shift presents a significant challenge for Wyoming's coal and overall mining industry.

The shift away from coal may bring a temporary increase in the need for natural gas. Natural gas is subject to potential future regulations, which poses a risk to the state developing the long-term infrastructure needed to capitalize on this resource.

While demand for coal and natural gas may see an overall decrease due to transitioning towards more cleaner fuel alternatives, Wyoming may see a benefit from its large trona reserves. Wyoming supplies

about 90 percent of the nation's soda ash, which is used in many applications including lithium batteries and other industrial chemical processes.

Figure 9 details Wyoming's Mining industry's share of overall employment and earnings from 1969 projected to 2033. Wyoming's Mining Industry's share of overall earnings have outpaced its share of overall employment since 1969. Mining jobs in Wyoming tend to have higher compensation than other industries. According to Woods & Poole, Wyoming saw the highest employment and earnings levels in 2008 when Mining accounted for 8.67 percent of total employment and 18.65 percent of total earnings.



Source: Woods & Poole

Figure 8 provides a heatmap of how Wyoming's Mining Industry is geographically distributed across the state. Most of the employment in 2021 is spread across the state with the highest concentration being found in Campbell County followed by Sweetwater and Natrona Counties.



Figure 10: Mining, Quarrying, and Oil and Gas Extraction Workforce Map, Wyoming 2021

Source: Lightcast Mining, Quarrying, and Oil and Gas Extraction Industry Snapshot Q4 2022 Data Set

Since 2012 the overall level of employment has decreased over time. According to data provided by Lightcast, Wyoming's mining industry has decreased by 42.8 percent from 2012 to 2022 (from 27,849 to 15,929 a decline of 11,920 jobs).

Table 7 provides an overview of the change in employment and average earnings per job across the Top 15 (ranked by 2022 employment size) Mining NAICS Industry sub-sectors. Support Activities for Oil and Gas Operations, the largest sub-sector (accounting for over 32 percent of Mining industry employment), saw a 48.2 percent decrease over the ten-year period. Only 6 out of the top 15 industries experienced growth over the 10-year period. The largest decrease was seen in the Other Chemical and Fertilizer Mineral Mining sub-sector which decreased by 76.9 percent. However, there were some sub-sectors that experienced substantial growth including: Construction Sand and Gravel Mining (+62.1 percent) and Crushed and Broken Limestone Mining and Quarrying (+98.1 percent).

While employment saw a decrease over this timeframe, Average Earnings per job has increased by 19.7 percent (from \$98,467 to \$117,891 a rise of \$19,424). The largest increases were seen in: Construction Sand and Gravel Mining (+51.4 percent) and Support Activities for Metal Mining (+49.1 percent).

	<b>,</b>	Employment				Average Earnings Per Job			
NAICS Industry			Cha	nge			Char	ige	
	2022	2012	Total	%	2022	2012	Total	%	
Support Activities for Oil and Gas Operations	5,198	10,042	(4,845)	-48.2%	\$95,824	\$88,685	\$7,139	8.1%	
Bituminous Coal and Lignite Surface Mining	4,271	7,017	(2,746)	-39.1%	\$117,514	\$98,139	\$19,375	19.7%	
Potash, Soda and Borate Mineral Mining	1,673	1,546	126	8.2%	\$151,389	\$113,025	\$38,364	33.9%	
Natural Gas Extraction	1,311	1,995	(684)	-34.3%	\$169,983	\$129,537	\$40,446	31.2%	
Crude Petroleum Extraction	905	2,577	(1,672)	-64.9%	\$165,980	<b>\$120,76</b> 2	\$45,218	37.4%	
Drilling Oil and Gas Wells	875	2,657	(1,781)	-67.1%	\$111,608	\$105,168	\$6,440	6.1%	
Clay and Ceramic and Refractory Minerals Mining	688	664	25	3.7%	\$81,933	\$62,158	\$19,775	31.8%	
Construction Sand and Gravel Mining	261	161	100	62.1%	\$82,415	\$54,420	\$27,995	51.4%	
Bituminous Coal Underground Mining	239	0	239	N/A	\$130,814	N/A	N/A	N/A	
Support Activities for Coal Mining	160	392	(231)	-59.1%	\$69,519	\$60,094	\$9,425	15.7%	
Uranium-Radium- Vanadium Ore Mining	85	320	(235)	-73.5%	\$112,259	\$94,120	\$18,140	19.3%	
Support Activities for Nonmetallic Minerals (except Fuels) Mining	68	53	15	28.6%	\$76,695	\$56,651	\$20,044	35.4%	
Other Chemical and Fertilizer Mineral Mining	53-	230	(177)	-76.9%	\$114,973	\$82,667	\$32,305	39.1%	
Support Activities for Metal Mining	50	150	(101)	-67.0%	\$114,437	\$76,735	\$37,702	49.1%	
Crushed and Broken Limestone Mining and Quarrying	25	12	12	98.1%	\$56,035	\$54,731	\$1,304	2.4%	

#### Table 13: Wyoming NAICS Mining Top 15 Sub-sectors, Employment Changes 2012-2022

Source: Lighteast Industry Table Mining, Quarrying, and Oil Gas Extraction Q1 2023 Data Set April 2023

Table 14 provides an overview of the Top 10 (ranked by unique postings) most in-demand occupations in Wyoming mining industry for 2022. Heavy and Tractor-Trailer Truck Drivers were the most in-demand for Wyoming mining industry in 2022. According to the Bureau of Labor Statistics (BLS) This occupation does not require a secondary degree, but generally requires on the job training.

None of the Top 10 most in-demand occupations 20 percent required a Bachelor's degree or higher.

Occupation	Unique Postings	Number of Employers	Hourly Median Advertised Salary
Heavy and Tractor-Trailer Truck Drivers	149	44	\$29.91
Industrial Engineering Technologists and	87	18	\$22.89
Technicians			
Production Workers, All Other	52	21	\$27.20
Automotive Service Technicians and Mechanics	46	18	\$33.85
Electricians	39	11	\$23.00
Power Plant Operators	35	9	\$23.75
Roustabouts, Oil and Gas	35	16	\$20.92
Maintenance and Repair Workers, General	32	18	\$29.91
Control and Valve Installers and Repairers,	31	8	\$40.28
Except Mechanical Door		R	• • • • • • •
Laborers and Freight, Stock and Material	27	12	\$20.74
Movers, Hand	<u>-</u> ,		<i>42000</i>

#### Table 14: Top 10 Mining Industry Job Postings, Wyoming 2022

Source: Lightcast Job Postings Table Q1 2023 Data Set

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Table 15 provides forward-looking projections for the Top 10 occupations (as ranked by 2021 employment levels) that will be the most in-demand over the next decade (by 2031). Only one occupation is expected to grow by 2031, Wellhead Pumpers (+2 percent). Only one of the projected Top 10 occupations for Wyoming requires a Bachelor's Degree.

Description	Employment (2021)	Employment (2031)	Change	% Change	% of Industry Jobs (2021)	Median Hourly Earning s
Roustabouts, Oil and Gas	1,321	1,100	(221)	-17%	8.7%	\$22.53
Operating Engineers and Other Construction Equipment Operators	1,240	1,169	(71)	-6%	8.2%	\$29.53
Heavy and Tractor-Trailer Truck Drivers	926	880	(45)	-5%	6.1%	\$23.56
Service Unit Operators, Oil and Gas	903	735	(168)	-19%	6.0%	\$29.10
First-Line Supervisors of Construction Trades and Extraction Workers	872	797	(76)	-9%	5.8%	\$35.60
Industrial Machinery Mechanics	656	587	(69)	-10%	4.3%	\$36.70
Wellhead Pumpers	496	508	11	2%	3.3%	\$29.98
General and Operations Managers*	436	424	(12)	-3%	2.9%	\$37.89
Excavating and Loading Machine and Dragline Operators, Surface Mining	435	395	(41)	-9%	2.9%	\$36.72
Mobile Heavy Equipment Mechanics, Except Engines	435	406	(29)	-7%	2.9%	\$29.88

#### Table 15: Top 10 Mining Industry Occupations, Wyoming 2021 & 2031

Source: Lightcast Staffing Patterns Table Q4 2022 Data Set

\*Typically requires a Bachelor's degree or higher, (

#### Comparison

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Figure 11 provides employment levels for the mining industry from 2012-2022 for the 5 western states of Nevada, Arizona, Colorado, Utah and Wyoming. Employment in the Mining sector has fallen over time across all five states, however it has been most pronounced in Colorado and Wyoming.



Source: Lightcast Industry Table Mining, Quarrying, and Oil Gas Extraction Q1 2023 Data Set April 2023

Figure 12 shows that while Employment in the mining industry has decreased over time, average earnings across all five states have steadily risen over time, with Colorado dramatically outperforming the other four states, mostly due to increased oil demand and rising prices due to global supply chain issues and production reductions following industry shutdowns in 2020.



Figure 12: Mining Industry Average Earnings Per Job 2012-2022, (NV, AZ, CO, UT, WY)

Source: Lightcast Industry Table Mining, Quarrying, and Oil Gas Extraction Q1 2023 Data Set April 2023

Table 16 provides a summary of the historical trends seen above. On average, across the 5 states, mining employment has decreased by 21.8 percent from 2012 to 2022. Nevada and Arizona have both experienced a significantly lower decrease in employment likely due to being less exposed to decreased demand in the Coal Mining and Oil sub-sectors.

Table 16: Comparison of Mining Industry Employment and Average Earnings Per Job, 2	201	2-
2022 - NV, AZ, CO, UT, WY	-	

	Employment					Average Earnings Per Job				
State			Char	nge			Char	nge		
	2022	2012	Total	%	2022	2012	Total	%		
Nevada	14,945	15,581	(635)	-4.1%	\$125,897	\$99,544	\$26,353	26.5%		
Arizona	12,394	12,727	(333)	-2.6%	\$118,930	\$93,800	\$25,130	26.8%		
Colorado	20,645	31,017	(10,372)	-33.4%	\$179,050	\$122,173	\$56,877	46.6%		
Utah	9,430	12,735	(3,304)	-25.9%	\$104,007	\$90,876	\$13,131	14.4%		
Wyoming	15,929	27,849	(11,920)	-42.8%	\$117,891	\$98,467	\$19,424	19.7%		

Table 17 provides forward-looking projections that show Nevada (+31.9 percent), Arizona (+13.0 percent) and Utah (+27.1 percent) are all expected to experience increased employment within the mining industry through 2031, while Colorado (-4.1 percent) and Wyoming (-11.5 percent) are expected to further contract.

# Table 17: Comparison of Mining Industry Employment Projections, 2022-2031 - NV, AZ, CO, UT, WY

Stata	Empl	oyment	Chang	Change	
State	2022	2031	Total	%	
Nevada	14,945	19,717	4772	31.9%	
Arizona	12,394	14,010	1616	13.0%	
Colorado	20,645	19,801	(844)	-4.1%	
Utah	9,430	11,986	2556	27.1%	
Wyoming	15,929	14,104	(1825)	-11.5%	

Source: Lightcast Regional Comparison by Industry Mining, Quarrying, and Oil Gas Extraction Q4 2022 Data Set

Each of the three states expected to see increased activity within the mining industry are expected to see occupational demand shifts occur as a result of the change within the macro-industry trends. Each state will have to assess their future needs and ensure that postsecondary, vocational, or certificate-granting programs are in place and available for the changing needs of the future workforce. The most in-demand

occupations common across these states, all of which do not require postsecondary degrees, are expected to be:

- **Continuous Mining Machine Operators** •
- Mobile Heavy Equipment Mechanics, Except Engines •
- Heavy and Tractor-Trailer Truck Drivers
- **Operating Engineers and Other Construction Equipment Operators**
- RAFT: FOR DISCUSSION PURPOSES ONI



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