Nevada Bureau of Mines and Geology

Special Publication MI-2023

Metals

Industrial Minerals

Geothermal

Oil and Gas

THE NEVADA MINERAL INDUSTRY 2023

Exploration

Development

Mining

Processing

University of Nevada, Reno

Starting in 1979, NBMG has issued annual reports that describe the mineral (precious and base metals and industrial minerals including aggregate), oil and gas, and geothermal activities and accomplishments. This report describes those accomplishments in Nevada for 2023, which includes production, reserve, and resource statistics; exploration and development.

Nevada Bureau of Mines and Geology

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The Nevada Mineral Industry 2023

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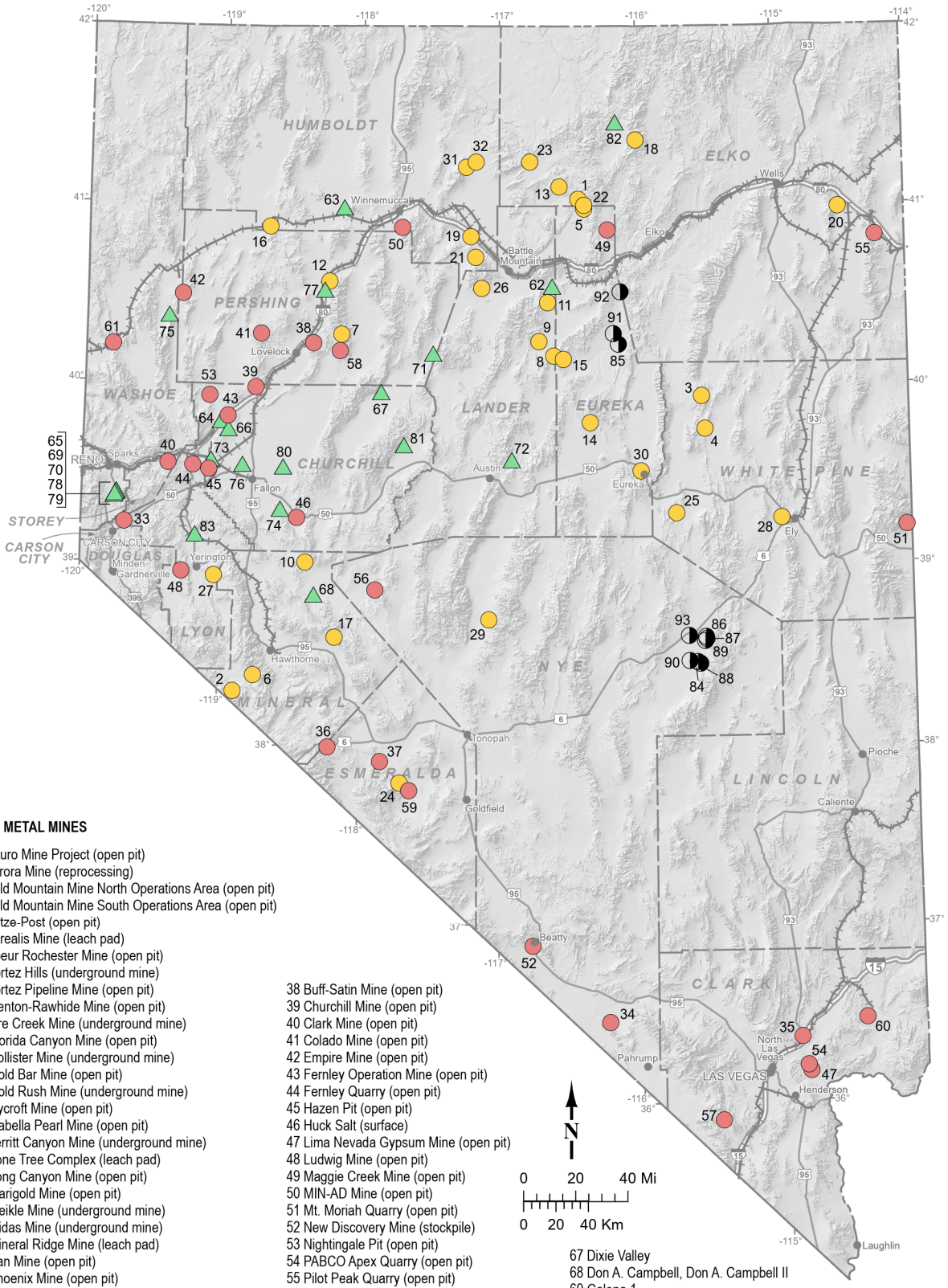

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Major mines, oil fields, and geothermal power plants, 2023.

OVERVIEW

by Simon M. Jowitt

This report highlights activities in 2023 in the exploration and production for metals, industrial minerals, geothermal energy, and petroleum within the state of Nevada. At the time of publication, the 2023 Net Proceeds of Minerals Bulletin had yet to be released by the Nevada Department of Taxation. For this reason, gross proceeds reported in this report should be considered preliminary and are subject to change. Once again, Nevada led the nation in the production of gold ($7.658 billion) and barite ($41.105 million). Nevada also remained the only state that produced lithium compounds from primary extraction ($172.197 million), magnesite ($9.816 million), and the specialty clays, sepiolite and saponite ($12.870 million). Other commodities mined and produced in Nevada in 2023, in order of value, included copper ($439.523 million), aggregate (sand, gravel, and crushed stone; $413 million), geothermal energy ($341.261 million), silver ($118.854 million), diatomite ($58.304 million), gypsum ($48.606 million), limestone and dolomite (mainly for cement, $35.082 million), silica ($22.750 million), and petroleum ($14.633 million). The locations of many of the sites mentioned in the text of this report are shown in Nevada Bureau of Mines and Geology (NBMG) Open-File Report 2023-01, Nevada active mines and energy producers, which is available at https://pubs.nbmg.unr.edu/NV-active-mines-and-energy-2023-p/of2023-01.htm.

Nationwide, Nevada was third to Texas and Arizona in terms of value of overall nonfuel commodities (i.e., excluding oil, gas, coal, uranium, and geothermal). However, the majority of Texas' mineral production is cement and aggregates, meaning Nevada was the second most important metal mining state in the U.S. The U.S. Geological Survey (USGS) estimated the value of Nevada's nonfuel mineral production in 2023 to be $8,880 million. This accounts for 8.47% of the total value of nonfuel mineral production nationwide in 2022, down from 9.09% in 2022 (USGS, Mineral Commodity Summaries 2024, https://pubs.usgs.gov/periodicals/mcs2024/mcs2024.pdf). Texas was first in nonfuel production as a result of cement and aggregate production as outlined above, with Arizona second, reflecting its dominant position as the main copper producing state within the U.S. With Nevada third, Minnesota was fourth as a result of iron ore, lime, aggregate, and dimension stone production, and California was fifth as a result of boron minerals, aggregate, and rare earth element production. The contributions that mining makes to the economies of Nevada and the U.S. remain significant and in fact are increasing in terms of jobs, commerce, taxes, improvements to infrastructure, supporting domestic manufacturing, and lowering of the U.S. trade deficit.

Gold production in Nevada in 2023 was 4,030,556 ounces (125.4 metric tons; table 1), a -0.36% decrease from 2022. The average gold price increased on a year-on-year basis from $1900/oz in 2022 to $1800/oz in 2022, (figs. 1, 2, and 3; data from the USGS, https://pubs.usgs.gov/periodicals/mcs2024/mcs2024.pdf, and the World Gold Council, https://www.gold.org/goldhub/data/gold-demand-by-country). Despite the slight statewide decrease in production, Nevada accounted for 73.8% of U.S. gold production (a total of 5,359,530 ounces or 166.7 metric tons) and ~3.4% of global gold production in 2023, which was approximately 117 million ounces (3,646.1 metric tons; global gold production data from the World Gold Council, https://www.gold.org/goldhub/data). The increase in gold production from a number of countries globally meant that the nations of China, Russia, Australia, Canada, Ghana, Indonesia, Peru, and Mexico now produce more gold than the state of Nevada.

The section on **Metals** provides details on exploration, new deposit discoveries, new mine openings, mine closures, additions to reserves, and mine expansions. As has been the case for many years, gold continues to be the leading commodity produced in Nevada. Production of gold in 2023 came mainly from 10 major mining operations that each produced greater than 100,000 ounces (28.3 metric tons). The share of Nevada's gold production from the Carlin trend also increased from 22.1% in 2022 to 24.3% in 2023.

The World Gold Council and USGS estimate that total world gold production, since the beginning of civilization, has been approximately 6.8 billion ounces (212,520 metric tons), two-thirds of which have been mined since 1950. Nevada and the U.S. have produced a significant portion of the world's gold. Cumulative U.S. production, primarily since 1835, is approximately 638.96 million ounces (19,873 metric tons), which is 9.4% of total world production. Nevada's total production of 257 million ounces (7,993 metric tons) accounts for 40.2% of total U.S. production and approximately 3.78% of total world production. Remarkably, 90.5% of Nevada's gold production has been produced since the Carlin Mine began production in 1965. By the end of 2023, cumulative production from the Carlin trend was at least 98.7 million ounces (3,384 metric tons), assuring its place as one of the most productive gold-mining districts in the world. Notably, the Goldstrike complex produced some 47.8 million ounces (1,486 metric tons) of gold to end-2023, meaning it has overtaken the Homestake Mine in South Dakota (total production of ~44 million ounces or 1,368 metric tons of gold) as the single largest gold producer in North American history.

Nevada continues to be in the midst of the biggest gold boom in U.S. history, as the graph of historical U.S. gold production illustrates (fig. 2). The relatively recent surge in production in the U.S. is largely the result of discoveries of Carlin-type gold deposits and other deposits that contain gold that is primarily in grains that are too small to be visible to the naked eye. These deposits are particularly common in Nevada. The U.S. production so far in the current boom, namely the period since 1981, has been 320 million ounces (9,953 metric tons). This is significantly greater than the total U.S. production during several past eras, including 1) the California gold rush (1849 to 1859, with 29 million ounces or 902 metric tons), although some estimates of unreported production may bring that figure up to 70 million ounces (2,177 metric tons); 2) the Comstock (Nevada) era from 1860 to 1875 with 34 million ounces (1,058 metric tons); and 3) the period from 1897 to 1920, when Goldfield (Nevada), the Black Hills (South Dakota), Cripple Creek (Colorado), and byproduct gold production from copper mines in Arizona and Utah contributed to cumulative production of 95 million ounces (2,955 metric tons). Gold production in the U.S. in the last decade from 2010 through 2023 alone was 94.84 million ounces (2,949 metric tons). Although U.S. gold production has dipped slightly within the last few years, the persistent current boom is larger than previous booms not only in terms of cumulative production but also in terms of peak annual production and duration. The discovery of new deposits such as Merlin and Silicon, likely to come into production in the near future, as well as the continued expansion of Nevada Gold Mines and other operations means this boom is likely to continue for the foreseeable future, especially given current high precious metal prices (despite some challenges in exploration investment). This current boom has also lasted at least 44 years versus no more than 24 years for any of the earlier booms.

Table 1. Quantity and Value of Mineral, Geothermal Power, and Petroleum Production in Nevada.

	2022		2023		% Change 2022 to 2023	
Commodity	**Quantity**	**Gross Value**	**Quantity**	**Gross Value**	**Quantity**	**Gross Value**
Gold	4,044,977 oz	$7,281,322,012	4,030,556 oz	$7,658,056,400	-0.36%	6.99%
Copper	141,769,152 lbs	$567,076,608	109,880,753 lbs	$439,523,012	-22.49%	-25.00%
Silver	5,473,775 oz	$118,854,817	5,527,294 oz	$129,338,680	0.98%	9.88%
Molybdenum	275,620 lbs	$4,950,135	135,796 lbs	$3,424,743	-50.73%	-49.50%
Aggregate	29,600,000 tons	$285,000,000	38,400,000 tons	$413,000,000	29.73%	44.91%
Geothermal energy (sold)	3,964,419 MWh net	$322,617,269	4,312,770 MWh net	$341,260,984	8.79%	5.78%
Barite (shipped from mills)	453,746 tons	$35,890,645	463,781 tons	$41,105,574	2.21%	14.53%
Petroleum (sold)	234,256 barrels	$19,294,008	207,451 barrels	$14,632,688	-11.44%	-24.16%
Gypsum	2,639,564 tons	$48,726,481	1,522,612 tons	$48,606,388	-42.32%	-0.25%
Lithium compounds (shipped)	8,301,221 lbs	$104,231,347	7,218,901 lbs	$172,197,316	-13.04%	65.21%
Diatomite	327,293 tons	$60,206,058	281,924 tons	$58,304,549	-13.86%	-3.16%
Dolomite	50,510 tons	$4,606,561	302,793 tons	$5,675,533	499.47%	23.21%
Limestone*	4,006,902 tons	$31,288,358	3,139,529 tons	$35,081,882	-21.65%	12.12%
Magnesium compounds (shipped)	122,483 tons	$9,404,624	113,387 tons	$9,816,903	-7.43%	4.38%
Perlite	819 tons	$81,904	6,434 tons	$625,247	685.59%	663.39%
Specialty clays (shipped)**	41,565 tons	$15,049,337	39,820 tons	$12,869,790	-4.20%	-14.48%
Salt (shipped)	18,000 tons	$1,533,473	19,626 tons	$1,138,040	9.03%	-25.79%
Silica sand (mined)	771,800 tons	$23,320,237	752,158 tons	$22,749,841	-2.54%	-2.45%
Total Value ($)		**$8,933,453,874**		**$9,407,407,569**		

Notes:

**Limestone quantites and values include dolomite from Apex quarry operated by Lhoist.

**Specialty clays includes bentonite, saponite, sepiolite, smectite, and pozzolan.

$ values are from preliminary and unpublished data from the Nevada Department of Taxation submitted to the Nevada Division of Minerals in 2023 (subject to change) and 2022 barring the six commodities listed below.

1. Gold = NDOM production multiplied by 2023 avg. price of $1900/oz (USGS).
2. Silver = NDOM production multiplied by 2023 avg. price of $23.4/oz (USGS).
3. Copper = NDOM production multiplied by 2023 avg. price of $4.00/lb avg (USGS).
4. Molybdenite = NDOM production times 2023 avg. price $25.2/lb (USGS).
5. Aggregates = Both tonnages and value are sourced from the quarterly USGS Mineral Industry Survey, https://www.usgs.gov/centers/national-minerals-information-center/crushed-stone-statistics-and-information.
6. Geothermal gross revenue as reported from Nevada Department of Taxation.

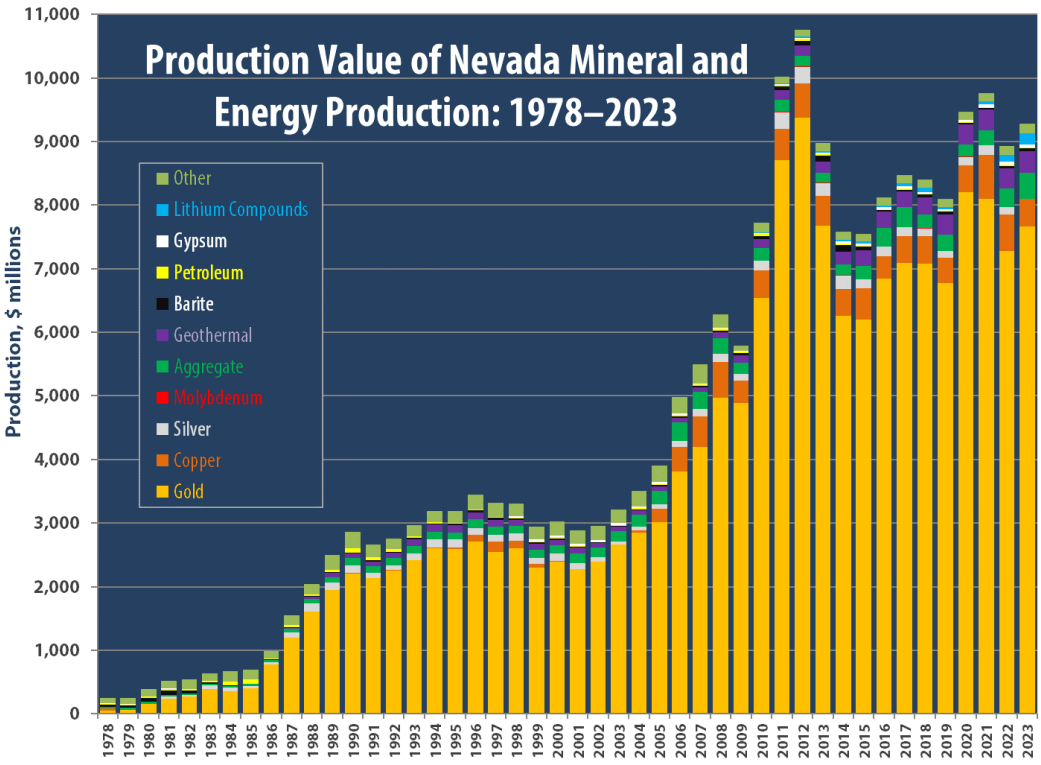

Figure 1. Chart showing relative values of Nevada production of gold, copper, silver, molybdenum, aggregate, geothermal energy, barite, petroleum, gypsum, and other minerals from 1978 to 2023. Molybdenum production is only separated from other minerals from 2011 through to 2023, and Lithium compounds production is only separated out from other minerals for 2021 through to 2023.

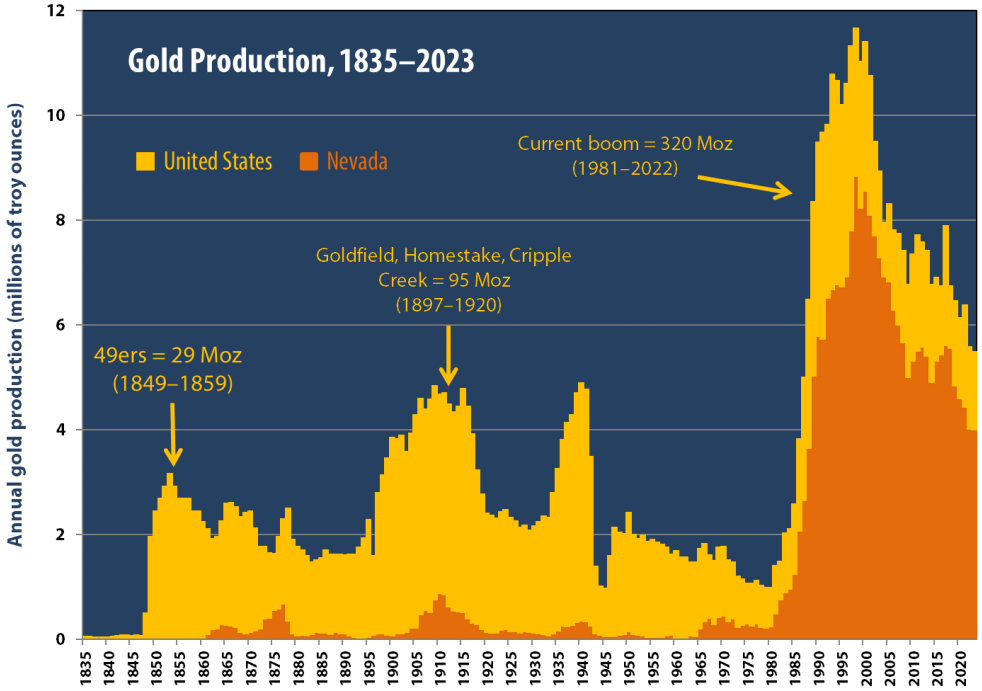

Figure 2. Chart comparing U.S. and Nevada gold production from 1835 to 2023.

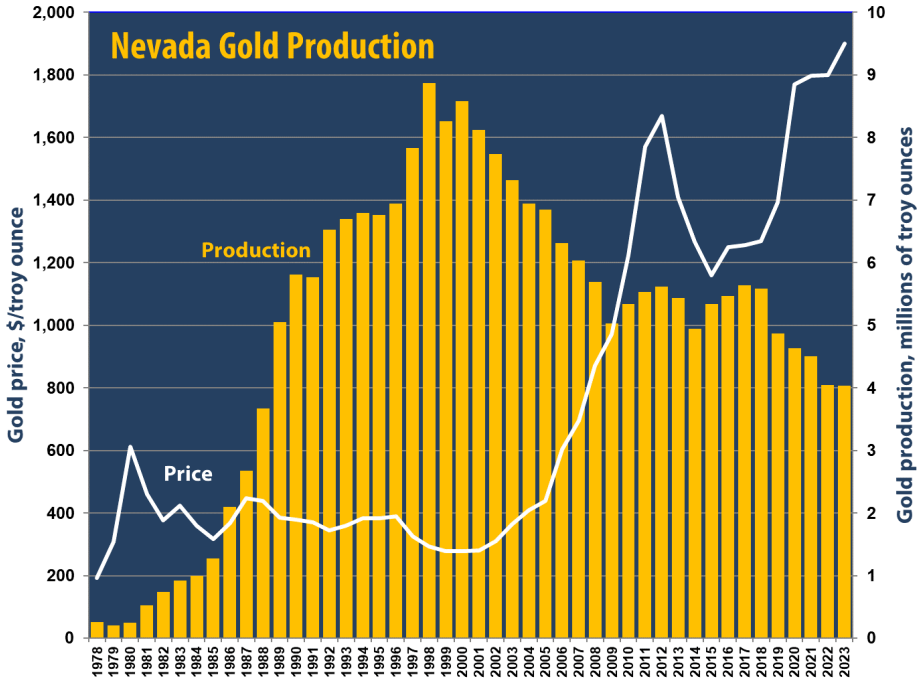

Figure 3. Chart showing Nevada gold production compared to the price of gold from 1978 to 2023.

Barrick Gold Corp. and Newmont Mining Corp. continue to account for the vast majority of Nevada gold production, as has been the case for the last 44 years, with production particularly concentrated around mines in the Carlin trend in northeastern Nevada. The 2019 merger of the majority of the two companies' Nevada operations formed Nevada Gold Mines LLC (NGM), a joint venture where Barrick holds a 61.5% interest and is the operating partner and Newmont holds a 38.5% interest. In all, NGM operates 10 mining operations within northeastern Nevada. The company produced 3,037,097 ounces (94.5 metric tons) of gold in 2023, with 806,638 ounces (25.1 metric tons) of gold produced from underground and open-pit operations at Cortez, including the Cortez Hills open-pit and underground mines and the Pipeline open-pit complex. A further 977,611 ounces (30.4 metric tons) was produced from Carlin trend operations that included multiple open pits and underground operations. NGM's Turquoise Ridge operations in Humboldt County also produced 514,386 ounces of gold (16 metric tons). Other large gold operations include Kinross Gold Corp.'s Round Mountain and Bald Mountain mines that produced 230,857 ounces (7.2 metric tons) and 143,105 ounces (4.45 metric tons) of gold, respectively, in Nye County. SSR Mining's Marigold Mine in Humboldt County also produced 278,448 ounces (8.66 metric tons) of gold in 2023.

Nevada silver production in 2023 totaled 5,527,294 ounces (170.1 metric tons), a 1% increase in quantity but a nearly 10% increase in value from 2022 (fig. 4). A total of 44% of silver production in the state was a byproduct of gold and copper-molybdenum mining. With a ratio of value (average price of gold [$1,900 per ounce] to average price of silver [$23.4 per ounce]) of ~82:1 in 2023, only those deposits with more than 83 times as much silver produced as gold can be truly considered primary silver deposits. As was the case in 2022, only one such mine operated in Nevada in 2023, namely Coeur Mining Inc.'s Rochester Mine in Pershing County. Production from Rochester has a silver:gold ratio of 87:1 and total silver production amounting to 3,390,451 ounces (105.5 metric tons) in 2023, which was 61.3% of the total silver produced in Nevada during this year. Other significant silver producers (>100,000 oz) include KGHM International Ltd.'s Robinson in White Pine County (222,258 ounces; 6.9 metric tons), Kinross Gold Corp.'s Round Mountain (400,231 ounces; 12.4 metric tons), and NGM's Turquoise Ridge (163,388 ounces; 5.1 metric tons) and Phoenix (952,702 ounces; 29.6 metric tons) mines, which produced silver as a byproduct of copper-gold-molybdenum, gold, gold, and gold-copper, respectively.

Nevada copper production in 2023 was again dominated by the Robinson copper-gold-molybdenum mine, operated by KGHM International Ltd. near Ely in White Pine County, which produced 73 million pounds (33,106 metric tons) of copper (fig 5). Copper was also produced at NGM's Phoenix Mine near Battle Mountain in

Lander County, where 35,406,713 million pounds (16,060 metric tons) of copper were produced. At Phoenix, copper is produced on site with a solvent extraction-electrowinning (SX-EW) plant, as well as producing concentrates that are shipped to smelters outside Nevada in a similar approach to KGHM's Robinson Mine. In addition, Nevada Copper's Pumpkin Hollow Mine outside of Yerington in Lyon County produced 1,487,312 million pounds (675 metric tons) of copper in 2022. KGHM's Robinson Mine also produced 135,796 pounds (62 metric tons) of byproduct molybdenum from the Robinson Mine, again the only reported molybdenum production in Nevada in 2023.

Mineral exploration activity in 2023 is summarized in the chapters on **Metals** and **Industrial Minerals**. Most exploration continued to focus on gold; however, companies also explored for lithium, copper, silver, and base metals with significant interest in lithium continuing in the state in a trend that has now extended for close to a decade. The exploration outlook for Nevada remains very positive, with the Fraser Institute's Annual Survey of Mining Companies placing Nevada second after Utah in their global mining investment attractiveness rankings (up from 3rd place in 2021 but down from 1st place in 2022; available at https://www.fraserinstitute.org/studies/annual-survey-of-mining-companies-2023). This decrease reflects a change in the policy perception index value for the state, a value that reflects the effect of policies on mineral exploration and mining in individual jurisdictions; Nevada topped the global rankings for policy perception in 2022 but was ranked 5th in 2023.

In terms of global trends, S&P Global reports that global nonferrous exploration budgets decreased by 3% from $13 billion in 2022 to $12.8 billion in 2023 (https://www.spglobal.com/market-intelligence/en/news-insights/research/mining-exploration-trends-overview-2023). Gold accounted for 46% (down from 53.2%) or $5.92 billion of the total nonferrous global mineral exploration budget, a decrease of 16% from a total gold exploration budget of $7 billion in 2022, despite increasing gold prices that continued and allowed current trends to reach record levels in 2024. The decrease in gold exploration budgets at a rate faster than the overall decrease in exploration spending between 2022 and 2023 reflects a shift away from gold exploration toward energy transition-related metals such as copper, nickel, and lithium. Global copper exploration budgets in 2023 increased by 12% to $3.12 billion, the highest year-over-year increase since 2014 and third consecutive year of a double-digit percentage growth in copper exploration spend. Global lithium exploration budgets rose significantly by 77% from 2022 to 2023 to $829.6 million, including continuing increased exploration activity in Nevada, despite a drop in the lithium price, while nickel budgets rose by 19% from 2022 with an overall spend of $732.2 million in 2023. Silver exploration spending remained somewhat constant from 2022 to 2023. Overall exploration spending in the U.S. rose some 1.4% between 2022 and 2023, although global exploration spending by juniors dropped by 4.5% between 2022 and 2023 to $5.36 billion. This was somewhat counteracted by major companies slightly increasing their exploration spend between 2022 and 2023 by 1.2% to $6.02 billion.

The minimum number of drill projects exploring for metals in 2023 in Nevada increased from 115 projects in 2022 to 123 in 2023 (fig. 6). However, this increase reflects a change in the way the NBMG assesses the annual number of drilling projects, as these statistics include lithium drilling exploration projects from 2023 (i.e., this year) onwards. This means that the apparent increase in drilling projects is artificially inflated by the inclusion of 30 lithium-focused drilling projects, meaning that the number of precious and base metal-focused drilling projects decreased from 115 in 2022 to 93 in 2023. Despite this, advanced exploration projects continued to show promise for major developments, particularly for gold along the Carlin and Battle Mountain–Eureka (Cortez) trends in Eureka, Elko, and Lander counties and within the Walker Lane belt, where the recent significant increase in exploration for epithermal-style mineralization continued on from recent years. Equally importantly for the development of resources in Nevada, although base and precious metal exploration drilling programs decreased in 2023, those that did proceed tended to be larger programs than in previous years, with 52 major drilling programs undertaken in 2023, all but three of which were focused on base and precious metal exploration.

For the first time in the Minerals Industry report, lithium is also included in the Metals section, a departure from previous reporting where lithium was included in the Industrial Minerals chapter. Albemarle Corp.'s Silver Peak operation in Clayton Valley in Esmeralda County, where subsurface brines are evaporated on a playa, remains the only primary producer of lithium in the U.S. (fig. 7). Lithium exploration activity continued at a significant rate in Nevada in 2023, with exploration focus areas including southwestern Nevada, mainly in Clayton Valley, Big Smoky Valley, and at Sarcobatus Flat. Other exploration focused on areas around Gerlach, in northeastern Nevada, and within the Railroad Valley in central Nevada. Lithium Americas Corp. also continued to move forward in the development and construction of its lithium-rich clay resource at Thacker Pass in the sediments of the McDermitt caldera in northern Nevada during the year, near the border with Oregon. In addition, Ioneer Ltd. also continued to move forward with development of its Rhyolite Ridge lithium-rich clay deposit during 2023, which is located 25 km (16 miles) west of Albemarle's Clayton Valley lithium in brine operation. The Rhyolite Ridge deposit also includes significant borate-bearing beds. The NBMG also produced a significant report focused on lithium in 2024 that is available for free download here: https://pubs.nbmg.unr.edu/Lithium-in-Nevada-p/sp040.htm.

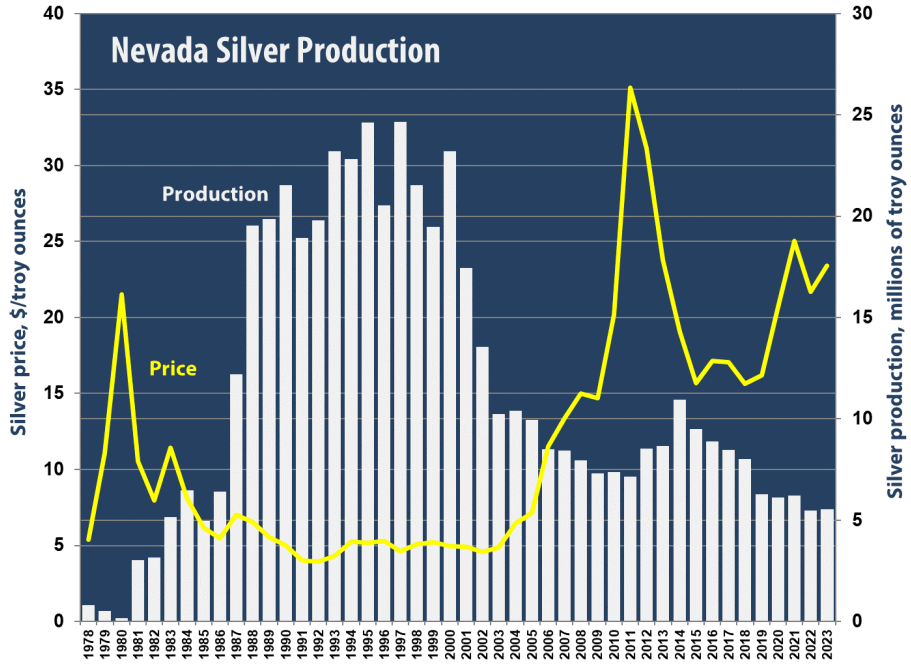

Figure 4. Chart showing Nevada silver production compared to the price of silver from 1978 to 2023.

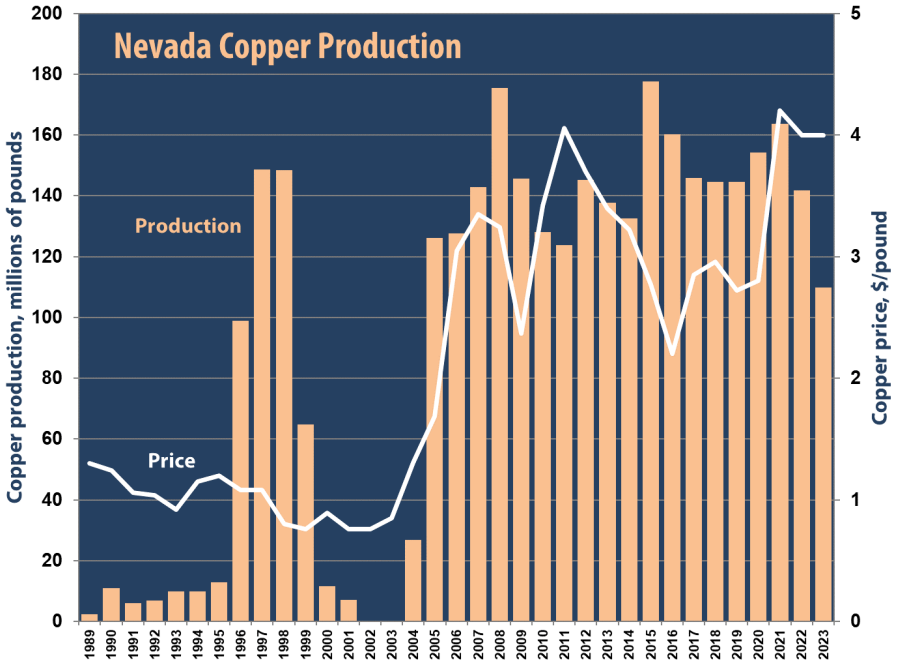

Figure 5. Chart showing Nevada copper production compared to the price of copper from 1989 to 2023.

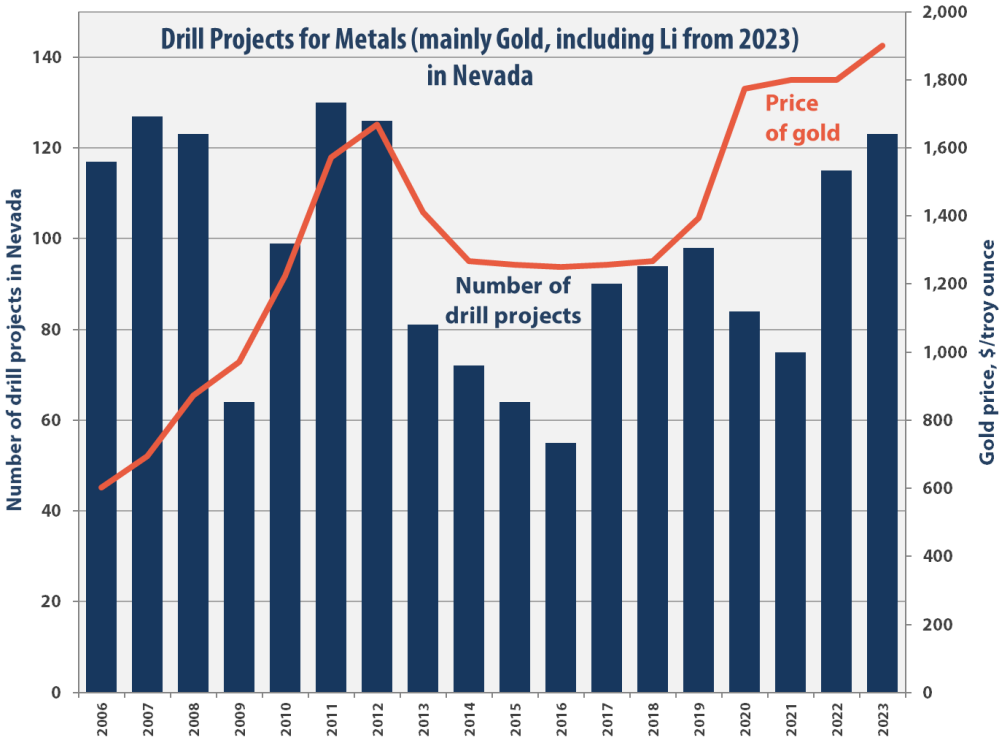

Figure 6. Chart showing number of drill projects targeting metals (mainly gold and lithium, and including lithium for the first time from 2023 onward), from 2006 to 2023. For comparison, the chart also shows the average annual price of gold during that period. The number of drill projects shown is a minimum, given that mining companies and privately held companies are not required to report whether they drilled or their drilling results.

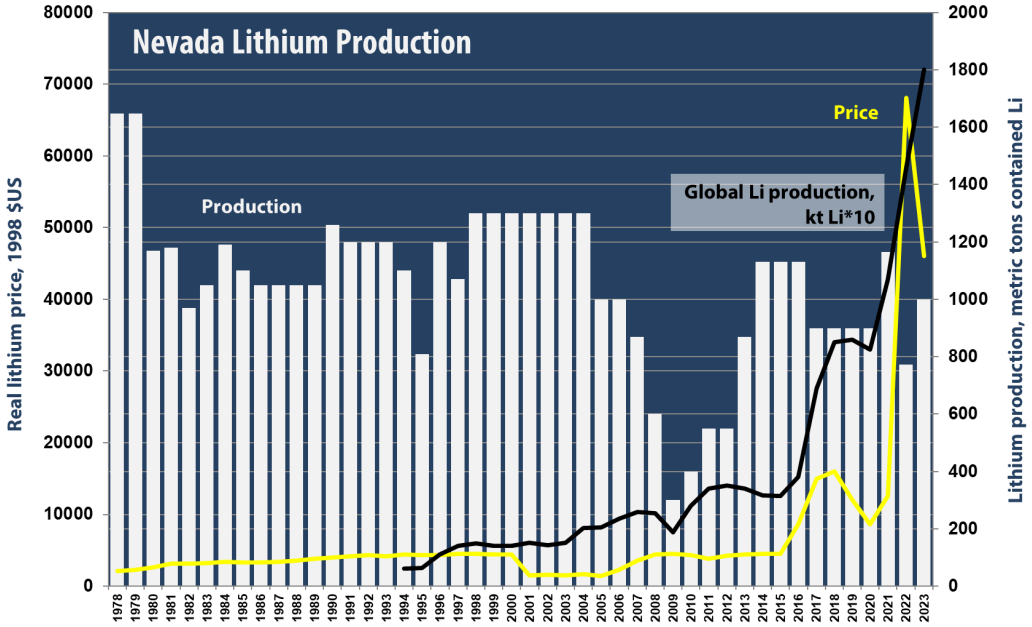

Figure 7. Chart showing Nevada lithium production from 1978 to 2023. Also shown are variations in the global lithium price and global lithium production.

The section on **Industrial Minerals** covers developments during 2023 and provides details about important commodities produced from or processed in Nevada, including aggregate (fig. 8), barite, cement, clays, diatomite, gemstones (opal, turquoise), gypsum, lime, limestone, dolomite, magnesia, perlite, pozzolan, salt, silica, and zeolites. Demand for raw materials for construction will likely continue to grow in the future because of Nevada's increasing population and its need for additional highways and housing. Nevada's estimated population on July 1, 2023 was 3.242 million, a 1.2% increase from 2022 (https://tax.nv.gov/wp-content/uploads/2024/05/2023-Pop-Nevada-Counties-Incorp-Cities-Unincorp-Towns.pdf).

Nevada remained a leader in the domestic production of industrial minerals in 2023. This is demonstrated by Nevada once again being the leading domestic producer of barite, of which more than 90% is used as a weighting agent in drilling fluids for oil and gas wells. Production of barite increased by 2.2% in 2023 (table 1, fig. 9), with barite production from four mines in the state and with barite prices directly tied to the price of oil and gas. A total of 281,924 tons of diatomite was also mined in Nevada throughout 2023 from three different companies across five counties, and Nevada also produced nearly 7% of the total gypsum production in the U.S. in 2023, with total production of 1,522,612 metric tons. Premier Magnesia's Gabbs Mine in Nye County remains the nation's only hard-rock producer of magnesite, accounting for ~27% of national magnesium compound production.

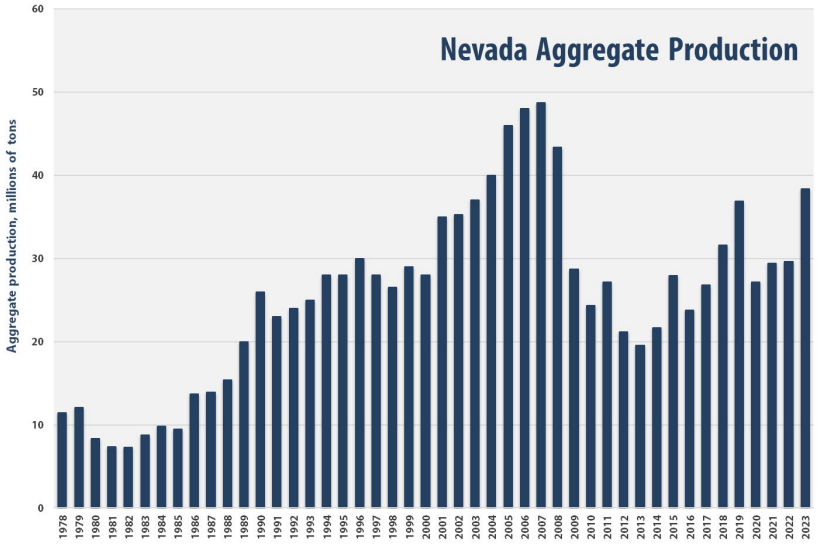

Figure 8. Chart showing Nevada aggregate production from 1978 to 2023.

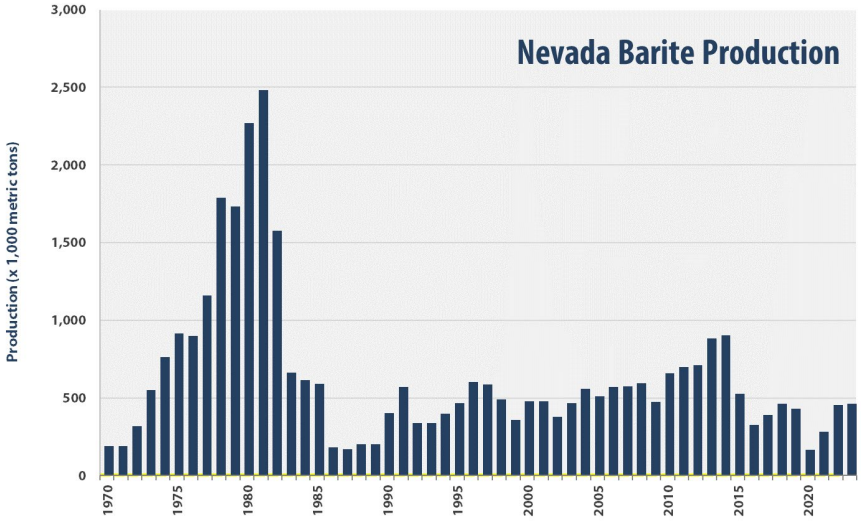

Figure 9. Chart showing Nevada barite production from 1970 to 2023.

The section on **Geothermal Energy** covers updates on exploration, development, and production of geothermal energy in the state in 2023. The state of Nevada in 2023 accounted for approximately 26.1% of the nation's geothermally sourced electricity generation with only California generating more geothermal power (https://www.eia.gov/energyexplained/geothermal/use-of-geothermal-energy.php). Total installed geothermal energy nameplate generation capacity in Nevada in 2023 was ~837.7 MWe (megawatts electric), an increase from 824.53 MWe in 2022 as a result of the connection of Ormat Technologies, Inc geothermal power plant in North Valley. Geothermal sales in 2023 reached 4,312,770 MWh net for a total value of $341,260,574 (fig. 10). In November of 2023, the U.S. Bureau of Land Management (BLM) held a geothermal lease sale, with 45 parcels offered equating to 134,867 acres. Of these parcels 33 were sold for a total of 96,606 acres, a decrease from 2022. In addition to the competitive lease sale, a non-competitive lease sale was held the day after the competitive sale (hence known as the 'day after' sale), with 12 parcels nominated and seven parcels sold totaling 19,230 acres for $22,767. This indicates that an additional 115,836 acres were taken up for geothermal exploration in the state of Nevada in 2023. Geothermal drilling activity in Nevada was low with no new geothermal production wells drilled during 2023, although one geothermal observation well, one injection well, and one temperature-gradient well were drilled during the year. The state of Nevada also issued a total of 18 geothermal drilling permits during the year.

The section on **Oil and Gas** covers updates on exploration, development, and production of oil and gas in Nevada in 2023. According to the Nevada Division of Minerals, Nevada's net oil production was 207,451 barrels in 2023, down 11.4% from 234,256 barrels in 2022 (fig. 11) and accounting for less than 0.004% of total domestic U.S. production. Production in Nevada came from ten fields, seven in Railroad Valley in Nye County that account for 91% of the state's production, and three in Pine Valley in Eureka County, which account for about 9% of the state's production. Gas production in Nevada is minor and comes from the Kate Springs field in Nye County and the Three Bar field in Eureka County, with total gas production for 2023 of 4092 million cubic feet (mcf), a 24.9% decrease from the 5449 mcf produced in 2022.

Local economies continue to benefit from the Nevada minerals and geothermal industries. Construction of new homes, hotels, casinos, other businesses, schools, and roads requires local sources of sand, gravel, crushed stone, gypsum, and raw materials for cement, all of which are abundant in Nevada. According to the U.S. Bureau of Labor Statistics (https://www.bls.gov/data/), mining and logging

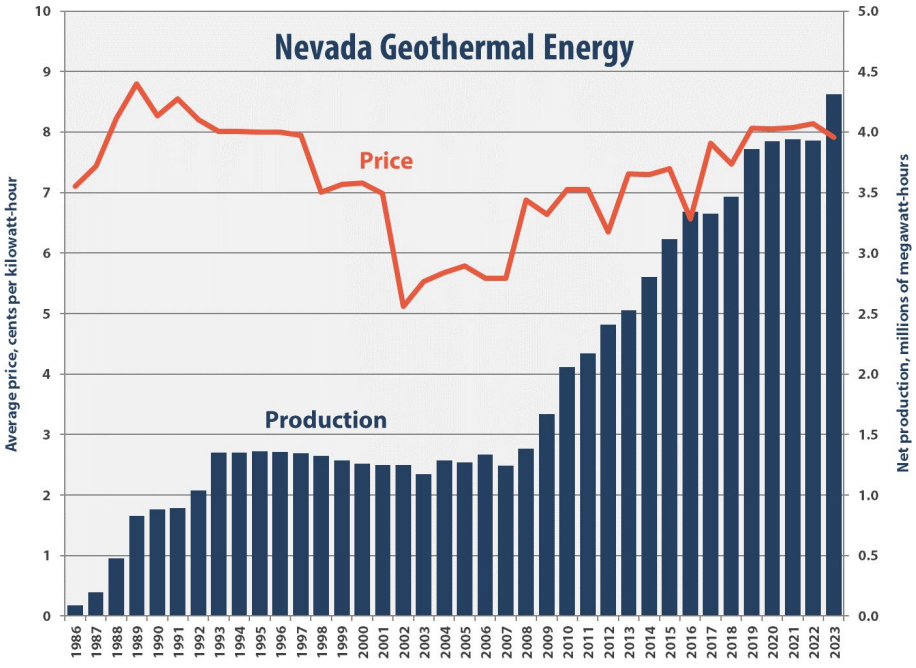

Figure 10. Chart showing net geothermal production in megawatt-hours in comparison to the average price of geothermal power in cents per kilowatt-hour for the period from 1986 to 2023. Note that the average price is based on the total MWh produced and total receipts. Actual prices for any individual power plant may vary and is held confidential by the state energy office.

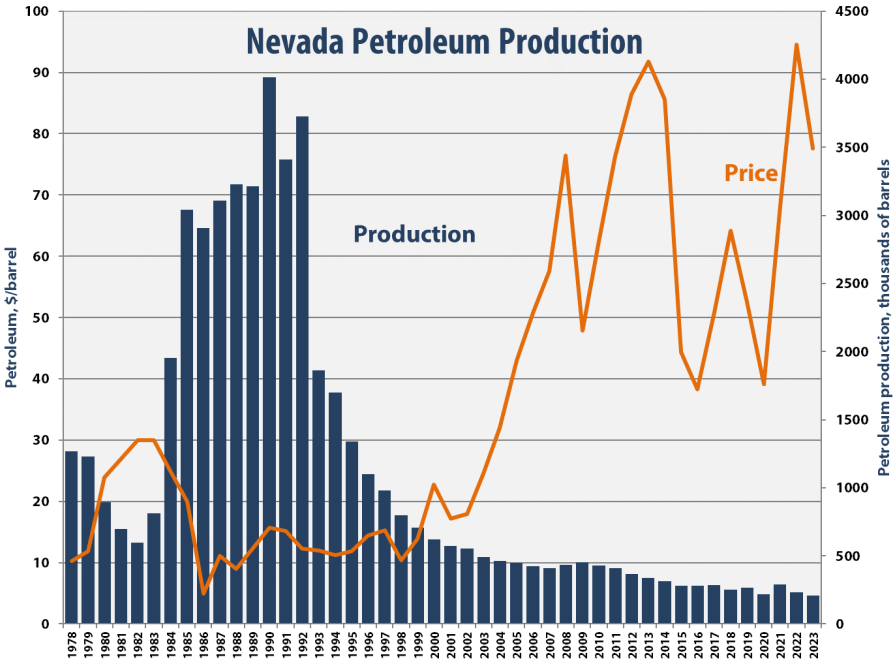

Figure 11. Chart showing Nevada petroleum production from 1978 to 2023.

in Nevada employed an average of 14,900 people in 2023, down slightly from 15,000 people in 2022. The average pay for mineral industry employees during this time was $125,848/year according to the Nevada Governor's Office of Economic Development (https://thenevadaindependent.com/article/rural-nevadans-depend-on-mining-for-good-paying-jobs).

Additional information about the Nevada mineral industry and the U.S. gold industry, including the contents of selected publications, is readily available on line through the Nevada Bureau of Mines and Geology (www.nbmg.unr.edu/) and the Nevada Division of Minerals (http://minerals.state.nv.us/, https://data-ndom.opendata.arcgis.com/). Useful national and international data on nonfuel minerals and energy can be obtained from the U.S. Geological Survey (http://minerals.usgs.gov/minerals/) and the U.S. Energy Information Administration (www.eia.doe.gov), which provide data on oil and gas, geothermal, solar, wind, hydroelectric, and other energy sources. The Nevada Bureau of Mines and Geology supports several interactive maps on the Web that are backed by periodically updated databases on mineral and energy resources as well as potential exploration activity, land ownership and restrictions, and other geographic information (https://data-nbmg.opendata.arcgis.com/).

CONVERSION FACTORS

1 metric ton = 1.1023113 short ton = 1,000 kilograms = 2,204.6226 pounds = 32,150.7 troy ounces.
31.1035 metric tons = 1 million troy ounces (31.1035 grams = 1 troy ounce).
453.592 grams = 1 pound (avoirdupois) = 16 ounces (avoirdupois) = 14.5833 troy ounces.
34.2857 grams per metric ton = 34.2857 parts per million by weight = 1 troy ounce per short ton.

METALS

by Simon M. Jowitt and Travis Fisher

PRODUCTION

In 2023, Nevada produced 4,030,556 ounces (125,364 kg) of gold, 5,527,294 troy ounces (171,918 kg) of silver, 109,880,753 pounds (49,841 metric tons) of copper, 135,796 pounds (61.6 metric tons) of molybdenum, and 7,218,901 pounds (3,274 metric tons) of lithium compounds from 29 active mines and one lithium brine operation. Very small amounts of reported gold production also continued from a single placer operation. Table 1 shows the production of gold, silver, copper, and molybdenum in 2023 by individual producing companies, and table 2 outlines the production from each of the mines that were active in 2023. These data represent information reported to the Nevada Division of Minerals and/or reported in individual companies' annual reports. Reserves at the end of 2023 or at the end of individual company annual reporting periods are shown in table 3 with contained base and precious metal in resources shown in table 4 and with lithium resources and reserve data provided separately in table 5. The average price of gold in 2023 was $1900/oz, up from an average price of $1800/oz in 2022 (data from the USGS, https://pubs.usgs.gov/periodicals/mcs2024/mcs2024-gold.pdf) in a trend of increasing gold prices that continued into 2024.

The Nevada Gold Mines (NGM) joint venture between Barrick and Newmont produced 3,037,097 ounces (94.5 metric tons) of gold, 1,332,464 troy ounces (41.4 metric tons) of silver, and 35,406,713 lbs (16,060 metric tons) of copper. Nevada Gold Mines operated 10 active gold mines, which again accounted for 75% of Nevada's gold production in 2023, consistent with the proportion of Nevada's gold produced by NGM in 2022. The all-in sustaining cost for all of Nevada Gold Mines' production in 2023 was $1,366/oz, up from $1,214/oz in 2022, and the total cash cost for mining varied between $787 and $1,046/oz.

Nevada Gold Mines' Carlin trend operations (including the Carlin Trend Operations proper, Arturo, Betze Post and Meikle) produced 1,419,341 ounces (44,146 kg) of gold, which accounted for ~35% of Nevada's 2023 gold production, slightly increased from ~34% in 2022. The all-in sustaining cost for these operations was $1,486/oz, and the total cash cost was $1,033/oz in 2023. In comparison, NGM's Carlin Trend operations produced 1,579,256 ounces of gold (49,120 kg) in 2022 at all-in sustaining costs of $1,212/oz and total cash costs of $877/oz, indicating a decrease in production and an increase in costs. By the end of 2023, cumulative production from the Carlin trend was 98.7 million ounces (3,384 metric tons) since the original Carlin Mine went into production in 1965.

Nevada Gold Mines' production from the Cortez Complex, which includes the Pipeline open pit, the Cortez Hills open pit, the Cortez Hills underground mine, and the new Goldrush Mine totaled 806,638 ounces (25,089 kg) of gold in 2023, up from 2022 production of 730,913 ounces (22,734 kg) of gold. The all-in sustaining cost for all 2023 production from Cortez was $1,282/oz, up from $1,258/oz in 2022, and the total cash cost was $906/oz, again up from $815/oz in 2022.

Nevada Gold Mines' 2023 production from Turquoise Ridge and Twin Creeks open pits totaled 514,386 ounces (15,999 kg) of gold, up from 458,619 ounces (14,265 kg) in 2022. This 2023 production was at an all-in sustaining cost of $1,234/oz, down from $1,296/oz in 2022, and the total cash cost was $1,026/oz, down from $1,035/oz in 2022. Nevada Gold Mines' 2023 gold production from the Phoenix Mine amounted to 199,994 ounces (6,220 kg) of gold, up from 176,561 ounces (5,492 kg) in 2022. The 2023 all-in sustaining cost at Phoenix was $1,162/oz, up from $1,074/oz in 2022, and the total cash cost was $961/oz, up from $914/oz in 2022.

After Nevada Gold Mines, Nevada's next largest gold producers were Kinross Gold Corp (Round and Bald Mountain and South Operations Area operations), SSR Mining (Marigold Mine), and Florida Canyon Gold (Florida Canyon Mine), which cumulatively produced over 737,061 ounces (22,925 kg) of gold in 2023. All other individual mines produced <50,000 ounces of gold in 2023.

In 2023, Coeur Mining was again the leading silver producer in Nevada at 3,390,451 ounces (105,455 kg) of silver, up from 3,061,924 ounces (95,237 kg) in 2022. All Coeur production came from the low-grade open-pit Rochester Mine, still the only primary silver mine in Nevada. Nevada Gold Mines' Phoenix Mine was the second largest producer, mining 952,702 ounces (29.632 kg) of silver in 2023. Kinross Gold's Nevada mining operations were the third largest silver producer with combined production of 443,310 ounces (13,788 kg). Reported 2023 silver reserves for deposits reporting contained silver in Nevada totaled 260,087,574 ounces (8,089,634 kg), a 17.5% increase over reserves reported in 2022 (221,327,385 ounces or 6,884,051 kg in 2022; table 3). The average price of silver in 2023 was $23.4/oz, a 7.8% increase from the average price of $21.71/oz in 2022.

KGHM International's Robinson Mine produced 66% of Nevada's copper in 2023, down from 76% in 2022, with 2023 production of 72,986,728 pounds (33,106 metric tons) of copper, a 33% decrease from 2022 production of 108,416,295 pounds (49,177 metric tons) of copper. KGHM International also produced 135,796 pounds (61.6 metric tons) of molybdenum from Robinson in 2023, a 50.7% decrease from 2022 production of 275,620 pounds (125 metric tons) of molybdenum. Nevada Gold Mines' Phoenix Mine and Nevada Copper's underground Pumpkin Hollow Mine again made up the balance of Nevada's copper production. The Phoenix Mine produced 35,406,713 pounds (16,060 metric tons) of copper, a 13% increase from 2022 production of 31,341,857 pounds (14,216 metric tons) of copper. The Pumpkin Hollow Mine produced 1,487,312 pounds of copper (674 metric tons) in 2023.

Lithium production in Nevada in 2023 was again restricted to Albemarle's Silver Peak brine operation in Clayton Valley. This brine operation has been in production since 1966, and in 2023 produced 7,218,901 lbs of lithium compounds, down some 13% in terms of amount of production from 2022.

Table 1. 2023 Metallic Mine Production for Nevada by Operating Company

(Nevada Division of Minerals Annual Status and Company Annual Reports)

Operator	Gold 2023 ounces (kg)	Silver 2023 ounces (kg)	Copper 2023 pounds (metric tons)	Molybdenum 2023 pounds (metric tons)
Nevada Gold Mines LLC (61.5% Barrick Gold, 38.5% Newmont Mining)	3,037,097 (94,464)	1,332,464 (41,444)	35,406,713 (16,060)	
Kinross Gold	388,097 (12,071)	443,310 (13,788)		
SSR Mining	278,488 (8,662)	6,173 (192)		
Florida Canyon Gold	70,477 (2,192)	54,720 (1,702)		
I-80 Gold	45,000 (1,400)	11,100 (345)		
McEwen Mining	43,755 (1,361)	696 (22)		
Calibre Mining	41,385 (1,287)	1750 (54)		
Coeur Rochester	38,775 (1,206)	3,390,451 (105,455)		
Fortitude Gold	37,996 (1,182)	41,321 (1,282)		
KGHM International	23,209 (722)	222,258 (6,913)	72,986,728 (33,106)	135,796 (62)
First Majestic Silver	21,101 (656)	None reported		
Rawhide Mining	3,124 (97)	13,319 (414)		
Americas Gold and Silver	733 (23)	2,589 (81)		
Hecla (Klondex)	683 (21)	None reported		
Borealis Mining	423 (13)	929 (29)		
Nevada Copper	212 (7)	6,304 (196)	1,487,312 (675)	
Steven M. Constant	1 (0.03)	None reported		
Totals	**4,030,556 (125,364)**	**5,527,294 (171,918)**	**109,880,753 (49,841)**	**135,796 (62)**
Value ($)	**$7,658 million**	**$129 million**	**$440 million**	**$3.4 million**

EXPLORATION

Exploration activity in Nevada for metals in 2023 saw a decrease from 2022, with major activity in 2023 shown in the map in figure 1. The vast majority of exploration projects continued to target gold with the sustained level of the gold price around $1,900/troy oz. (and increasing into 2024) the most likely cause for continued high levels of exploration along with the favorable view of exploration within the state taken by industry. The latter is evidenced by the results of the 2023 Fraser Institute's Annual Survey of Mining Companies, which saw Nevada place second overall after Utah in their global mining investment attractiveness rankings (up from 3rd place in 2021 but down from 1st place in 2022; available at https://www.fraserinstitute.org/studies/annual-survey-of-mining-companies-2023). This decrease reflects a change in the policy perception index value for the state, a value that reflects the effect of policies on mineral exploration and mining in individual jurisdictions; Nevada topped the global rankings for policy perception in 2022 but was ranked 5th in 2023. Although the 123 drilling projects identified in Nevada during 2023 compares favorably to the 115 projects that reported drilling and associated results in 2022, a change in the way the Nevada Bureau of Mines and Geology (NBMG) collates these data needs to be taken into consideration. From 2023, NBMG has started to include lithium exploration drilling in these figures, meaning that the 115 drilling projects reported by NBMG in 2022 excluded lithium exploration, with the 123 projects reported here for 2023 including 30 lithium-focused exploration drilling projects. In other words, the 115 base and precious metal exploration projects reported in 2022 decreased to 93 base and precious metal drilling projects in 2023, showing a decrease in drilling-focused exploration within Nevada. This comes despite increasing metal prices (especially gold) and indicates that the minerals industry is facing challenging times in terms of investment and raising of funds for exploration. These statistics also represent a minimum estimate of drill projects for the year given that major and private companies may not be required to report drilling activity and results. One positive note is an increase in the number of major drilling projects in Nevada between 2022 and 2023; some 52 major drilling programs were undertaken in 2023, all but three of which were focused on base and precious metal exploration. This is an increase from 39 major drilling programs in 2023, suggesting that some exploration projects may be starting to move toward production in the near future.

Of the 123 precious, base and lithium exploration drilling projects reported in 2023, some 57% targeted gold, or 76% if lithium projects are excluded, down from 89% in 2022 (excluding lithium, fig. 1 and fig. 2). Of the remaining projects 30 focused on lithium, 12 on copper or copper-dominated polymetallic systems, four on polymetallic Ag-Au-Zn-Pb systems, two on uranium, two on silver, and one each on iron and vanadium. The significant increase in base metal exploration in Nevada in 2023 includes exploration drilling by Masivo at the Boston project, T2 Metals at the Lida project, McEwen Mining and Kennecott at the Elder Creek project, the drilling of multiple targets by Lion Copper and Gold, exploration drilling by Hudbay at the Mason project, and continued expansion drilling at Robinson by KGHM. Silver exploration drilling was undertaken by Summa Silver at the Hughes project and by Hycroft at the Hycroft project. A number of other projects targeted polymetallic mineralizing systems containing silver, zinc, lead and gold in 2023, including Ridgeline's Selena project, Reyna Silver's Medicine Springs project, North Peak's Prospect Mountain Mine, and I-80 Gold's Ruby Hill project. A number of new resource estimates were also released for a variety of projects during the year, with current known and reported ore reserves and mineral resources summarized in tables 3 and 4 and with lithium resource and reserve data provided in table 5. These data should again be considered minimum values as private companies are not required to release this information.

Lithium is also included in this chapter, a departure from previous reporting where lithium was included in the Industrial Minerals chapter; from this year onward lithium exploration and production will be discussed in this Metals chapter. Individual lithium exploration projects are discussed in a separate section after the base and metal exploration projects are summarized given that some of these projects lie outside the locations of historic mining districts in Nevada. These lithium exploration projects are also discussed in alphabetical order by project name. Albemarle Corp.'s Silver Peak operation in Clayton Valley in Esmeralda County, where subsurface brines are evaporated on a playa, remains the only primary producer of lithium in the U.S. Lithium exploration activity continued at a significant rate in Nevada in 2023, with a total of 30 drilling projects in exploration focus areas targeting both sedimentary/clay-hosted lithium and lithium brines. This exploration focused on areas including southwestern Nevada, mainly in Clayton Valley, Big Smoky Valley, and at Sarcobatus Flat, among others. Other exploration focused on areas around Gerlach, in northeastern Nevada, and within the Railroad Valley in central Nevada. Lithium Americas Corp. also continued to move forward in the development and construction of its lithium-rich clay resource at Thacker Pass in the sediments of the McDermitt caldera in northern Nevada during the year, near the border with Oregon. In addition, Ioneer Ltd. also continued to move forward with development of its Rhyolite Ridge lithium-rich clay deposit during 2023, which is located 25 km (16 miles) west of Albemarle's Clayton Valley lithium in brine operation. The Rhyolite Ridge deposit includes significant borate-bearing beds and if mining goes ahead will produce both lithium and boron. NBMG also produced a significant report focused on lithium in 2024 that is available for free download here:

https://pubs.nbmg.unr.edu/Lithium-in-Nevada-p/sp040.htm.

Overall, exploration activity, including new claims staked, were reported in most of Nevada's 17 counties. As of September 24, 2023, there were 284,191 active, filed, and submitted mining claims within the state. Table 6 shows the breakdown of the 2023 drill projects by size of company and drill program with variations over time shown in figure 3. As mentioned above, at least 123 projects were drilled in 2022, compared to at least 115 projects in 2022. Major to mid-tier companies drilled at least 45 projects in 2023, including exploration drilling by AngloGold Ashanti, Kinross, Nevada Gold Mines, Newmont, and KGHM. The remaining 78 individual projects were drilled by at least 60 junior companies. Drilling in 2023 also included a larger number of major drilling programs that were seen in previous years (52 in 2023 versus 39 in 2022). As mentioned above, these are minimum numbers as larger major to mid-tier companies are not required to release many of their exploration results because exploration commonly does not have a material impact on their businesses. Private companies are also not required to release any information relating to exploration and drilling. This means that the 45 projects known to have been drilled by major and mid-tier companies represents a minimum value and there could have been significantly more than these 45 projects drilled by larger companies during 2023.

Exploration projects are summarized below by county and mining district, with an emphasis on projects that were drilled or had updated reserve and/or resource estimates released in 2023.

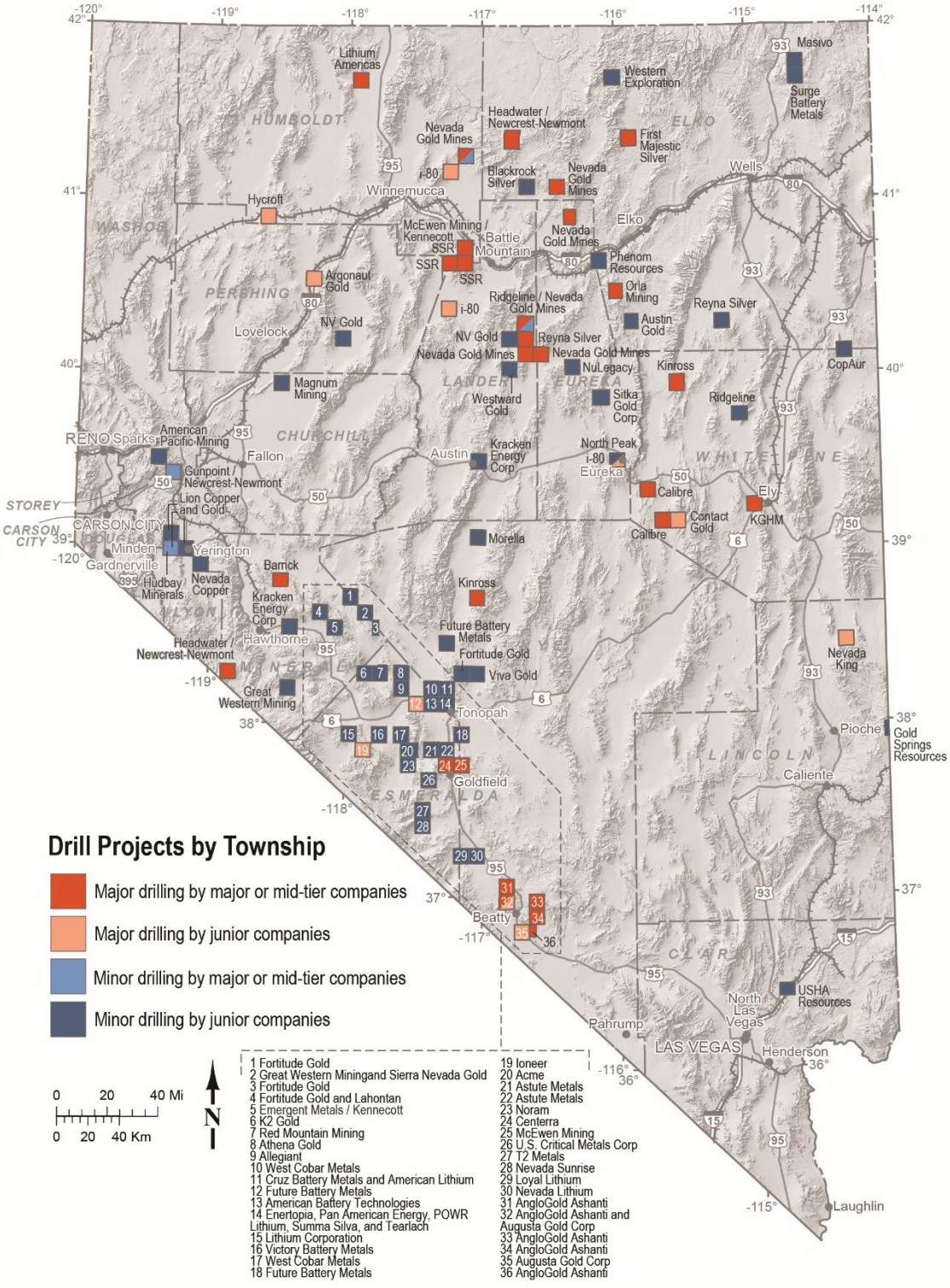

Figure 1. Map showing the distribution of 2023 metal exploration-focused drilling programs in Nevada located by township and split by company type (major and mid-tier versus junior) and scale of drilling program (major versus minor).

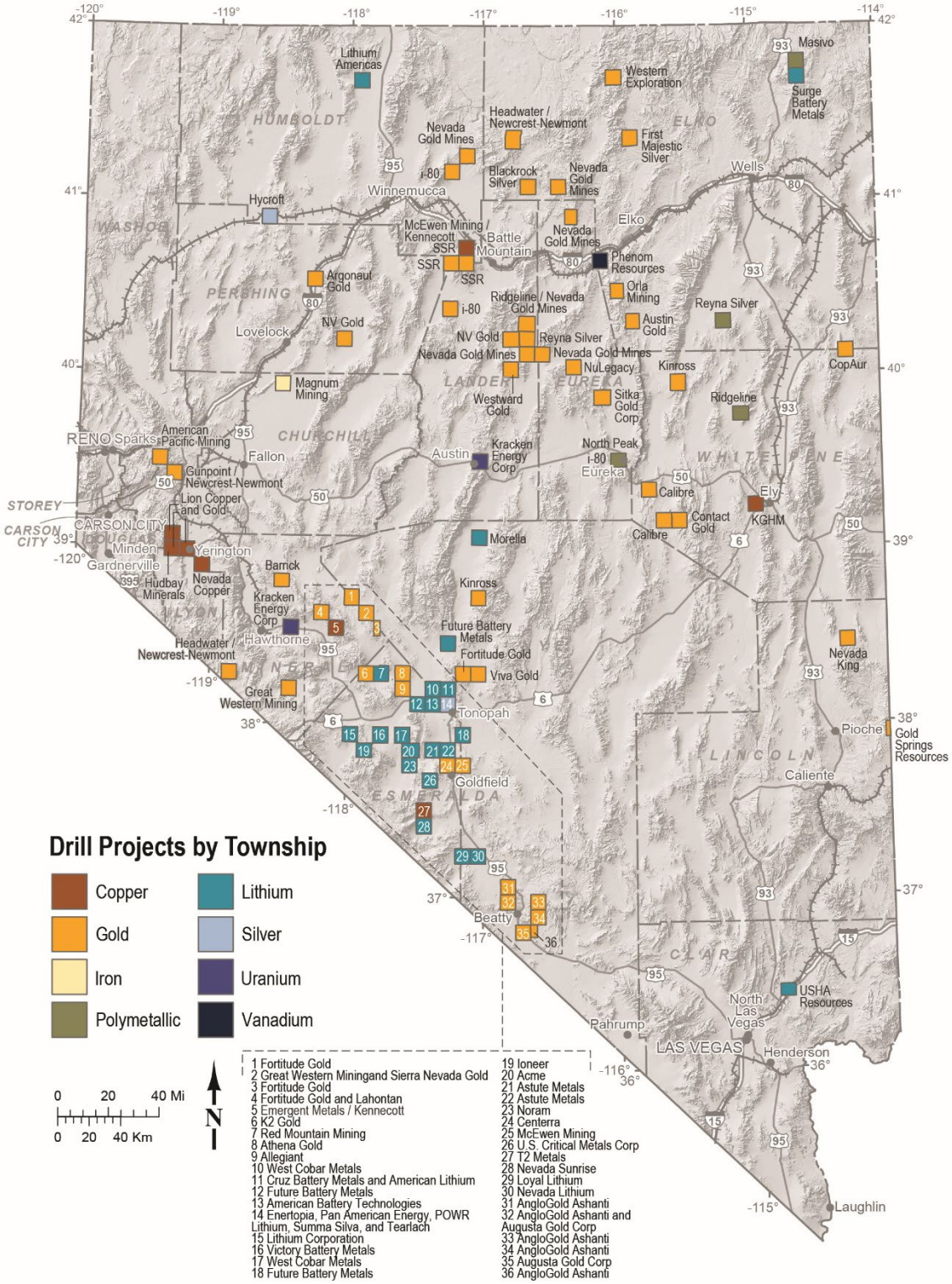

Figure 2. Map showing the distribution of 2023 metal exploration-focused drilling programs in Nevada located by township and split by commodity type.

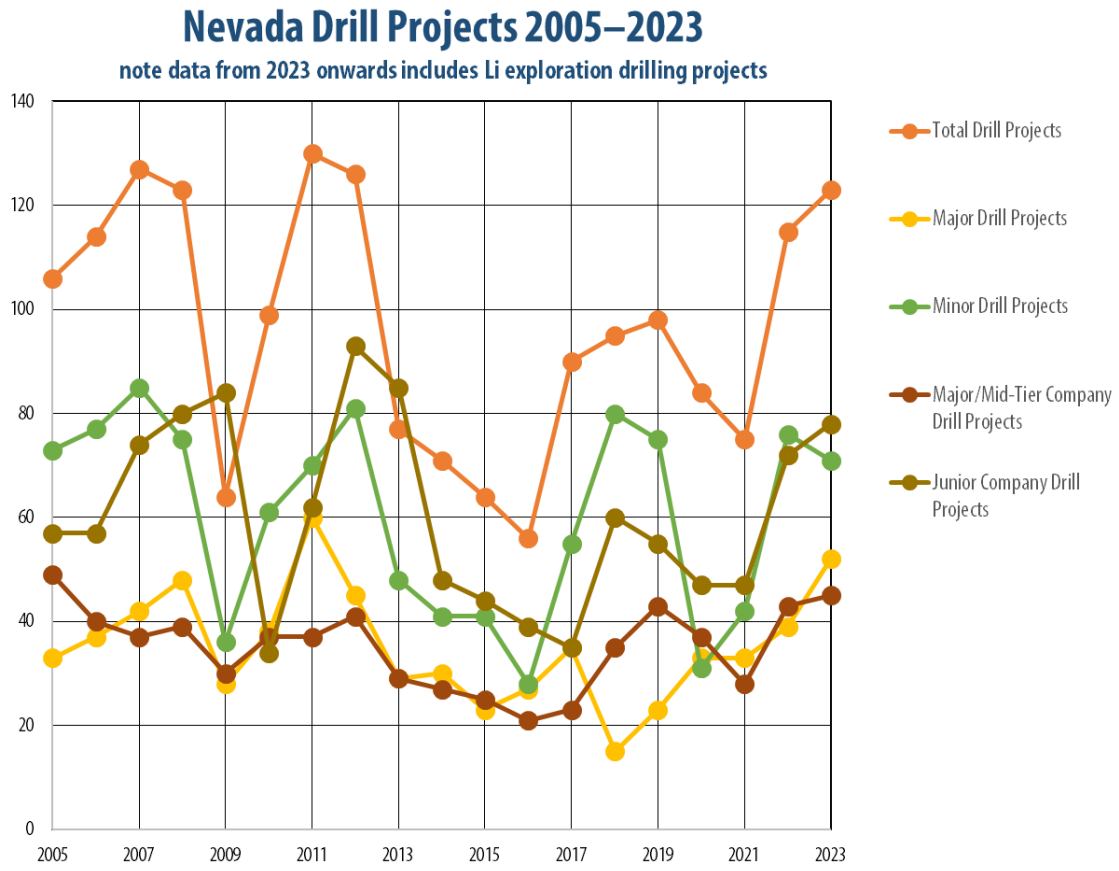

Figure 3. Number of drill projects in Nevada from 2005 to 2023.

The classification of companies into major, mid-tier, or junior in this section of the report is arbitrarily based on gold production and market capitalization. The loose criteria are as follows: 1) major companies produce greater than 1 million ounces of gold worldwide, and have market capitalization of over capitalizations less than $3 billion but more than $500, 2) mid-tier companies produce between 50,000 and 1 million ounces of gold worldwide and/or have market capitalizations less than $500 million, 3) junior companies produce less than 50,000 ounces of gold and/or have market capitalizations less than $500 million.

Table 2. 2023 Metallic Mine Production by Operating Company for Nevada.

(Data from Nevada Division of Minerals Annual Status Reports and Company Annual Reports; YOY = year-on-year)

Operator	Mine	Gold (2022) (ounces)	**Gold (2023) (ounces)**	Silver (2022) (ounces)	**Silver (2023) (ounces)**	Copper (2022) (pounds)	**Copper (2023) (pounds)**	Molybdenite (2022) pounds	**Molybdenite (2023) pounds**
Americas Gold and Silver	Relief Canyon Mine	2,246	**733**	5,193	**169**				
Borealis Mining	Borealis	11,957	**423**	19,815	**929**				
Calibre Mining	Pan	43,186	**41,385**		**1,750**				
Coeur Rochester	Rochester	34,735	**38,775**	3,061,924	**3,390,451**				
First Majestic Silver	Jerritt Canyon	72,411	**21,101**	1,617					
Florida Canyon Gold	Florida Canyon	49,440	**70,477**	32,419					
Fortitude Gold Corp	Isabella Pearl	41,232	**37,996**	57,058	**41,231**				
Hecla (Klondex)	Fire Creek	2,205	**683**						
I-80 Gold	Granite Creek	3,736	**32,700**						
I-80 Gold	Lone Tree Mine	9,200	**6,200**	1,700	**2,000**				
I-80 Gold	Ruby Hill	14,300	**6,100**	7,300	**9,100**				
KGHM International	Robinson	41,346	**23,209**	256,312	**222,258**	108,416,295	**72,986,728**	275,620	**135,796**
Kinross Gold	Bald Mountain	213,210	**143,105**	73,554	**39,211**				
Kinross Gold	Round Mountain	219,823	**230,867**	546,097	**400,231**				
Kinross Gold	South Operations Area		**14,124**		**3,868**				
McEwen Mining	Gold Bar	26,663	**43,775**	648	**696**				
Nevada Copper	Pumpkin Hollow		**212**		**6,304**	2,011,000	**1,487,312**		
Nevada Gold Mines	Arturo	35,982	**21,211**						
Nevada Gold Mines	Betze Post	401,388	**207,493**	16,259	**16,640**				
Nevada Gold Mines	Carlin Trend Operations	895,299	**977,611**	59,301	**55,110**				
Nevada Gold Mines	Cortez Hills OP/Pipeline	330,684	**450,178**	100,469	**64,287**				
Nevada Gold Mines	Cortez Hills UG	340,419	**356,460**	7,876	**62,357**				
Nevada Gold Mines	Gold Rush	59,810	**81,686**						
Nevada Gold Mines	Long Canyon	89,988	**15,002**	2,054	**897**				
Nevada Gold Mines	Meikle	246,587	**213,026**	9,989	**17,803**				
Nevada Gold Mines	Phoenix	176,561	**199,994**	1,032,206	**952,702**	31,341,857	**35,406,713**		
Nevada Gold Mines	Turquoise Ridge	458,619	**514,386**	87,393	**163,388**				
Rawhide Mining	Denton-Rawhide	13,441	**3,124**	56,847	**13,319**				
SSR Mining	Marigold Mine	194,668	**278,488**	2,619	**6,173**				
Steven M. Constant	Birthday Girl Project		**1**						
Totals		4,044,977	**4,030,556**	5,475,393	**5,527,294**	141,769,152	**109,880,753**	275,620	**135,796**
			-0.36%		**+0.98%**		**-25.0%**		**-49.5%**
			YOY Change		**YOY Change**		**YOY Change**		**YOY Change**

Table 3. Nevada Mine Reserves (Proven and Probable) Reported for End of Year 2023.

Company	Mine	Year	Millions of metric tons (Mt)	Grade (g/t Au)	Contained gold (troy oz)	Millions of metric tons (Mt)	Grade (g/t Ag)	Contained silver (troy oz)	Millions of metric tons (Mt)	Cu Grade (%)	Contained copper (lbs)	Millions of metric tons (Mt)	Mo Grade (%)	Contained molybdenum (lbs)
AngloGold Ashanti	North Bullfrog	2023	71.93	0.43	1,000,000									
Argonaut Gold	Florida Canyon	2022	86.60	0.33	930,000									
Calibre Mining Corp	Pan	2023	24.63	0.34	273,000									
Calibre Mining Corp	Pan (leach pad)	2023			26,000									
Centerra Gold	Gemfield	2013	17.26	1.02	567,000									
Coeur	Rochester	2023	463.07	0.07	1,239,000	463.07	13.03	192,885,000						
Eureka Moly	Mt. Hope	2013										893.21587	0.070	1,378,442,800
Faraday Copper	Contact	2013							128.00	0.220	611,748,000			
Fortitude Gold	Isabella Pearl Deposit	2022	0.42	3.32	45,000	0.42	36.00	485,600						
Fortitude Gold	Isabella Pearl High-Grade Stockpile	2022	0.07	3.46	7,300	0.07	37.00	78,400						
Fortitude Gold	Isabella Pearl Low-Grade Stockpile	2022	0.43	0.52	7,100	0.43	6.00	76,600						
General Moly Inc.	Liberty Mo + Cu	2014							280.52	0.098	606,000,000	280.516024	0.078	482,000,000
KGHM[$]	Robinson	2014	119.40	0.15	579,229				119.40	0.140	1,078,698,000			
Kinross Gold Corp.	Bald Mountain	2023	28.27	0.50	489,000									
Kinross Gold Corp.	Round Mountain	2023	77.93	0.80	1,979,000									
McEwen Mining	Gold Bar	2023	4.94	1.00	164,000									
Nevada Copper	Pumpkin Hollow (open pit)	2019	349.90	0.07	617,000	349.90	1.89	21,266,000	349.90	0.470	3,590,000,000			
Nevada Copper	Pumpkin Hollow (underground)	2017	21.68	0.21	143,400	21.68	4.77	3,322,100	21.68	1.590	760,020,000			
Nevada Gold Mines	Carlin (Goldstrike/Arturo; total calculated from Barrick 61.50% share reporting)	2023	82.00	3.64	15,772,358									
Nevada Gold Mines	Cortez (total calculated from Barrick 61.50% share reporting)	2023	130.00	2.13	14,634,146									
Nevada Gold Mines	Phoenix (total calculated from Barrick 61.50% share reporting)	2023	100.00	0.58	3,089,431	100.00	6.97	37,398,374	140.00	0.170	824,493,013			

Company	Mine	Year	Millions of metric tons (Mt)	Grade (g/t Au)	Contained gold (troy oz)	Millions of metric tons (Mt)	Grade (g/t Ag)	Contained silver (troy oz)	Millions of metric tons (Mt)	Cu Grade (%)	Contained copper (lbs)	Millions of metric tons (Mt)	Mo Grade (%)	Contained molybdenum (lbs)
Nevada Gold Mines	Turquoise Ridge (total calculated from Barrick 61.50% share reporting)	2023	69.00	6.29	14,000,000									
Orla Mining	South Railroad (Dark Star, Pinion)	2023	65.20	0.75	1,604,000									
Scorpio Gold Corp.	Mineral Ridge	2017	3.37	1.44	156,300									
Scorpio Gold Corp.	Mineral Ridge (leach pad)	2017	6.22	0.58	117,200	6.22	0.58	115,900						
SSR	Marigold (lead pad inventory)	2023			282,000									
SSR	Marigold (open pit)	2023	150.70	0.52	2,496,000									
SSR	Marigold Stockpile	2023	18.60	0.14	85,000									
Waterton	Mt. Hamilton	2014	20.41	0.82	545,400	20.41	6.79	4,459,600						
2023 Total					**60,847,864**			**260,087,574**			**7,470,959,013**			**1,860,442,800**
2022 Total					**59,931,111**			**221,327,385**			**2,457,131,016**			**N/C**
YOY Change					**+1.53%**			**+30.13%**			**+204%**			**N/C**

All numbers are from 2023 or 2024 reporting in annual reports or other regulatory financial filings; totals may not appear correct as a result of rounding and/or conversion from short to metric tons and other values. Turquoise Ridge now includes Twin Creeks. Carlin includes Goldstrike and South Arturo. $ = KGHM does not provide updated reserve and resource data; as such these values are current as of the KGHM Mineral Resources and Reserves Report, December 31, 2014. Resource-reserve reporting often differs between those inclusive of reserves to those exclusive of reserves and original reporting should be consulted to determine which is the case when comparing resource and reserve figures for individual projects listed above and in table 4. Year on Year (YOY) change reflects both addition or depletion of resources, upgrading or downgrading of resources to reserves or reserves to resources, respectively, and more comprehensive data capture. N/C = not calculated.

Table 4. Nevada Mine Resources (Measured, Indicated and Inferred) Reported for End of Year 2023 excluding lithium.

Company	Mine	Year of resource reporting	Contained gold (troy oz)	Contained silver (troy oz)	Contained copper (lbs)	Contained molybdenum (lbs)	Contained tungsten (lbs)	Contained zinc (lbs)	Contained V_2O_5 (lbs)	Contained Pb (lbs)	Contained Fe (Mt)
Allegiant Gold Ltd.	Eastside	2021	1,404,000	8,700,000							
Americas Gold and Silver	Relief Canyon	2018	597,000	1,563,000							
AngloGold Ashanti	Merlin	2023	9,050,000								
AngloGold Ashanti	Mother Lode	2023 Au/ 2022 Ag	1,720,000	1,910,000							
AngloGold Ashanti	North BullFrog	2023 Au/ 2022 Ag	680,000	5,960,000							
AngloGold Ashanti	Silicon	2023 Au/ 2022 Ag	4,210,000	17,770,000							
AngloGold Ashanti	Sterling	2023	910,000								
Argonaut Gold	Florida Canyon	2022	3,183,000								
Augusta Gold Corp.	Bullfrog	2021	1,467,190	3,382,340							
Augusta Gold Corp.	Reward	2022	453,800								
Blackrock Silver	West Tonopah	2023	570,000	47,738,000							
Bravada Gold Corp	Wind Mountain	2022	495,900	12,304,000							
Calibre	Gold Rock	2023	487,000								
Calibre	Pan	2023	377,000								
Centerra Gold	Gemfield	2013	699,000								
Centerra Gold	Goldfield Main	2013	781,000								
Centerra Gold	McMahon Ridge	2013	242,000								
Coeur	Lincoln Hill	2023	619,000	18,410,000							
Coeur	Rochester	2023	514,000	88,783,000							
Coeur	Wilco	2023	531,000	3,346,000							
Comstock Inc.	Lucerne	2022	518,900	5,851,900							
CopAur/ Nevada Sunrise	Kinsley Mountain	2020	535,000								
Electric Metals/ Nevada Silver	Corcoran	2018	232,462	21,829,457							
Element 79	Maverick Springs	2021	1,370,000	175,700,000							
Emergent Metals	Golden Arrow	2018	346,900	5,257,000							
Emergent Metals	New York Canyon	2010			157,960,000						
Endeavour Silver	Bruner	2017	391,000	3,641,000							
Eureka Moly (?)	Mt. Hope	2013				167,672,700					
Faraday Copper	Contact	2013			883,682,000						
First Majestic Silver	Jerritt Canyon	2023	3,163,000								
Fortitude Gold	County Line	2022	49,600								
Fortitude Gold	Golden Mile	2021	163,000								
Fortitude Gold	Isabella Pearl	2022	101,400	1,156,400							
General Moly Inc.	Liberty Mo + Cu	2014			1,298,200,000	916,700,000					

Company	Mine	Year of resource reporting	Contained gold (troy oz)	Contained silver (troy oz)	Contained copper (lbs)	Contained molybdenum (lbs)	Contained tungsten (lbs)	Contained zinc (lbs)	Contained V_2O_5 (lbs)	Contained Pb (lbs)	Contained Fe (Mt)
Getchell Gold Corp	Fondaway Canyon	2022	2,059,900								
Gold Bull	Sandman	2021	493,800								
Gold Springs Resource Corp	Gold Springs (all areas)	2022	956,651	13,881,347							
Golden Metal Resources	Pilot Mountain	2017		6,655,205	35,273,962		151,193,019	88,846,292			
Great Western Mining Corp	M2	2018			42,042,153						
Great Western Mining Corp	Olympic Gold	2022	1,600	3,000							
Gunpoint Exploration	Talapoosa	2013	1,246,334	15,822,124							
Hecla	Fire Creek	2023	2,623,000	5,738,000							
Hecla	Hollister	2023	323,000	2,133,000							
Hecla	Midas	2023	648,000	8,167,000							
Hecla	Monte Cristo	2023	131,000	271,000							
Hudbay	Mason	2023	2,320,384	50,508,180	15,440,956,381	368,522,513					
Hycroft Mining	Hycroft	2023	13,936,000	456,781,000							
i-80 Gold	Granite Creek	2021	2,009,000								
i-80 Gold	Lone Tree	2021	3,174,000								
i-80 Gold	McCoy Cove	2021	1,704,000	3,508,000							
i-80 Gold	Ruby Hill	2021	7,726,000	177,268,000							
Integra	Nevada North (Mountain View)	2023	638,189	3,646,024							
Integra	Nevada North (Wildcat)	2023	955,959	8,417,998							
KGHM[$]	Robinson	2015	263,000		3,666,007,433						
Kinross Gold Corp.	Bald Mountain	2023	4,175,000								
Kinross Gold Corp.	Round Mountain	2023	4,903,000	1,118,000							
Lahontan	Santa Fe	2022	1,547,000	10,779,000							
Lion Copper and Gold	MacArthur Project	2022			1,472,122,000						
Lion Copper and Gold	Vat Leach Tailings	2023			62,622,000						
Lion Copper and Gold	W-3 Stockpile	2023			30,571,000						
Lion Copper and Gold	Yerington	2023			1,400,191,000						
McEwen	Gold Bar	2023	106,100								
McEwen / Iconic Minerals Ltd.	New Pass	2009	341,750	2,550,000							
McEwen	Tonkin	2008	1,758,000								
Millenium Silver Corp	Nivloc	2019	57,000	8,262,000							
Nevada Copper	Pumpkin Hollow (open pit)	2019	916,000	30,866,000	5,197,000,000						
Nevada Copper	Pumpkin Hollow (underground)	2015	378,000	8,132,000	2,139,000,000						11.1583755
Nevada Gold Mines	Carlin (total calculated from	2023	36,097,555								

Company	Mine	Year of resource reporting	Contained gold (troy oz)	Contained silver (troy oz)	Contained copper (lbs)	Contained molybdenum (lbs)	Contained tungsten (lbs)	Contained zinc (lbs)	Contained V_2O_5 (lbs)	Contained Pb (lbs)	Contained Fe (Mt)
	Barrick 61.50% share reporting)										
Nevada Gold Mines	Cortez (total calculated from Barrick 61.50% share reporting)	2023	26,016,256								
Nevada Gold Mines	Fourmile Underground (100% Barrick)	2023	3,180,000								
Nevada Gold Mines	Long Canyon (total calculated from Barrick 61.50% share reporting)	2023	1,626,016								
Nevada Gold Mines	Phoenix (total calculated from Barrick 61.50% share reporting)	2023	6,845,527	87,967,466	2,186,698,511						
Nevada Gold Mines	Turquoise Ridge (total calculated from Barrick 61.50% share reporting)	2023	21,600,000								
Nevada Iron	Buena Vista	2021									43.15
Nevada King	Atlanta	2020	602,000	5,460,000							
Nevada Vanadium	Bisoni-McKay	2023							139,160,000		
Nevada Vanadium	Gibellini	2023							143,700,000		
Nevada Vanadium	Louie Hill	2023							39,420,000		
Nevada Zinc	Lone Mountain	2019						543,000,000		50,263,191	
NevGold Corp.	Limo Butte	2009	291,780								
Nexus Uranium Corp	Independence (deep skarn)	2021	796,200								
Nexus Uranium Corp	Independence (near surface)	2021	385,100	7,617,000							
Orla Mining	Lewis	2020	205,800	3,537,300							
Orla Mining	South Railroad (all areas)	2022	2,504,000	7,197,000							
Orla Mining / Contact Gold	Pony Creek	2022	866,000								
P2 Gold	Gabbs	2023	1,571,000	3,900,000	565,300,000						
Paramount Gold	Sleeper	2023	3,111,000	30,685,000							
Phenom Resources	Carlin Gold-Vanadium	2019					-		378,000,000		
Rex Minerals	Hog Ranch	2021	2,260,000								
Scorpio Gold	Mineral Ridge	2017	238,530								

Company	Mine	Year of resource reporting	Contained gold (troy oz)	Contained silver (troy oz)	Contained copper (lbs)	Contained molybdenum (lbs)	Contained tungsten (lbs)	Contained zinc (lbs)	Contained V_2O_5 (lbs)	Contained Pb (lbs)	Contained Fe (Mt)
Scorpio Gold	Mineral Ridge (leach pad)	2017	122,900	122,400							
Silver One Resources Inc.	Candelaria	2001		83,286,000							
Silver One Resources Inc.	Candelaria (leach pad)	2020	88,700	45,414,000							
Smooth Rock	Palmetto	2020	296,695	2,022,578							
Solidus Resources LLC	Spring Valley	2014	5,110,000								
SSR	Buffalo Valley	2023	420,000								
SSR	Marigold	2023	2,110,000								
Star Gold	Longstreet	2014	95,600	2,352,700							
Timberline	Lookout Mountain	2023	507,000								
Viva Gold	Tonopah Project	2021	601,000								
Warriedar Resources	Big Springs	2022	1,014,000								
Waterton	Converse	2011	5,680,000	40,960,000							
Waterton	Mt. Hamilton	2014	846,000	7,722,000							
West Vault Mining	Hasbrouck	2022	707,000	13,142,000							
West Vault Mining	Three Hills	2022	202,000								
Western Exploration	Aura	2021	1,407,000	12,691,000							
White Pine Metals	Taylor	2018		11,598,000							
Totals			**218,658,478**	**1,603,483,418**	**34,577,626,440**	**1,452,895,213**	**151,193,019**	**631,846,292**	**700,280,000**	**50,263,191**	**54.31**

All numbers are from 2023 or 2024 reporting or other regulatory financial filings; data may be incomplete and some of the resources reported above may be historical rather than fully compliant with current reporting codes. Totals may not appear to sum correctly as a result of rounding and/or conversion from short to metric tons and other values. Resource-reserve reporting often differs between those inclusive of reserves to those exclusive of reserves and original reporting should be consulted to determine which is the case when comparing resource and reserve figures for individual projects listed above and in table 3. Turquoise Ridge now includes Twin Creeks. Carlin now includes Goldstrike and South Arturo. $ = KGHM does not provide updated reserve and resource data; as such these values are current as of the KGHM Mineral Resources and Reserves Report, December 31, 2014.

Table 5. Nevada Lithium Resources (Measured, Indicated and Inferred) and Reserves (Proven, Probable) for End of Year 2023.

Deposit	Company	Type of Deposit	**Reserves** (Mt contained LCE)	**Resources** (Mt contained LCE)	**Current/Proposed Annual Production** (kt/yr LCE)	EV Equivalent	Source and Notes
Thacker Pass	Lithium Americas	Clay/sedimentary	3.7	19.1	Phase 1 40 Phase 2 80	449 million	https://lithiumamericas.com/files/doc_financials/2023/ar/NewLAC-ThackerPassFeasibilityStudyNI43-101-October2023.pdf
Clayton Valley	Century Lithium	Clay/sedimentary	1.76	6.67	~26	157 million	https://www.centurylithium.com/_resources/technical-reports/252456-0000-BA00-RPT-0003_ClaytonValley_NI%2043-101_12June2024.pdf?v=070205
Rhyolite Ridge (also contains boron)	Ioneer	Clay/sedimentary	0.58	3.35	Stage 1, ~22.3 Stage 2, ~19.3	79 million	https://wcsecure.weblink.com.au/pdf/INR/02657829.pdf, https://www.ioneer.com/wp-content/uploads/2022/07/300420-dfs-executive-summary-metric_final.pdf
Silver Peak	Albemarle	Brine	0.36	1.00	Currently ~5, proposed doubling to ~10	26 million	https://s201.q4cdn.com/960975307/files/doc_financials/2023/q4/9aefa2f5-78dc-4015-bf20-b71aba0bb593.pdf

Deposit	Company	Type of Deposit	**Reserves** (Mt contained LCE)	**Resources** (Mt contained LCE)	**Current/Proposed Annual Production** (kt/yr LCE)	**EV Equivalent**	Source and Notes
Tonopah Flats	American Battery Technology	Clay/sedimentary		18.6		436 million	https://americanbatterytechnology.com/wp-content/uploads/ABTC-TonopahFlats-MII-Resource-Update-IA-Report-Apr-2024.pdf
Bonnie Claire	Nevada Lithium	Clay/sedimentary		18.4		431 million	https://nevadalithium.com/wp-content/uploads/2023/08/Bonnie-Claire_PEA-Technical-Report_02-25-2022.pdf
TLC	American Lithium	Clay/sedimentary		10.7		251 million	https://americanlithiumcorp.com/wp-content/uploads/2023/05/PEA-Report-TLC.pdf
Horizon Lithium	Pan American Energy Corp	Clay/sedimentary		10.2		240 million	https://panam-energy.com/wp-content/uploads/2024/01/NI-43-101-TR-Pan-American_Horizon-Lithium_January_2024.pdf
Gemini	Nevada Sunrise	Clay/sedimentary		7.1		167 million	https://nevadasunrise.ca/site/assets/files/4151/nevada_sunrise_metals_corp_ni_43_101_technical_report_r.pdf
Zeus	Noram	Clay/sedimentary		6.3		147 million	https://noramlithiumcorp.com/site/assets/files/3997/2023-03-20-updated-resource-estimate-zeus.pdf
Lone Mountain	Future Battery Metals	Clay/sedimentary		6.2		146 million	https://www.investi.com.au/api/announcements/fbm/2cf7cdbb-7b0.pdf
Nevada North	Surge	Clay/sedimentary		4.7		110 million	https://wp-surgebatterymetals-2024.s3.ca-central-1.amazonaws.com/media/2024/04/Surge-NNLP-NI-43-101-Report-04-05-2024.pdf
Clayton Ridge Project	Amani Gold	Clay/sedimentary		2.6		60 million	https://authium.com.au/project/, https://www.amanigold.com/wp-content/uploads/2023/12/AGREEMENT-TO-ACQUIRE-MAJOR-LITHIUM-RESOURCE-IN-NEVADA.pdf
McGee	Spearmint Resources	Clay/sedimentary		2.1		49 million	https://www.spearmintresources.ca/wp-content/uploads/2022/06/MLC-Deposit-NI-43-101-Final-TR_6-17-2022.pdf
West Tonopah Project	Enertopia	Clay/sedimentary		0.66		15 million	https://enertopia.com/wp-content/uploads/2023/11/Enertopia-NI-43-101-MRE-Techical-Report-Nov2023.pdf
Clayton	Acme	Brine		0.30		7 million	https://acmelithium.com/wp-content/uploads/2024/03/ACME-Lithium-Clayton-Valley-43-101-3.13.2023-FINAL-.pdf
Clayton Valley South	Pure Energy Minerals	Brine		0.22		5 million	https://minedocs.com/17/PureEnergy_ClaytonValley_PEA-2017.pdf
Clay Total			**4.28**	**117**		**2.6 billion**	
Brine Total			**0.36**	**1.52**		**38 million**	
Overall Total			**5.92**	**118**		**2.8 billion**	

Adapted from Jowitt, S.M., Henry, C.D., Crespo Mena, J., Lindsey, C.R., Darin, M.H., Saftner, D.M., Heintz, K.M., and Hershey, R.L., 2024, Lithium in Nevada—origins, extent, role in the energy transition, and implications for economic development and national security: Nevada Bureau of Mines and Geology Special Publication 40, 48 p. (https://pubs.nbmg.unr.edu/Lithium-in-Nevada-p/sp040.htm). Mt = millions of metric tons, LCE = lithium carbonate equivalent; to convert from LCE to contained lithium divide the number by 5.323. EV equivalent is the number of electric cars that could be produced if all of the resources and reserves in a given project were extracted, assuming ~8 kg of lithium metal per vehicle (41.84 kg LCE).

Table 6. Breakdown of 2023 Drill Programs for Metals in Nevada (including drilling for lithium from 2023 onwards).

	Total Drill Programs	Major Drill Programs	Minor Drill Programs	Major/Mid-tier Companies Drill Programs	Junior Companies Drill Programs
2005	106	33	73	49	57
2006	114	37	77	40	57
2007	127	42	85	37	74
2008	123	48	75	39	80
2009	64	28	36	30	84
2010	99	38	61	37	34
2011	130	60	70	37	62
2012	126	45	81	41	93
2013	77	29	48	29	85
2014	71	30	41	27	48
2015	64	23	41	25	44
2016	56	27	28	21	39
2017	90	35	55	23	35
2018	95	15	80	35	60
2019	98	23	75	43	55
2020	84	33	31	37	47
2021	75	33	42	28	47
2022	115	39	76	43	72
2023	123	52	71	45	78

These drill programs are exclusively for precious and base metals and exclude those undertaken for industrial minerals, geothermal, and oil and gas exploration, among others. The classification of companies into major, mid-tier, or junior in this section of the report is arbitrarily based on gold production and market capitalization. The loose criteria are as follows: 1) major companies produce greater than 1 million ounces of gold worldwide (or equivalent in silver, copper, or other metals), and have market capitalization of over $3 billion, 2) mid-tier companies produce between 50,000 and 1 million ounces of gold worldwide (or equivalent in silver, copper, or other metals) and/or have market capitalizations less than $3 billion but more than $500 million, 3) junior companies produce less than 50,000 ounces of gold (or equivalent in silver, copper, or other metals) and/or have market capitalizations less than $500 million.

EXPLORATION SUMMARIES BY COUNTY

(Sourced from public financial filings, press releases, and company websites)

CHURCHILL COUNTY

Buena Vista District

Buena Vista Nevada. The Buena Vista project is owned by Nevada Iron, a fully owned subsidiary of Magnum Mining and Exploration Limited. The project focuses on magnetite mineralization as a source of iron ore combined with a biochar-focused green pig iron project, with a proposed >63% Fe magnetite concentrate being used as a feedstock for pig iron production. The magnetite in the project area formed by the late-stage alteration of a localized intrusive gabbro that generated intense scapolite alteration and magnetite mineralization most likely associated with an iron oxide-apatite (IOA) system. The magnetite mineralization at Buena Vista is associated with pre-ore faulting, fracturing and brecciation that enabled the formation of disseminated magnetite within altered gabbro as well as massive pods of magnetite and rare vein-like magnetite mineralization. The resulting mineralization varies between massive magnetite pods containing >60% magnetite and disseminated mineralization containing 10–20% magnetite. Current indicated and inferred resources are 232 Mt at 18.6% Fe with the project site hosting additional mineralized stockpiled material likely to contain 411,000–894,000 metric tons of mineralization at uncertain grades between 15% and 45% Fe. Exploration at Buena Vista in 2023 included a scoping study based on an annual production rate of 1.6 Mt/year of high-grade magnetite concentrate as well as outcrop channel sampling and reverse circulation drilling. The channel sampling used portable X-ray fluorescence analysis to assess Fe concentrations in a total of 32 samples, with high-grade intersects reported as 0.6 m at 66.6% Fe, 1.2 m at 61.9% Fe, 3.1 m at 60.3% Fe, 3.7 m at 59.9% Fe, and 3.7 m at 59.7% Fe. The shallow reverse circulation drilling at the project in 2023 aimed to test extensions at depth to known and mapped outcropping massive magnetite. This drilling intersected thick zones of visually high abundance magnetite, but no results have been released. For more information see https://www.mmel.com.au.

Shady Run District

Fondaway Canyon. Getchell Gold Corp. released a resource estimate for Fondaway Canyon including 11 Mt at 1.56 g/t Au in indicated and 38.3 Mt at 1.23 g/t Au in inferred resources in February 2023, an increase over earlier reported historical resources. As outlined in this report in 2022, the mineralization at Fondaway is hosted by a series of 12 steeply dipping en echelon quartz-sulfide shear zones that crop out at surface and extend along strike more than 1.2 km, with drilling indicating these zones extend to a depth of at least 400 m. Gold mineralization at Fondaway is hosted by Mesozoic sediments and minor volcanic units and is thought to be orogenic or possibly intrusion-related and mesothermal to epithermal in style. Getchell Gold Corp. also increased the size of the Fondaway Canyon project area in 2023 by 50% through the extra staking of an additional 75 claims and 600 hectares (1,480 acres), bringing the total claim group at Fondaway Canyon to 246 claims over 1,785 hectares (4,412 acres). The extended claim package at Fondaway now spans 7 km (4.5 miles) east-west and 3 km (2 miles) north-south. Getchell Gold Corp. reports that this expansion now gives the company sole control of the entire Fondaway Canyon gold corridor and mineralizing system, room for expansion of the current mineral resource and conceptual open-pit mining operation, and an increased amount of expansion potential that allows the required infrastructure for future potential development. For more information see https://getchellgold.com.

Table Mountain District

Lovelock/Treasure Box Cobalt Project. Global Energy Metals consolidated 100% ownership of the Lovelock Mine and Treasure Box projects in Nevada via a mineral claim purchase agreement with Nevada Sunrise Metals in 2023. Grab sampling was undertaken in both project areas during 2023, continuing to target potentially iron oxide-copper-gold (IOCG)-type mineralization. Assay results included maximum values of 36.4% Cu, 176 g/g Ag, and 1.325 g/t Au at Treasure Box and sampling at Lovelock was reportedly positive, but no results were reported. A technical report was filed during 2023 covering both properties, outlining that underground mapping and sampling at Lovelock has identified N40E and N75W structural controls and post-mineral faulting. A 9–16 m thick zone of Co-Ni-Cu mineralization was also identified in the hangingwall of the N40E fault encountered during 2022 drilling and is identifiable within an earlier 2018 DC/IP resistivity survey. Magnetic surveys at Treasure Box also identified several faults and magnetic highs, with the latter correlating with positive Au, Ag, Zn and Cu soil anomalies. Trenching, surface sampling and drilling at Treasure Box has also identified a mineralized oxide zone. For more information see https://globalenergymetals.com/.

ELKO COUNTY

Aura District

Aura Project. Drilling at the Western Exploration Inc. Aura project in 2023 targeted areas of the Gravel Creek resource within the Jarbidge rhyolite. A total of two oriented

cored drillholes were undertaken during the year for a total of 1,470 m of drilling. Both drillholes intersected multiple quartz-pyrite-marcasite bearing veins, stockwork and hydrothermal breccias within the target area. Drillhole WG456 was located 250 m north of the Gravel Creek resource area and yielded individual assays up to 34.9 g/t Au and 2800 g/t Ag and key intersects that included 4.7 m at 4.55 g/t Au and 395.4 g/t Ag, 2.4 m at 5.37 g/t Au and 208.1 g/t Ag, 2.0 m at 12.77 g/t Au and 780.9 g/t Ag, 2.1 m at 5.40 g/t Au and 183.1 g/t Ag, and 3.0 m at 5.42 g/t Au and 113 g/t Ag. These intersects are located at the same elevation as mineralization within the Gravel Creek deposit and support further exploration to the northeast. The drillhole was abandoned at 730.6 m as a result of drilling complications and was terminated in mineralization. Drillhole WG457 yielded individual assays up to 257.0 g/t Au and 1655.0 g/t Ag and included 0.7 m at 138.82 g/t Au and 403.4 g/t Ag and 1.0 m at 52.46 g/t Au and 1278.0 g/t Ag. Structural interpretation of drillcore from both holes combined with surface mapping has identified a series of intersecting NW-SE and NE-SW trending structures containing locally high-grade epithermal Au-Ag mineralization over an area of 550 m by 350 m in size immediately adjacent to the area of the current Gravel Creek resource. Drilling and exploration at the project continues to focus on exploration for low sulfidation epithermal-style mineralization and Western Exploration Inc. announced plans for metallurgical testing and further drilling in 2024. For more information see https://westernexploration.com/.

Carlin Trend (Bootstrap District)

Arturo/South Arturo. Nevada Gold Mines ramped up waste stripping at the next phase of South Arturo, with no mining taking place in this deposit in 2023. For more information see https://www.barrick.com/.

Ren. Nevada Gold Mines' 2023 drilling program at Ren included step-out surface drilling that successfully intersected a narrow, high-grade zone of mineralization within a 200 m gap between historic surface drilling to the northwest and underground drilling to the southeast of hole REN-23001B. This drilling intersected the targeted mineralized Corona dike at a depth of approximately 900 m downhole and returned 4.7 m at 24.90 g/t Au, confirming the continuity of high-grade mineralization within this part of the Ren deposit. This drilling will also allow the project to proceed toward underground drilling platform development to convert more mineralized material to the west to resources and reserves. For more information see https://www.barrick.com/.

Carlin District

Carlin Gold-Vanadium Project. Phenom Resources Corp. announced the results of a drilling program consisting of two near-vertical reverse circulation drillholes (RC23-17 and RC23-18) collared 90 m apart planned to test gold mineralization at the Carlin Gold-Vanadium project, within the Carlin trend. Drillhole RC23-17 was abandoned at 152 m due to difficult rock conditions whereas RC23-18 was drilled to a depth of 1,900 feet. Both holes encountered near-surface vanadium mineralization, including 22.86 m at 0.48% V_2O_5 starting at a depth of 74.68 m in RC23-17 and 15.24 m at 0.41% V_2O_5 from a depth of 3.05 m in RC23-18. These intersects are now the southernmost drillholes within the known vanadium deposit in the project area, extending known mineralization some 90 m to the south with mineralization remaining open to the south, west, and northwest. RC23-17 did not reach the depth required to test the gold mineralization within this area, whereas RC23-18 encountered upper plate rocks followed by moderate to strongly altered units of the silicified-dolomite and quartz stringer-sulfide bearing and brecciated Mississippian Chainman Formation. The bottom 71.6 m of RC23-18 encountered continuous elevated gold concentrations, but assay results were not reported.

Vanadium mineralization within the Carlin Gold-Vanadium deposit is stratigraphically controlled and follows the strike and dip of the host lithology near the contact between an overlying gray-brown siltstone unit and an underlying brown to black shale unit of the Devonian Woodruff Formation. The mineralization defines stratigraphic subunits or beds within the formation and drilling to date has defined multiple zones of vanadium mineralization (>0.2% V_2O_5) that include a persistent, thick, and highest-grade unit within the brown-black shale unit. A resource estimate was completed for the vanadium mineralization on the property in 2019, including 378,000,000 lbs of V_2O_5 within indicated and inferred resources at a cut-off grade of 0.3% V_2O_5. For more information see https://phenomresources.com/.

Contact District

Boston. Masivo Silver Corp. undertook exploration at the Boston Mine project in 2023 focusing on two projected parallel mineralized zones containing skarn-type copper-gold-silver mineralization associated with strong calc-silicate alteration and locally pervasive copper sulfide (bornite) mineralization. Exploration included two drillholes, BM22-01 and BM22-02. BM22-01 was drilled to a total depth of 76.8 m under the portal of the historic Boston Mine perpendicular to bedding. This drillhole intersected significant mineralization consisting of 16.8 m at 0.99% Cu, 1.52 g/t Au and 30.35 g/t Ag starting at 19.8 m downhole. Core hole BM22-02 was designed to test the down-dip extension of a mineralized zone and was completed to 85.3 m with a 45.7 m extension also approved but the final depth of the hole is unclear. No assay results have been released from this drillhole. For more information see https://masivosilver.com/.

Gold Circle District

Midas North. Headwater Gold Inc.'s Midas North project focuses on exploration to the north of Hecla Mining's Midas Mine in an area containing a large and relatively untested epithermal alteration zone. Drilling during 2023 consisted of nine scout drillholes using both core and reverse circulating drilling for a total depth of 4,202 m, with epithermal-type veining and alteration encountered in multiple target areas across the property. Key intersects include 9.14 m at 47.0 g/t Ag from 371.86 to 381.0 m beneath the Big Opal sinter in drillhole MN23-02 and 1.52 m at 0.51 g/t Au in drillhole MN23-06, which targeted the Jo Belle fault. The mineralization in drillhole MN23-02 is hosted by quartz-calcite-sulfide veining within a gabbroic sill, which elsewhere within the Midas district is typically a poor host for mineralization. Drilling in MN23-04 also intersected a fault-hosted epithermal-style quartz vein with quartz after calcite textures and weakly banded chalcedonic quartz, both of which are often associated with boiling zones in epithermal systems. No other results were released from this drilling program. The Midas North project is subject to Newmont Gold Corporation's option to acquire up to a 75% interest following expenditures totaling US$30,000,000 and the completion of a Pre-Feasibility Study within a designated timeframe. For more information see https://headwatergold.com/.

Independence Mountains

Jerritt Canyon. First Majestic Silver Corp., who acquired the Jerritt Canyon Mine property from Jerritt Canyon Gold LLC in 2021, produced 21,101 ounces of gold from mining during 2023, with mining being suspended in March 2023. The exploration focus at Jerritt Canyon in 2023 changed from short-term targets with smaller volume and short timelines to production to the identification of a significant orebody that mine planning can be built around. Exploration in 2023 at Jerritt Canyon consisted of surface mapping and sampling, a seismic survey and permitting in support of the planned 2024 exploration program. A total of 2,841 m of underground development and 13,556 m of exploration drilling were completed in 2023 compared to 9,614 m of underground development and 130,322 m of exploration drilling in 2022. Total exploration costs for 2023 at Jerritt Canyon were $5.2 million compared to $15.7 million in 2022. The change in exploration focus at Jerritt Canyon reflects the fact that large and highly-prospective tracts of ground in the property area have never been tested. Approximately 25,000 m of drilling is planned for 2024, along with geophysics and surface sampling. Exploration will focus on drilling open-ended inferred mineralization with large volume potential, as well as testing projections of ore controlling structures below outcropping upper plate units. This strategy offers the potential for discovery of large, mineralized volumes and the prospective ground has historically been poorly tested to date. Successful drilling at the Javelin target in 2023 also identified what appears to be another large, mineralized gold pod near underground infrastructure, indicating the significant exploration potential of the project. For more information see https://www.firstmajestic.com/.

Ivanhoe District

Hollister. No exploration was reported by Hecla Mining at the Hollister project in 2023, with current measured and indicated resources at the property consisting of 88 kt at 2.5 oz/t Ag and 0.58 oz/t Au containing 0.217 Moz Ag and 0.05 Moz Au with inferred resources of 642 kt at 3.0 oz/t Ag and 0.42 oz/t Au containing 1.916 Moz Ag and 0.273 Moz Au. For more information see https://www.hecla.com/.

Silver Cloud. Blackrock Silver Corp.'s Silver Cloud project is located 20 km south of the Midas Mine and 3 km west of the Hollister Mine, along the northern Nevada rift in north-central Nevada. Exploration at Silver Cloud is focused on a similar style of low sulfidation gold-silver mineralization to that found at Hollister.

Blackrock entered into an amendment of the mineral lease agreement between the company and Pescio Exploration, LLC, the owner of the Silver Cloud property, to reduce and amend the annual cash payments required to maintain the lease in good standing. Exploration drilling in 2023 consisted of five cored drillholes for a total depth of 1,827 m following up on the high grade intersects identified during drilling in 2022. This drilling intersected banded epithermal veins containing up to 2.24 g/t Au that indicate that the epithermal vein system at the property strikes 340° and dips at 60° to the west, much shallower than originally thought. Gold and minor amounts of silver mineralization was intersected in drillholes SBC23-025 and SBC23-026. Key intersects include 271.27 to 272.49 m (1.22 m) at 2.150 g.t Au and 81.77 g/t Ag and 300.23 to 301.45 m (1.22 m) at 0.225 g/t Au and 4.14 g/t Ag in drillhole SBC23-025 and 282.25 to 283.77 m (1.52 m) at 0.274 g/t Au and 0.53 g/t Ag, 321.57 to 323.09 m (1.52 m) at 0.789 g/t Au and 3/40 g/t Ag and 410.57 to 412.94 m (2.38 m) at 0.747 g/t Au and 13.62 g/t Ag including 0.67 m at 2.24 g/t Au and 21.71 g/t Au in drillhole SBC23-026. For more information see https://blackrocksilver.com/.

Kinsley District

Kinsley Mountain. CopAur Minerals Inc.'s Kinsley Mountain project is located in northeastern Nevada and has current indicated and inferred resources of 0.418 Moz of contained Au at 2.63 g/t Au and 0.117 Moz of contained Au at 1.51 g/t Au. The project is targeting Carlin-type mineralization and exploration at Kinsley Mountain in 2023 included a total of ten drillholes (seven reverse circulation and three diamond cored) for a total depth of 2,285 m. This drilling focused on resource infill drilling within the high-

grade gold Western Flank zone and near surface oxide-gold resource expansion and delineation at the Main Pit North Oxide and Secret Spot targets. Drilling also aimed to test a new geophysical anomaly located between the Western Flank zone and the Upper Ridge pit area. Key intersects include in drillhole KMD23-02, which intersected 15/3 g/t Au over 32.3 m including 24.1 g/t Au over 10.7 m and in KMR23-03, which intersected 2.22 g/t Au over 25.9 m, including 4.2 g/t Au over 10.7 m. For further information see https://copaur.com/.

Larrabee District

Pony Creek. Contact Gold Corp.'s Pony Creek project is located to the south of Gold Standard's Railroad-Pinion project and is focused on exploring a Carlin-type gold system. An initial inferred resource was reported in 2022 containing 433,000 ounces of Au within 25.72 Mt of resources at an average grade of 0.52 g/t Au. The property contains mineralization that is mainly hosted within altered and silicified calcareous clastic rocks of the Moleen Formation and within a rhyolite unit in the Bowl zone. Contact Gold outlined new exploration targets to be drilled at Pony Creek in areas known as Mustang, Elliot Dome, and Palomino and resource expansion was to be targeted during the second half of 2023, with exploration focusing on near-surface oxide targets, defined through mapping, geophysics, rock and soil sampling and structural and stratigraphic interpretation. Orla Mining Ltd. acquired Contact Gold and both the Pony Creek and Green Springs projects in April 2024 after the earlier acquisition of Gold Standard by Orla in 2022. For more information see https://orlamining.com/.

Mud Springs District

Medicine Springs. Reyna Silver's Medicine Springs project is located within Ruby Valley, to the southeast of Elko, Nevada, and covers an area of 4,831 hectares. The property is a past producer, having produced around 160 metric tons of Pb, 800 kg of Zn and 500 kg of Ag from numerous surface and underground mine workings between 1910 to 1956. The project is targeting high-grade Ag-polymetallic carbonate replacement mineralization with previous exploration having already identified a NE-SW Pb-Zn-Ag soil anomaly that is >2000 m long and 350–500 m wide. Exploration drilling in 2023 consisted of 1,335 m of drilling in four drillholes that, when combined with the results of previous drilling, identified silver and zinc mineralization in 7 out of 9 subparallel prospective structures within an area 660 m wide and 1.75 km long. A magnetotelluric geophysical survey and detailed structural analysis were also completed during 2023, determining that the mineralized corridor on the property trends towards a known anomaly that coincides with the strongest copper concentrations identified on the property to date. Key intersects include in drillhole MS23-008, which intersected 1.32 m at 330 g/t Ag, 11.9% Zn and 3.4% Pb, in drillhole MS23-007, which intersected 1.54 m at 304 g/t Ag, 3.5% Zn and 2.1% Pb, and in drillhole MS23-006, which intersected 2.35 m of 217 g/t Ag. For more details see https://reynasilver.com/.

Robinson Mountain District

Maggie Creek. Nevada Gold Mines initial drilling at the Maggie Creek project began in 2023 after Orogen Royalties agreed an option agreement where Nevada Gold Mines can earn a 100% interest in the project by making $5.0 million in cash payments and incurring $6.0 million in exploration expenses over a five-year period, including a cash payment of $200,000 on closing and a work commitment of $750,000 by the first anniversary. If this agreement is optioned, Orogen will retain a 2% net smelter return royalty on the project. The project is located within the core of the Carlin trend adjacent to the Gold Quarry Mine. This area contains the projected extensions of the NE-SW trending Chukar-Alunite fault, a major control on mineralization at Gold Quarry and the NW-SE trending Castle Reef fault, which hosts mineralization at the Carlin Mine. A window of lower plate carbonates is also exposed in the core of the Maggie Creek property. 2023 drilling by Nevada Gold Mines consisted of three reverse circulation drillholes for a total depth of 1,282 m. This drilling aimed to test the geochemistry of the shallow Paleozoic bedrock in this area to identify anomalous concentrations of pathfinder elements for Carlin-type mineralization. Geochemical anomalies, including high concentrations of arsenic, were identified in all drillholes and generally increased in concentration with depth and toward the southwest. For more information see https://www.barrick.com/.

South Railroad Project. Orla Mining completed the acquisition of Gold Standard Ventures Corp. during 2022, including the latter's Railroad-Pinion project focused on the exploration and development of mining operations targeting Carlin-type mineralization. Positive drilling results in 2022 was followed by the acquisition of Contact Gold and the Pony Creek project immediately to the south of the (as now termed) South Railroad project in 2024. Exploration at the project in 2023 included a total of 14,695 m of drilling that included new oxide intersects in step-out drilling at Pinion and Dark Star. Drilling at Pinion included three drillholes for a total depth of 822 m, all of which intersected significant oxide gold mineralization. Key intersects include 0.72 g/t Au over 112.7 m including 1.38 g/t Au over 21.3 m and 0.78 g/t Au over 71.6 m including 1.79 g/t Au over 16.8 m in drillhole PR23-01, and 0.44 g/t Au over 29.0 m and 0.50 g/t Au over 39.6 m in drillhole PR23-02. Two drillholes with a total depth of 1,112 m also tested targets at the Dark Star target. Drillhole DR23-01 intersected 3.53 g/t Au over 36.6 m and 5.23 g/t Au over 19.8 m. Further drilling at Dark Star included one reverse

circulation and one core drillhole to support project development. The reverse circulation drillhole, DR23-02, intersected 2.20 g/t Au over 163.1 m including 3.97 g/t Au over 30.5 m. Significant additional drilling is anticipated in 2024, and the project has current oxide measured and indicated resources of 75.3 Mt at 0.74 g/t Au for 1.8 Moz of contained Au inclusive of proven and probable mineral reserves of 65.2 Mt at 0.77 g/t Au for 1.6 Moz contained Au at the Pinion and Dark Star deposits. For more information see https://orlamining.com.

Tuscarora District

Tuscarora. American Pacific Mining Corp.'s Tuscarora project is focused on exploration for high-level, low-sulfidation, epithermal gold prospect in the historic Tuscarora mining district of Elko County. American Pacific acquired Clearview Gold in May of 2023. This acquisition includes the Danny Boy project, located on the northern extension of the Carlin trend and adjacent to the Tuscarora project. Rock and grab sampling was undertaken at the Danny Boy claims within the expanded Tuscarora project and in the western portion of the original project area in 2023. A total of 218 samples were collected, with 40 containing >1 g/t Au and with a highest concentration of 100.85 g/t Au. Future exploration is likely to include additional soil and rock chip sampling along with geophysical data acquisition to identify high priority drill targets as well as exploring potential joint venture opportunities to advance exploration in 2024. For more information see https://americanpacificmining.com/.

ESMERALDA COUNTY

Gilbert District

Eastside. Exploration by Allegiant Gold Ltd. at the Eastside project is targeting low sulfidation epithermal mineralization hosted by 7.2-Ma rhyolite domes, plugs, and related pyroclastic deposits. The project is located 35 km from Tonopah and has a 2021 Original zone resource estimate consisting of 61.7 Mt of inferred resources at 0.55 g/t Au and 4.4 g/t Ag for 1.1 Moz of contained gold and 8.8 Moz of contained silver. The resource, remains open to the south, west and at depth, and possibly to the north and east. The Castle area of the property also contains an inferred resource of 19.986 Mt at 0.49 g/t Au for 0.314 Moz of contained gold with potential for increased resource expansion. Two drilling programs were undertaken at the property in 2023: a winter reverse circulation drilling program consisting of 19 drillholes and a total depth of 2,400 m, and a six drillhole, 1,200-m total depth diamond cored program. Key reverse circulation intersects include 15 m at 1.36 g/t Au and 8.2 g/t Ag in drillhole ES-310 and 1.52 m at 6.4 g/t Au and 28.41 g/t Ag in drilhole ES-301. Significant diamond drilling results include high concentrations of 5.04 g/t Au in drillhole ES-315 and 204.0 g/t Ag in drillhole ES-312 as well as 24 m at 0.51 g/t Au and 1.33 g/t Ag and 29 m at 0.39 g/t Au and 2.85 g/t Ag in drillhole ES-315. In addition, Allegiant Gold also sampled material located on waste dumps and tailings at the site, including from the Boss Mine leach pad. Coarse fraction samples from the leach pad contained up to 8.02 g/t Au and 28.2 g/t Ag with fine fraction samples from the same leach pad containing up to 2.1 g/t Au and 5.2 g/g Ag. For more information see https://allegiantgold.com/.

Monte Cristo. No exploration was reported at Hecla Mining's Monte Cristo project in 2023. Current inferred resources are 0.913 Mt at 0.3 oz/t Ag and 0.14 oz/t Au containing 0.271 Moz Ag and 0.131 Moz Au. For more information see https://www.hecla.com/.

Goldfield District

Goldfield. Centerra Gold Inc. acquired the Goldfield properties of Waterton Nevada Splitter Inc. for $175,000,000 cash during 2022. As outlined in this report last year, the project consists of three known deposits, namely Gemfield, Goldfield Main, and McMahon Ridge, forming a conventional open-pittable, heap leach project in late-stage development. All of the mineralization within the project is epithermal in style and clusters along the edge of a postulated caldera associated with Oligocene rhyolitic tuff units. Exploration by Centerra in 2023 focused on Gemfield and immediate satellite targets, including Jupiter and Callisto. The Jupiter target is located northeast of the Gemfield deposit and was identified during 2023 activities at the Goldfield project. The Jupiter and Callisto (to the north of Jupiter) targets are interpreted to represent deeper sulfide mineralization transitioning to shallow oxide mineralization in the up-dip projection of the host stratigraphy. Drilling in 2023 consisted of exploration diamond and reverse circulation drillholes at the Goldfield project. Additional drilling was also undertaken at the Jupiter prospect, northeast of the Gemfield deposit, at the Callisto prospect, north of the Gemfield deposit and at the Kendall prospect, east of the Gemfield deposit, were drilled. A total of 49,272 m of drilling was achieved during the year. Gemfield and its associated satellite target areas contain gently-dipping, intermediate and felsic volcanic units unconformably overlain by unconsolidated pebble- to cobble-conglomerate units that have also been down-dropped by post-mineralization normal faults. Centerra Gold Inc. continued to strategically review the project, and intends to focus exploration activities on oxide and transition material, principally in the Gemfield deposit and nearby areas that could result in more simplified ore processing methods, a flow sheet with lower capital costs and increased returns on the project when compared to the known sulfide ore at the Goldfield project. Additional time will be required to undertake exploration within this large

but relatively under-explored project, targeting oxide mineralization that could be incorporated into the initial resource estimate when completed, likely to be reported by the end of 2024. Details of key intersects are available at https://wp-centerra-2023.s3.ca-central-1.amazonaws.com/media/2024/02/14203659/2023_Q4_GEM_DrillResults_CUSI.pdf and for more information see https://www.centerragold.com/.

Lida District

Lida project. T2 Metals' Lida project is located within south-central Esmeralda County and covers an area of 2.75 km^2 of the Walker Lane belt. The project is focused on exploration for porphyry-style mineralization and was identified as a result of the presence of widespread surficial copper mineralization and a discrete magnetic high. Exploration undertaken at the project during 2023 included two diamond cored drillholes with a total depth of 884.2 m. No significant mineralization was encountered in either drillhole, although both intersected alteration similar to that found within porphyry and epithermal systems. For more information see https://t2metals.com/.

Palmetto and Lida Districts

Excelsior Springs project. Athena Gold Corp.'s Excelsior Springs project is located within the Walker Lane belt to the south of Tonopah. Gold mineralization at the project is hosted by an east-west trending zone that is 200 to 400 m wide and at least 3 km long. Mineralization to date has been identified in quartz vein stockworks and silicified zones in hornfels and calc-silicate altered units close to porphyritic dikes. Exploration at the project during 2023 include nine reverse circulation drillholes with a total depth of 1,140 m. Drillhole DH 23-03 intersected 1.02 g/t Au and 8.2 g/t Ag over 51.8 m starting at a depth of 29.0 m and drillhole DH 23-01 intersected 2.18 g/t Au and 1.9 g/t Ag over 6.1 m starting at 74.7 m. For more information see https://athenagoldcorp.com/.

Republic District

Si2 project. K2 Gold Corp.'s Si2 project is located approximately 60 km northwest of Tonopah within the Walker Lane belt. The project area covers 8 km^2 of interpreted steam heated zone alunite-kaolinite-buddingtonite alteration within a sequence of felsic to intermediate volcanic rocks with brecciation and anomalous concentrations of mercury. This alteration is interpreted to represent a high-level near-surface setting within a low-sulfidation epithermal gold-silver system. Exploration at Si2 in 2023 included four diamond cored drillholes with a total depth of 1,777.3 m. Gold mineralization within the drilling area is hosted within a major NE-SW-trending fault zone that is located along the margin of a rhyolite dome. Key intersects include 3.2 m at 0.520 g/t Au from 344.58 m to end of hole in drillhole SD-23-001 and 185.57 m of 0.053 g/t Au from 200 m to end of hole in drillhole SD-23-002. Both drillholes were drilled into the NE-SW trending fault zone and ended in mineralization and elevated concentrations of arsenic. A 6.4-m-thick quartz vein that was intersected in the immediate footwall of the fault during drilling is gold-bearing and indicates that the epithermal system at Si2 is capable of forming large veins. For more information see https://k2gold.com/.

EUREKA COUNTY

Alpha District

Alpha Project. Sitka Gold Corp.'s Alpha project is focused on exploring for Carlin-type mineralization within an extension of the Cortez trend. The project is located approximately 135 km to the southwest of Elko and covers an area of 4,780 acres. Previous drilling intersected wide zones of highly anomalous gold mineralization within the lower part of a Devonian shale sequence (Horse Canyon equivalent) just above the Devils Gate Limestone, with the shallow nature of this mineralization contrasting with some other deeper-seated high-grade Carlin-type targets elsewhere in Nevada. Exploration during 2023 included four drillholes with a total depth of 1027.3 m, all of which intersected alteration and mineralization. Drillhole AG23-13 intersected 4.57m at 0.34 g/t Au from a depth of 117.3 m, and 6.1 m at 0.29 g/t Au from a depth of 135.6 m, drillhole AG23-14 intersected 9.14 m at 0.5 g/t Au from a depth of 350.5 m including 3.05 m at 0.82 g/t Au from a depth of 353.6 m, drillhole AG23-15 intersected 19.81 m at 0.41 g/t Au at a depth of 96.0 m including 7.62 m at 0.55 g/t Au at a depth of 100.6 m, and drillhole AG23-16 intersected 28.96 m at 0.38 g/t Au at a depth of 143.3 m including 10.67 m at 0.49 g/t Au at a depth of 160.0 m. For more information see https://www.sitkagoldcorp.com.

Antelope District

Gold Bar. McEwen Mining's Gold Bar Mine produced 43,775 ounces of gold and 696 ounces of silver during 2023. The mine is located in the southern Roberts Mountains area of the Battle Mountain-Eureka-Cortez gold trend in Eureka County. Historical production at Gold Bar includes 134,000 gold ounces between 1991 and 1994 from Gold Pick and Gold Ridge, at an average mining grade of 2.5 g/t Au. The Gold Pick, Gold Ridge, Cabin Creek and Gold Bar South deposits on the Gold Bar property are included in McEwen Mining's plans for open-pit operations. Current reserves at Gold Bar consist of 4.944 Mt of probable reserves at 1.0 g/t Au containing 0.164 Moz of Au. Resources at Gold Bar are exclusive of reserves and consist of 3.361 Mt of indicated resources at 0.75 g/t Au containing 0.0807 Moz Au and inferred resources of 0.643 Mt at 1.23 g/t Au containing 0.0254 Moz Au. Changes in mineral resources are due to

mining depletion during 2023 and an updated block model at Gold Bar South based on recent drilling results. Mineral resources have also been impacted by mining depletion at Pick and Gold Bar South and an increase in operating costs that also caused an update to the mining schedule.

Mineralization at Gold Bar is located within a large window of lower-plate carbonate rocks surrounded by upper-plate rocks. The lower-plate carbonates consist of (from oldest to youngest) an east-dipping section of Silurian Lone Mountain Dolomite, Devonian McColley Canyon Formation, Devonian Denay Limestone, Devonian Devils Gate Limestone, and Devonian Horse Canyon siltstone units. The gold mineralization at Gold Bar is primarily hosted in the Bartine Member of the McColley Canyon Formation, dominated by carbonate wackestones and packstones with an approximate thickness of 76 to 116 m (250 to 380 ft). Extensive alteration (silicification) and gold mineralization at the Ridge deposit occurs at surface and at depth proximal to three historical open pits. Drilling is ongoing to extend mineralization beyond the currently defined resource. At Pick, significant alteration and gold mineralization is stratabound and is hosted by the Bartine Member of the McColley Canyon Formation as well as being controlled by high-angle N-S to NE-SW trending faults. Mineralization is typically associated with decalcification and argillic alteration of the host limestone and the presence of local pods of remobilized carbon. Oxide gold mineralization at Gold Bar South is stratigraphically controlled by the hosting Devonian Horse Canyon siltstone overlying the Devonian Devils Gate Limestone. Mineralization at Gold Bar South is located along the crest of a broad fold with higher-grade mineralization focused along the intersection of NW-SE and NE-SW faults. The alteration footprint significantly extends to the north and south of the deposit with future drilling planned to expand the current footprint. Exploration at Gold Bar in 2023 included 20,732 m (68,020 ft) of reverse-circulation drilling focused on targets around the Gold Bar Mine, including near-mine extensions at Cabin North, Cabin South, Pick, Benmark, Pot Canyon and Gold Canyon, Wall Fault and Gold Bar South. Fieldwork and new target development also took place in the Saddle, Cabin, Pot Canyon, and Wall Fault corridor areas. A total of 11 reverse circulation drillholes were also completed at Gold Bar South to assist the conversion of inferred resources into indicated resources. Similar amounts of drilling are expected around the Gold Bar Mine in 2024, including the targeting of newly identified prospective areas, with no results released from drilling in 2023. For more information see https://www.mcewenmining.com/.

Carlin Trend (Lynn District)

Black Pearl. Nevada Gold Mines' Black Pearl project is located three kilometers to the northeast of Leeville. Framework drilling in 2023 intersected potential carbonate host rocks shallower than anticipated, although these units were unaltered. Surface target delineation at the project identified several corridors with anomalous geochemistry that will be targeted in 2024. For more information see https://www.barrick.com/.

Fallon. Drilling by Nevada Gold Mines in 2023 at the Fallon project (formerly North Leeville) aimed to reduce the ~640 m gap between the Miramar and Fallon deposits along the prospective NNW-SSE striking high-grade Veld fault. Key intersects include 30.6 m at 7.75 g/t Au and 10.0m at 7.13 g/t Au in drillhole NLX-22020A.

Horsham. Nevada Gold Mines step-out drilling from surface at the Horsham target in 2023 intersected a narrow zone of mineralization in the immediate footwall of the camp-scale controlling Leeville fault, some 100 meters from previous underground drilling. Hole HSX-23002 intersected 8.4 m at 5.85 g/t Au, indicating that the system remains open to the east and north of underground drilling that also took place in 2023, with drillhole HSC-23001 intersecting 32.6 m at 32.88 g/t Au. For more information see https://www.barrick.com/.

Leeville. Nevada Gold Mines continued underground conversion drilling in 2023 across the entire greater Leeville area. For more information see https://www.barrick.com/.

Little Boulder Basin. Nevada Gold Mines undertook framework drilling to the west of Leeville in the sparsely drilled Little Boulder Basin, intersecting multiple thin high-grade intersects that include 2.6 m at 6.35 g/t Au in drillhole LBB-23010 within a broader, 27 m-wide zone of alteration. This drilling is consistent with previous results hundreds of meters to the south, indicating that mineralization occurs in sulfide breccias at the top of a 200-m-thick package of thrust-faulted carbonate rocks, which remains open to the north and will be evaluated for additional drilling in 2024. For more information see https://www.barrick.com/.

Miramar. Drilling by Nevada Gold Mines in 2023 at the Miramar project (formerly North Turf) aimed to reduce the ~640 m gap between the Miramar and Fallon deposits along the prospective NNW-SSE striking high-grade Veld fault. Key intersects include 24.6 m at 23.97g/t Au and 6.9 m at 25.06 g/t Au in drillhole NTC-22003 and 36.3 m at 12.37 g/t Au and 3.9 m at 24.27 g/t Au in drillhole NTC-22044.

Rita K. Nevada Gold Mines undertook exploration at the Rita-K project to the south of Leeville in 2023. This exploration consisted of underground step-out drilling

targeting mineralization to the west of the main Rita K deposit in the upper Rita K area. Drilling intersected high-grade mineralization near the Rodeo Creek and Popovich lithological contacts, representing a significant host for mineralization within the greater Leeville area. Drillhole RKU-23014 returned a total intersect of 18.6 m at 9.33 g/t Au including 6.4 m true width at 17.69 g/t Au, confirming the presence of mineralization more than 120 m distant from previous underground in the lower Rita K area. Surface follow-up drilling planned for 2024 aims to improve the continuity at upper Rita K ahead of the development of an exploration decline and subsequent underground conversion drilling to improve resources and reserves at the prospect. For more information see https://www.barrick.com/.

Cortez District

Cortez. Step-out drilling by Nevada Gold Mines in 2023 at the Robertson open-pit project to the north and west around the Distal target provided evidence of exploration outside of existing resource pit designs. Key intersects include 8.7 m true width at 1.06 g/t Au in drillhole DTL-23012 and 7.6 m true width at 1.77 g/t Au, 9.3 m true width at 1.78 g/t Au, and 6.6 m true width at 1.74 g/t Au in drillhole DTL-23013. Follow-up drilling is planned for 2024. For more information see https://www.barrick.com/.

Cortez Hills. Underground drilling by Nevada Gold Mines in 2023 focused around the Cortez Hills underground Hanson target, with three major step-out holes completed 2023 to assess upside exploration potential outside of the well-defined zone of mineralization termed the Heart of Hanson. Two drillholes returned high-grade intersects, including the highest gram-meter result at the Hanson target to date, 33.2 m at 18.42 g/t Au in drillhole CMX-23018. This drilling increases the footprint of known mineralization some 290 m from previous drilling and the system remains open to the west. Drillhole CMX-23017, some 200 m to the north of CMX-23018, intersected 2.1 m at 23.15 g/t Au, indicating the system also remains open up-plunge. Drilling planned for 2024 will continue to step out from these high-grade intersects. For more information see https://www.barrick.com/.

Fourmile. Drilling by Nevada Gold Mines at Fourmile in 2023 focused on the prospective corridor between the Sophia and Dorothy targets after the 2023 intersect of 28.7 m at 51.1 g.t Au in drillhole FM23-181D. Two further holes along this corridor intersected thin but high-grade mineralization along the Sadler fault. Drillhole FM23-188D intersected 3.8 m at 16.26 g/t Au and 1.4 m at 9.91 g/t Au and drillhole FM23-187D intersected mineralized intervals of 1.8 m at 57.23 g/t Au and 2.6 m at 40.22 g/t Au. The 2023 drill program at Fourmile established continuity at a 100- to 200-m spacing along the Sadler fault between the Sophia zone at the northern end of the Fourmile resource and the Dorothy zone, some 750 m to the north. Drillhole FM23-181D also provided evidence of the potential for thick, breccia-hosted mineralization along this corridor. Further infill drilling targeting exploration upside at Fourmile is planned with an expanded drilling program in 2024. For more information see https://www.barrick.com/.

Toiyabe. Westward Gold's Toiyabe project is focused for Carlin-type gold mineralization within the favorable Wenban Formation, a well-known gold host within the nearby Pipeline and Cortez Hills deposits. The mineralization at Toiyabe is associated with a concealed thrust fault, a duplex zone, and a corridor of igneous dikes and sills. Westward signed an agreement with EMX Royalty Corporation during 2023 whereby EMX made a strategic equity investment in Westward and provided subsidized diamond drilling services in exchange for certain net smelter return (NSR) royalty buyback rights and the conditional future granting of NSR royalties on the Toiyabe and Turquoise Canyon properties. A 612 m drillhole, T2301, was completed during 2023 to test for near-surface gold mineralization and the potential down-dip northeast extension of the newly-identified SSD zone, an area of disseminated gold mineralization at depth with very little historical exploration. Key intersects within drillhole T2301 include 6.3 m at 2.04 g/t Au including 1.5 m at 7.03 g/t Au, 24.8 m at 0.6 g/t Au including 7.0 m at 1.29 g/t Au, and 12.7 at 1.01 g/t Au including 3.1 m at 1.53 g/t Au and 0.8 m at 4.8 g/t Au. A total of five significant intersects were encountered in the drillhole. For more information see https://westwardgold.com/.

Eureka District

Eureka project. Timberline Resources Corp.'s Eureka project is located at the southern end of the Battle Mountain-Eureka trend and was acquired as part of the 2010 acquisition of Staccato Gold. The project is focused on exploration for Carlin-type mineralization and includes a revised 2023 NI43-101 compliant resource estimate containing measured, indicated and inferred resources comprising 649,000 ounces of contained gold. Exploration drilling at the site was planned for 2023, but no information was released, and effective August 19, 2024, Timberline Resources became a fully owned subsidiary of McEwen Mining Inc. For more information see https://timberlineresources.co/.

Prospect Mountain project. North Peak Resources currently has an 80% stake in the Prospect Mountain project and has the right to acquire the remaining 20% interest. The project is located in the Battle Mountain-Eureka trend in an area prospective for Carlin-type Au, carbonate replacement, and skarn mineralization. Known carbonate replacement mineralization at the property is heavily oxidized to depths

of at least 610 m. Exploration at the property in 2023 include geophysical surveys, geological mapping, and surface grab sampling of 77 rock chip and grab samples. These samples had average concentrations of 2.42 g/t Au, 76.2 g/t Ag, 0.38% Cu, 1.06% Pb and 1.33% Zn and reached high concentrations of 33.9 g/t Au, 183 g/t Ag, 0.9% Cu, 1.81% Pb and 1.66% Zn. A single 991.5-m (3,253-ft) cored drillhole (PM23-001) was completed at the property in 2023, with significant intersects including 9.5% Zn, 221.6 g/t Ag, 0.8% Cu, and 0.3% Pb over 1.0 m, 7.3% Zn, 54.6 g/t Ag, and 0.8% Pb over 1.9 m, and 355 g/t Ag and 4.6% Pb over 0.3 m. Further drilling and exploration at the site are expected for 2024. For more information see https://northpeakresources.com/.

Ruby Hill project. I-80 Gold Corp.'s Ruby Hill project is considered to be an advanced-stage development project with ongoing residual heap leach gold production that is located within the Battle Mountain-Eureka trend. The project hosts the past-producing Archimedes open-pit mine and multiple gold, silver, and polymetallic base metal deposits. Processing infrastructure at the site includes a primary crushing plant, grinding mill, leach pad, and carbon-in-column circuit. Production at Ruby Hill in 2023 was 6,359 ounces of gold from residual heap leach operations.

I-80 Gold's multi-year exploration drilling program at Ruby Hill continued during 2023 with more than 28,346 m (93,000 ft) of drilling in the year that confirmed multiple discoveries and expanding the footprint of known mineralization in several zones at the property. I-80 also acquired Paycore during 2023, the owner of the FAD property that hosts the high-grade FAD deposit located immediately south of, and adjoining, the Ruby Hill property. This acquisition adds around 1,468 hectares of land to the Ruby Hill property. Drilling highlights at Ruby Hill from 2023 include 15.6% Zn, 8.7% Pb, 420.4 g/t Ag and 0.6 g/t Au over 40.4 m in drillhole iRH23-41 at the Blackjack deposit, 15.9% Zn, 4.3 g/t Au and 284.4 g/t Ag over 7.2 m in drillhole iRH23-39 at the East Hilltop carbonate replacement deposit, 20.8% Zn and 15.0 g/t Ag over 11.6 m in drillhole iRH23-30 at the East Hilltop skarn, 6.9 g/t Au over 50.7 m in hole iRH23-40 at the Ruby Deeps deposit and 45.4 g/t Au & 50.2 g/t Ag over 17.5 m in drillhole iRH23-18A at the Tyche deposit. The Tyche discovery contains high-grade gold and silver mineralization and is located in a previously untested area along the Graveyard Flats intrusion. Drilling encountered strongly altered and brecciated intrusive rock along the margin of the Graveyard Flats stock with visible gold, elevated pyrite abundances and vuggy silica. This new zone is located immediately east of the Blackjack deposit and to the northeast of the Hilltop zones that were discovered late in 2022.

Exploration drilling at the Blackjack skarn target during 2023 produced a number of key intersects, including 10.1% Zn, 0.6% Pb, 37.0 g/t Ag and 0.3 g/t Au over 116.3 m in drillhole iRH23-42, 16.1% Zn, 0.1% Pb, 12.4 g/t Ag and 0.5 g/t Au over 16.4 m in drill hole iRH23-43B, and carbonate replacement (15.6% Zn, 8.7% Pb, 420.4 g/t Ag and 0.6 g/t Au over 40.4 m and skarn (10.7 % Zn, 0.4 % Pb, 0.2 g/t Au and 37.0 g/t Ag over 47.9 m) intersects in drillhole iRH23-41.

Exploration drilling at the Hilltop zones focused on skarn and carbonate replacement mineralization that has been defined over a strike length of 750 m and is split into the Upper, Lower, and East Hilltop zones. Definition and step-out drilling to date suggests the area has significant growth potential with mineralization remaining open for expansion. Key intersects from these include 8.8% Zn, 18.8% Pb, 332.9 g/t Ag and 0.6 g/t Au over 32.0 m in drillhole iRH23-54 from the Upper Hilltop zone, 9.7% Zn, 10.0% Pb, 226.1 g/t Ag and 0.5 g/t Au over 8.4 m in drillhole iRH23-10 from carbonate replacement mineralization in the East Hilltop zone, and 9.5% Zn, 0.3% Cu and 12.6 g/t Ag over 114.3 m in drillhole iRH23-50 at the East Hilltop skarn, including 17.7% Zn, 0.4% Cu and 10.2 g/t Ag over 36.6 m, 12.9% Zn, 0.6% Cu & 48.8 g/t Ag over 15.2 m, and 9.5% Zn, 0.8% Cu & 18.6 g/t Ag over 7.6 m. A single exploration hole, iRH23-55, drilled around 150 m to the south of East Hilltop to test for the potential continuation of mineralization along the intrusive contact intersected a broad zone of skarn mineralization with key intersects of 252.0 g/t Ag and 22.3% Zn over 1.5 m, 1181.0 g/t Ag, 19.5% Zn, 10.2% Pb and 1.2% Cu over 1.5 m, 125.0 g/t Ag and 13.7% Zn over 1.5 m, and 159.0 g/t Ag, 11.3% Zn and 5.6% Pb over 1.5 m.

Exploration drilling in 2023 at the FAD deposit intersected multiple, stacked zones of mineralization within the southeast of the deposit. Key intersects include 5.7 g/t Au, 159.4 g/t Ag, 15.0% Zn and 2.8% Pb over 5.4 m, 13.7 g/t Au, 430.0 g/t Ag, 15.9% Zn and 7.7% Pb over 2.5 m, and 9.0 g/t Au, 92.4 g/t Ag, 12.2% Zn and 1.0% Pb over 14.6 m in drillhole PC23-22 and 1.9 g/t Au, 109.7 g/t Ag, 8.9% Zn and 0.2% Pb over 3.2 m, 33.4 g/t Au, 87.7 g/t Ag, 7.1% Zn and 0.2% Pb over 2.1 m, 7.6 g/t Au, 42.2 g/t Ag, and 6.3% Zn over 6.0 m, 11.4 g/t Au, 65.8 g/t Ag, 0.6% Zn, and 0.2% Pb over 2.0 m, 4.3 g/t Au, 41.3 g/t Ag, 12.0 % Zn and 0.2% Pb over 3.5 m, 3.9 g/t Au, and 185.6 g/t Ag, 11.1% Zn and 3.6% Pb over 25.4 m including 4.1 g/t Au, 350.1 g/t Ag, 13.8% Zn and 7.3% Pb over 11.0 m in drillhole C23-28. Exploration at the Ruby Deeps target, the core Carlin-type gold deposit at Ruby Hill located beneath the western portion of the Archimedes open pit, also included an intersect of 6.9 g/t Au over 50.7 m including 8.0 g/t Au over 24.9 m within drillhole iRH23-40.

I-80 Gold has submitted a plan to develop an underground mine at Ruby Hill with mineralization accessed via a ramp from the Archimedes open pit. Work is also progressing for the completion of initial mineral resource estimates on the polymetallic mineralization followed by initial economic studies. Additional developments at Ruby Hill include progressing advanced permitting for underground development, advanced

metallurgical testing, and progress toward the development of processing flowsheets. For more information see: https://www.i80gold.com.

Northern Simpson Park Mountains

Red Hill. NuLegacy Gold's Red Hill project is focused on exploration for Carlin-type mineralization within the same region as the Pipeline, Cortez, and Goldrush deposits. Exploration in 2023 included an expected five drillhole drilling program between late 2023 and early 2024 although this exploration program was suspended in early 2024 after two drillholes were completed. The only results that were released from this program were from drillhole MR23-01, which intersected 22.9 m (75 ft) at 0.091 g/t Au. For more information see https://nulegacygold.com/.

HUMBOLDT COUNTY

Awakening District

Sleeper. Paramount Gold Nevada Corp.'s Sleeper project is focused on mineralization associated with the former Sleeper Mine and to the east of the Sleeper open pit along the continuation of a range front that is thought to represent faulting that controlled the location and genesis of the previously mined Sleeper deposit. A resource estimate was released for the project in June, 2023, consisting of measured, indicated and inferred resources containing some 3,111,000 ounces of gold and 30,725,000 ounces of silver. For more information see https://paramountnevada.com/.

Battle Mountain District

Elder Creek. McEwen Mining's Elder Creek project is focused on exploration for porphyry copper-gold-molybdenum-silver mineralization some eight miles WNW of Battle Mountain near the northern end of the Battle Mountain-Eureka trend. The project covers some 9,600 acres and McEwen Copper signed an agreement in October 2022 whereby Kennecott Exploration Company, a subsidiary of Rio Tinto, could earn up to a 60% interest in the Elder Creek property by investing $18 million over seven years. Exploration drilling occurred at the property in 2023, but results were not released, and Kennecott Exploration Company notified McEwen copper of the termination of the option to joint venture on January 9, 2024. McEwen Copper is currently reviewing the technical data and the results of the Kennecott Exploration Company program to determine the next steps for the Elder Creek property. For more information see https://mcewenmining.com/.

Marigold Mine. Mining operations at the Marigold Mine produced 278,488 ounces of gold and 6,173 ounces of silver in 2023. Exploration at and around SSR Mining's Marigold Mine in 2023 involved drilling and sampling throughout the Marigold property, including 36,840 m of infill and resource expansion drilling over a total of 190 drillholes. The Marigold Mine has now been in continuous operation for more than 30 years and poured the four millionth ounce of gold from the mine in 2020. Mining activities continued at the Marigold Mine proper with the New Millennium target area around the Basalt-Antler open pit, which historically produced approximately 1 million ounces of gold at a grade of 0.75 g/t, representing a low-cost and high-probability future mining development opportunity. The target area consists of six distinct zones, namely East Basalt, Battle Cry, Antler, Section 6, L'il Gun and North Antler. Gold at Marigold is mined from multiple deposits with mining activity coalesced into the large Mackay open pit. The gold deposits at Marigold define a N-S trending alignment of mineralization that is >8 km long and are located within a >10 x 1.5 km area, with depths ranging from surface to 250 m for oxide mineralization. The mineralizing fluids that formed the deposit were primarily controlled by fault structure and lithology, with fold geometry having a lesser influence. Gold was deposited within fault zones and quartzite chert dominant horizons within the Valmy Formation as well as high-permeability units within the Antler sequence. Gold mineralization was also influenced by fold geometry in the Valmy Formation. Proven and probable reserves at Marigold consist of 150.7 Mt at 0.52 g/t Au containing 2.496 Moz Au within the open-pit reserves, 18.6 Mt of stockpiled ore at 0.14 g/t Au containing 0.85 Moz Au, and 282,000 ounces of gold in heap leach pad inventory material. Mineral resources at Marigold, including those defined for Buffalo Valley, include 118.61 Mt of indicated resources at 0.46 g/t Au containing 1.740 Moz of Au and 27.36 Mt of inferred resources at 0.42 g/t Au containing 0.37 Moz of Au. The Marigold resources alone consist of 103.72 of indicated resources at 0.44 g/t Au containing 1.74 Moz Au and 19.09 Mt of inferred resources at 0.36 g/t Au containing 0.22 Moz of Au. A UAV-borne magnetic survey of the Buffalo Valley, North Peak, and New Millennium areas was also completed in 2023. The survey consisted of 3,324.7 line-km of acquisition at a 25 m line spacing and a 250 m tie line spacing with a mean terrain clearance of 20 m. For further information see https://www.ssrmining.com/.

Trenton Canyon. Exploration at SSR Mining's Trenton Canyon project to the south of New Millenium in 2023 included drilling, geophysical, remote sensing and geochemical data acquisition, and geological mapping. The Trenton Canyon property operated as an open pit run-of-mine heap leach operation from 1996 to 2001 and produced approximately 290,000 ounces of gold from the North Peak, West, and South pits. The property is located approximately 5 km south of the Marigold deposit and covers an area of approximately 34 km^2. Trenton Canyon is separated from Marigold by the southwest-striking Oyarbide fault, a range-

bounding fault on the northern flank of Battle Mountain. Gold mineralization at Trenton Canyon is hosted by siliciclastic and carbonate rocks of Cambro-Ordovician and Pennsylvanian-Permian age proximal to potentially genetically related Eocene felsic dikes. The gold deposits are on the margin of a calc-silicate and hornfels alteration aureole attributed to emplacement of the Cretaceous Trenton Canyon stock, exposed at surface approximately one kilometer southwest of the historical South pit. The exploration undertaken by SSR to date indicates that gold mineralization at Trenton Canyon is structurally controlled and is associated with less disseminated mineralization than at the Marigold Mine. This difference yields mineralization with higher gold grades but within a smaller volume of mineralized rock at Trenton Canyon compared to Marigold. A total of 37 reverse circulation drillholes with a total depth of 8,232 m and two diamond drillholes with a total depth of 434 m were completed at Trenton Canyon during the first half of 2023 but no results were released. For further information see https://www.ssrmining.com/.

Buffalo Mountain District

Lone Tree-Buffalo Mountain. The acquisition of the Lone Tree-Buffalo Mountain property by i-80 Gold in 2021 was followed by a drilling program completed in late 2022 as reported in last year's Mineral Industry report in order to assess the potential for an open pit mining operation. The Lone Tree property is a past producer of around 4.2 million ounces of gold and contains significant processing infrastructure, including a whole-ore autoclave, leach pad and carbon in column circuit, and a floatation circuit. The property contains significant gold resources with known mineralized zones remaining open for expansion and the total land package consists of approximately 12,000 acres. As outlined previously, Lone Tree is thought to be an Eocene distal-disseminated mineralizing system that is largely structurally controlled along the N-S striking Powerline fault with some mineralization located between the Roberts Mountains and Golconda thrusts in siliciclastic rocks of the Ordovician Valmy Formation, within the Pennsylvanian-Permian Battle Mountain and Edna Mountain formations, and above the Golconda thrust in siliciclastic and carbonate rocks of the Mississippian to Permian Havallah sequence. Mineralization is also hosted by Eocene rhyolitic dikes, although no large intrusive body has been delineated. Gold within this area is associated with sericitic and argillic alteration of siliciclastic rocks and dikes, with decarbonatization and Fe carbonate alteration of carbonate-bearing units, as well as in Fe-As sulfide and fine-grained quartz alteration of all rock types. Oxidation affects 30–45% of the deposit, penetrating into the stratigraphy along numerous steeply dipping north-south, east-west, and north-northeast–south-southwest structures.

Lone Tree is expected to become the hub of i-80's Nevada operations and the central processing facility for gold mineralization from the Granite Creek, McCoy-Cove, and Ruby Hill underground gold deposits. Importantly, Lone Tree is host to infrastructure that, if refurbishment efforts are successful, should position i-80 as one of only three companies in the U.S. capable of processing both oxide and refractory mineralization. The Lone Tree operations produced 6,200 ounces of gold and 2,000 ounces of silver from residual leaching operations in 2023. For more information see https://www.i80gold.com.

Potosi District

Turquoise Ridge. Nevada Gold Mines undertook step-out drilling at the southern end of the Turquoise Ridge underground mine in 2023, with drillhole TUM-23307 intersecting 4.8 m at 95.18 g/t Au including 2.0 m at 212.00 g/t Au within a strongly sheared Lower Comus package, proximal to the projection of the Bullion Fault. Mineralization at Turquoise Ridge remains open both down-dip to the east and along strike to the south, where little to no previous drilling has been undertaken to date. For more information see https://www.barrick.com/.

Twin Creeks. Further surface step-out drilling at the southern end of the Mega pit at Twin Creeks was undertaken by Nevada Gold Mines in 2023, intersecting significant mineralization along the Lopear thrust, a known mineralization-controlling structure within the main portion of the pit. Drillhole TSG-23003A intersected 63.3 m true width at 4.42 g/t Au at the base of the projected resource pit design. Framework drilling was also undertaken to the north of the Mega Feeder target proximal to the 20K fault, a Getchell fault-parallel structure within the Twin Creeks side of the district. This drillhole was also targeted to intersect the Nexus anticline in the favorable middle Comus host rocks. The hole was drilling above the target at end-2023 and was to be completed in the first quarter of 2024. Drilling during the later stages of 2023 intersected multiple zones with elevated concentrations of Carlin-type pathfinder elements and alteration within the siliclastic units above the deeper potentially mineralized carbonate host rocks. The potential for a high-grade, feeder-type target beneath the Twin Creeks deposit remains high, and continues to be one of Nevada Gold Mines' highest priority targets for exploration in the district. For more information see https://www.barrick.com/.

Granite Creek. i-80 Gold Corp.'s Granite Creek (formerly the Pinson Mine) project is located at the intersection of the Getchell and Battle Mountain trends proximal to Nevada Gold Mines' Twin Creeks and Turquoise Ridge mining operations. The project is a past-producer, having produced nearly one million ounces of gold primarily from the CX, Mag, and Range Front zones, all of which are located in the hangingwall of the east-dipping range front fault within the Osgood Mountains.

The property hosts both high-grade open pit and underground mineral resources that remain open for expansion, and mining at Granite Creek in 2023 produced some 32,700 ounces of gold. Mineralization is hosted in interbedded shale, siltstone, and limestone units of the Ordovician Comus Formation with lesser mineralization in shales and limestones of the underlying Cambrian Preble Formation. The mineralization at Granite Creek is controlled by inverted reverse faults, Cretaceous dikes, and lithological changes that control the presence or absence of favorable host rocks. Relatively high-grade underground mineralization within the CX and Range Front zones is preferentially located at intersections between fault zones and favorable portions of the lower Comus Formation. The mineralization itself primarily consists of sooty, fine-grained pyrite with gold hosted in arsenic-rich rims around the pyrite, all of which is associated with decarbonization, silicification, and argillic alteration. A total of 11,610 m (38,091 ft) of drilling was completed at the Granite Creek property during 2023, with key intersects including 26.1 g/t Au over 5.7 m in drillhole iGS23-01, 25.6 g/t Au over 5.5 m in drillhole iGS23-03, 15.5 g/t Au over 19.7 m in drillhole iGS23-05, 31.1 g/t Au over 21.9 m in drillhole GCPU23-22, and 28.7 g/t Au over 16.5 m in drillhole GCPU23-30. Positive test mining was completed in the Otto and Ogee zones during 2023, resulting in the construction of six mining levels during the year and steady mining of ore during the second half of 2023. Sulfide ore stockpiles were also shipped to Nevada Gold Mines Twin Creeks operation for processing starting in December 2023. The Granite Creek deposit also remains open at depth and along strike from the existing underground workings. For more information see https://www.i80gold.com.

Spring Valley District

Triple T. NV Gold Corp.'s Triple T project is located within the Humboldt Range 9 km (5.6 miles) of the active Rochester silver-gold mine and 42 km (26.1 miles) southeast of the active Florida Canyon gold mine. The property contains units of the Triassic Prida Formation that unconformably overlie rhyolite flows and ash-flow tuffs of the Permian Rochester formation, the oldest rocks within the district. Locally, massive limestone units of the Middle to Upper Triassic Natchez Pass Formation have been thrust over the Prida Formation, and Upper Triassic phyllitic shale units of the Grass Valley Formation have been thrust over the Natchez Pass and Prida Formations. A later thrust plate of Natchez Pass and Prida limestones also overlies the Grass Valley Formation. Gold mineralization at Triple R is associated with intense oxidation and is hosted by quartz veins within volcaniclastic sequences of the Triassic Natchez Pass Formation. Exploration during 2023 included the sampling of 27 rock chips, five of which contained between 2.71 g/t Au and 9.63 g/t Au. Drilling during 2023 consisted of 14 shallow reverse circulation drillholes with a total depth of 719.3 m, focused on the northernmost of the three target areas within the property. The best intersects from this drilling were 4.57 m at 2.40 g/t Au in drillhole TT-9 and 9.14 m at 1.39 g/t Au in drillhole TT-11. For more information see https://nvgoldcorp.com/.

Sulphur District

Hycroft. Hycroft Mining Holding Corp.'s Hycroft project is focused on the exploration for low-sulfidation, epithermal mineralization in an area with numerous known banded quartz veins similar to those found within the Midas deposit. Exploration has been conducted on the property since the 1980s, yet there has been no prior focus on understanding these veins and what they may mean to the mineralizing system within the project area. To date, Hycroft has conducted extensive drilling, hyperspectral imaging, geophysical surveys, soil and rock chip sampling programs, field mapping, historical data compilation, and regional reconnaissance around the mine area. These efforts are designed to improve the understanding of the known mineralization, as well as to provide data for further exploration of the property.

Exploration drilling in 2023 continued from the late 2022 drilling program discussed in last year's Mineral Industry report. Numerous high-grade silver discoveries were made by Hycroft within the Brimstone and Vortex zones below the known resource. Key intersects include in drillhole H23R-5753, which intersected 85.3 m at 534 g/t Ag and 0.23 g/t Au including 39.6 m at 1,019 g/t Ag and 0.26 g/t Au and 4.6 m at 4,974 g/t Ag and 0.56 g/t Au, in drillhole H23R-5760, which intersected 131.1 m at 213 g/t Ag and 0.34 g/t Au including 41.1 m at 636 g/t Ag and 0.47 g/t Au and 12.2 m at 1,554 g/t Ag and 0.48 g/t Au, in drillhole H23R-5771, which intersected 152.9 m at 143 g/t Ag and 0.32 g/t Au including 57.7 m at 357 g/t Ag and 0.29 g/t Au and 4.2 m at 3,807 g/t Ag and 0.58 g/t Au, and in drillhole H23C-5790, which intersected 20 m at 869.9 g/t Ag and 0.40 g/t Au including 7 m at 2,427.03 g/t Ag and 0.39 g/t Au. This drilling outlined a NW-SE trend of mineralization extending from Vortex to Camel and a NE-SW trend extending from Vortex to Brimstone. Both trends are open along strike and additional drilling is planned to determine whether these trends intersect. The project currently has measured and indicated resources of 819.162 Mt at 0.401 g/t Au and 13.68 g/t Ag containing 10.581 Moz Au and 360.664 Moz Ag with inferred resources of 268.179 Mt at 0.389 g/t Au and 11.14 g/t Ag containing 3,356 Moz Au and 96.117 Moz Ag. For more information see https://hycroftmining.com/.

Ten Mile District

Sandman. Gold Bull Resources Corp's Sandman project is located along the N-S to NW-SE trending eastern margin of the Sleeper or Kings River rift, part of the regional central northern Nevada rift. Mapping, exploration drilling,

and extensive shallow auger drilling to date indicate that much of the sand and basalt in the project area are underlain by a section of Tertiary tuffaceous rocks and andesite that in turn overlies Late Triassic to early Jurassic metasedimentary clastic and subordinate carbonate rocks. The mineralized zones within the Southeast Pediment, Silica Ridge, North Hill, and Abel Knoll targets at Sandman contain low-sulfidation, quartz-adularia, epithermal Au-Ag mineralization that is hosted by Tertiary volcanic rocks (primarily tuffs), porphyritic andesite, tuffaceous sedimentary units, and basalt. Higher grade mineralization appears to be either stratigraphically controlled along contacts between basalt flows, interbedded fluvial conglomerates and tuffaceous rocks, or is structurally controlled and present as lens-shaped pods, with high-continuity, lower-grade disseminated gold hosted by sedimentary and volcanic units. Gold Bull Resources Corp. released a 2021 mineral resource estimate for the deposit that consists of 493,800 ounces of contained gold in indicated and inferred resources. A Preliminary Economic Assessment for the project was also released during 2023. For more information see https://goldbull.ca/.

LANDER COUNTY

Battle Mountain District

Phoenix. Nevada Gold Mines Phoenix operation produced 199,994 ounces of gold, 952,702 ounces of silver, and 35,406,713 lb of copper in 2023. No significant exploration results for the operation were reported in 2023. For more information see https://www.barrick.com/.

Buffalo Valley District

Buffalo Valley. SSR Mining's Buffalo Valley deposit is a distal disseminated silver-gold deposit that formed along a southeast-trending zone of felsic porphyritic dikes and faults. The project area is approximately 14 km southwest of the Mackay complex at Marigold and 8 km to the southwest of Trenton Canyon on the immediate western flank of the Battle Mountains. Most of the gold mineralization at Buffalo Valley is associated with quartz, sericite, and pyrite veins and veinlets that postdate development of the various hornfels and skarn alteration assemblages on the property. The Buffalo Valley deposit is hosted by Eocene felsic dikes and metasedimentary rocks and basalts of the Mississippian-Permian Havallah sequence that are pervasively altered to skarn and hornfels in the vicinity of the deposit area. Exploration at SSR Mining's Buffalo Valley project to the southwest of New Millennium included a total of 31,111 m of drilling over 98 drillholes at the project in 2023. No results were released although Buffalo Valley mineral resources have been added to the Marigold Mine resource estimate. The Buffalo Valley deposit has a current mineral resource that consists of 14.89 Mt of measured and indicated resources at 0.57 g/t Au containing 0.27 Moz Au and 8.77 Mt of inferred resources at 0.51 g/t Au containing 0.15 Moz of Au. For further information see https://www.ssrmining.com/.

Bullion District

Robertson. Drilling in 2023 by Nevada Gold Mines at the Robertson deposit continued to extend mineralization with step-out drilling to the north and west around the Distal target continued to support the exploration upside potential at this target, outside of existing resource pit designs. Key intersects include 8.7 m true width at 1.06 g/t Au in drillhole DTL-23012, and 7.6 m true width at 1.77 g/t Au, 9.3 m true width at 1.78 g/t Au, and 6.6 m true width at 1.74 g/t Au in drillhole DTL-23013. Follow up drilling is planned for 2024. For more information see https://www.barrick.com/.

Swift. The Swift project is currently operated by Nevada Gold Mines under an exploration earn-in agreement executed in September 2021 with Ridgeline Minerals, where Nevada Gold Mines holds an option to spend $20 million in qualifying expenditures over five years to earn an initial 60% stake in the project. Nevada Gold Mines had spent a total of $4.9 million on the project to February 2023 and satisfied the minimum guaranteed work commitment of $4 million ahead of the scheduled deadline of December 31, 2023.

The project is focused on Carlin-type gold mineralization and is adjacent to the historic Elder Creek open-pit mine. Earlier drilling in 2021 included drillhole W21-001, which returned 9.1 m of 0.51 g/t Au and intersecting lower plate rocks at relatively shallow depths that were free of anomalous gold. A further three wide-spaced (~1 km) framework drillholes were started in 2022 and were completed in January 2023 for a total depth of 3,278 m. Drillholes SW22-002 and SW22-003 intersected lower plate carbonate host rocks between at depths of 570–830 m depth with widespread intervals of Carlin-type alteration. Anomalous Au mineralization was also intersected in both holes where individual samples contained up to 2.72 g/t Au. Significant intersects include 37.2 m at 0.29 g/t Au, 2.6 g/t Ag in drillhole SW22-002 and 48.8 m at 0.45 g/t Au, 0.98 g/t Ag in drillhole SW22-003. Drilling undertaken in 2023 did not test the intended Mill Creek target with drillhole SW23-005 unable to test the intended Lower Plate target as a result of difficult drilling conditions that forced the abandonment of the drillhole at a depth of 1,041 m. No other results were released during the year. For more information see https://www.ridgelineminerals.com/.

Callaghan Ranch District

South Grass Valley. Nevada Exploration Inc.'s South Grass Valley project is located within a covered basin to the

south of Nevada Gold Mines' Cortez operations. The project is now operated by URZ3 Energy Corp. as a result of a company name change in 2024. The project is focused on exploration for Carlin-type mineralization and has exposed Carlin-type alteration within a 700-m-thick sequence of lower plate carbonate host rocks immediately below the Roberts Mountains thrust. No exploration results were released during the year. For more information see https://www.urz3.com/.

Fire Creek Mine. No exploration at Fire Creek was reported by Hecla Mining during 2023, which was placed on care and maintenance during the second quarter of 2021. Current indicated resources at Fire Creek consist of 0.114 Mt at 1.0 oz/t Ag and 0.46 oz/t Au containing 0.113 Moz Ag and 0.053 Moz Au with inferred resources of 0.764 Mt at 0.5 oz/t Ag and 0.51 oz/t Au containing 0.393 Moz Ag and 0.392 Moz Au. A further inferred open-pit resource at the property contains 74.584 Mt at 0.1 oz/t Ag and 0.03 oz/t Au containing 5.232 Moz Ag and 2.178 Moz Au. For more information see https://www.hecla.com/.

Cortez District (Lander County)

Southwest Pipe. NV Gold Corp.'s Southwest Pipe project is located in Lander County 3.7 miles southwest of the Pipeline gold mine in the central Cortez district. Known gold mineralization at Southwest Pipe is located within 100 m of surface and is hosted by siltstones and quartzite within the western facies sequence of the upper plate of the regional Roberts Mountains thrust fault. Exploration to date suggests that NNW-SSE striking faults may have localized mineralization that also spread laterally away from these faults in a stratiform style along a geological contact, possibly a thrust fault. These faults have not been tested by drilling, but faults of this orientation are the key control to localizing gold mineralization along the Cortez gold belt, including within the nearby Pipeline, Cortez Hill, and Goldrush deposits. Exploration drilling was undertaken at the property in 2023 but no results were released. For more information see https://nvgoldcorp.com/.

McCoy District

McCoy-Cove Project. Exploration at I-80 Gold Corp.'s McCoy-Cove project included more than 15,240 m (50,000 ft) of drilling in 2023. As outlined in previous Mineral Industry reports, the mineralization at McCoy-Cove is hosted within the Helen, Gap, CSD, and 2201 zones that are located below and extending ~2000 ft northwest of the historic Cove pit, with a number of other expansion and exploration targets also identified within the project. The area contains four types of mineralization, including (1) Carlin-like Au-Ag mineralization, (2) polymetallic Au-Ag±Pb±Zn sheeted veins, (3) carbonate replacement Ag-Pb-Zn±Au mineralization present as manto-style pods of mineralization, and, (4) skarn mineralization at the historic McCoy pit ~1 km southwest of the Cove pit. Although most Carlin-type systems are hosted in Paleozoic slope and shelf carbonates, the host rocks at McCoy-Cove are silty to massive limestones and dolomites of the Triassic Star Peak Group. Limestone and silty limestone units of the Favret Formation also act as the main host for Carlin-style mineralization in the project area with the Dixie Valley Formation conglomerates the primary host of polymetallic vein mineralization.

I-80 Gold Corp. completed the Phase 1 underground development program at McCoy-Cove during 2023, including a portal and decline and 2,644 feet of exploration ramp development. A 40-day continuous pump test was also completed during 2023 for the final hydrological model of the deposit and proposed mine as well as for use during permitting and mine construction and planning. Exploration drilling at the CSD/Gap and Helen zones included intersects of 10.6 g/t Au over 38.8 m in drillhole iCHU23-14, 28.0 g/t Au over 10.4 m in drillhole iCHU23-23, 25.4 g/t Au over 20.1 m in drillhole iCHU23-28, 13.8 g/t Au over 10.1 m and 32.9 g/t Au over 14.9 m in drillhole iCHU23-38, and 25.3 g/t Au over 9.4 m, 30.5 g/t Au over 2.1 m, 19.7 g/t Au over 2.7 m, and 23.5 g/t Au over 12.8 m in drillhole iCHU23-39. Carlin-style mineralization within the Helen and CSD Gap zones is hosted primarily in the Favret limestone unit with increased grades and thicknesses of mineralized zones occurring at structural intersections, along the margins of dikes and sills, and within the axis of the northwest striking Cove anticline. The Helen zone has two mineralized horizons, an Upper zone consisting of a smaller and narrower zone of gold mineralization hosted by the Panther Canyon and Home Station formations and a Lower zone consisting of the main mineralized horizon within the Favret limestone formation. The property also contains polymetallic mineralization that provides an exploration upside. For more information see https://www.i80gold.com/.

Reese River District

Apex Project. Kraken Energy Corp.'s Apex project is focused on uranium exploration in the area around the former Apex uranium mine, close to Austin. The mine is Nevada's largest past-producing uranium mine and produced ~106,000 pounds of U_3O_8 in the 1950s at an average grade of ~0.25% U_3O_8. Historic drilling results include results of up to 3.1 m (10 ft) at 1.33% U_3O_8, 34.1 m (112 ft) at 0.37% U_3O_8, and 15.2 m (50 ft) at 0.51% U_3O_8. A drilling program consisting of 24 drillholes with a total depth of 2,200 m was announced in late 2023, but no results were released. For more information see https://krakenenergycorp.com/.

LINCOLN COUNTY

Atlanta District

Atlanta Project. Nevada King Gold's Atlanta project is focused on exploration for intrusion-related and porphyry-style gold mineralization around a past-producing, open-pit gold mine, located 264 km northeast of Las Vegas. The project area covers 12,300 hectares of the Atlanta caldera and has an 2020 NI43-101 compliant resource defined prior to drilling by Nevada King. This resource consists of 11 Mt of measured and indicated resources at 1.3 g/t Au and 11.9 g/t Ag containing 0.46 Moz Au and 4.22 Moz Au and 5.310 Mt of inferred resources at 0.83 g/t Au and 7.3 g/t Ag containing 0.142 Moz Au and 1.24 Moz Ag. Exploration at Atlanta in 2023 including exploration drilling during the early part of the year and further drilling during the Phase II program at the property that extended into 2024. A total of seven diamond and 202 reverse circulation drillholes with a total depth of >50,000 m were drilled at the property in 2023, with the later 2023 drilling program reaching >70,000 m of drilling in 2024.

Early 2023 drilling at Atlanta identified a 150-m-wide graben containing gold mineralization hosted by both Tertiary volcanic units and the unconformity separating these volcanic units from the underlying Paleozoic sediments. Key intersects from this area include 2.31 g/t Au over 71.7 m in drillhole AT22WS-2, 1.03 g/t Au over 181.4 m in drillhole AT22SE-4, 0.98 g/t Au over 163.1 m in drillhole AT22SE-42 and 2.74 g/t Au over 89 m in drillhole AT22HG-8T. Further drilling during 2023 focused on mineralization within this graben and the Atlanta Mine fault zone, including intersects of 1084 g/t Ag and 5.27 g/t Au over 10.7 m in drillhole AT22HG-18. Drilling in October 2023 also intersected mineralization within an area immediately south of the resource zone in a blind discovery that included 2.15 g/t Au over 96 m in drillhole AT23HG-34 and 1.89 g/t Au over 114.3 m in drillhole AT23HG-37 with drilling at the North Extension target 600 m north of the Atlanta pit intersecting 4.01 g/t Au over 21.3 m and 3.69 g/t Au over 13.7 m. For more information see https://nevadaking.ca/.

Eagle Valley District

Gold Springs Project. Gold Spring Resources Corp.'s Gold Springs project straddles 7,847 hectares of eastern Lincoln County, Nevada, and western Iron County, Utah and is focused on exploration for mineralization located within structural corridors hosting veins, breccias, and disseminated gold and silver mineralization in altered rocks. This low sulfidation epithermal-type mineralization is generally located within N-S striking faults and structures. Andesite and latite flows are the main host rocks for the gold-silver mineralization in the district and have been identified within the North Jumbo, South Jumbo, Central Jumbo, Thor, North Jennie, Charlie Ross, Homestake, Midnight, Grey Eagle, and White Point target areas. In general, the gold mineralization in the Gold Springs area consists of structurally controlled quartz-adularia-calcite veins, hydrothermal breccias, and associated stockwork and sheeted veins, in addition to broad areas of disseminated mineralization. Host rocks adjacent to the veins and stockwork zones are variably silicified and are sericite (illite), argillic, and propylitically altered in zones increasingly distant from major vein structures. Mineralization is also hosted by the Gold Springs rhyolite ash-flow tuff that locally overlies the andesites as stockworks surrounded by broad areas of sericitic (illite) alteration associated with the presence of fluorite. Exploration at Gold Springs in 2023 focused on the South Jumbo, North Jumbo and Charlie Ross targets. Drilling at South Jumbo included intersects of 1.93 g/t Au equivalent over 1.5 m, 0.58 g/t Au equivalent over 7.6 m, and 1.24 g/t Au equivalent over 1.6 meters in drillhole E-22-023, 1.10 g/t Au equivalent over 6.1 m, 0.96 g/t Au equivalent over 3.0 m, and 0.57 g/t Au equivalent over 6.1 m in drillhole E-22-022, and 1.30 g/t Au equivalent over 1.5 m in drillhole E-22-024. Drilling at the North Jumbo target included 0.84 g/t Au equivalent over 9.2 m, 0.89 g/t Au equivalent over 9.2 m, 0.81 g/t Au equivalent over 9.1 m and 2.45 g/t Au equivalent over 22.9 m including 3.98 g/t Au equivalent over 12.2 m in drillhole J-22-020 and 1.36 g/t Au equivalent over 4.6 m and 1.03 g/t Au equivalent over 3.0 m in drillhole J-22-019. Drilling at the Charlie Ross target included intersects of 3.10 g/t Au equivalent over 12.2 m, 1.08 g/t Au equivalent over 3.0 m and 0.84 g/t Au equivalent over 6.1 m in drillhole CR-22-014, 2.64 g/t Au equivalent over 12.2 m in drillhole CR-22-010, 2.33 g/t Au equivalent over 6.1 m and 1.02 g/t Au equivalent over 3.0 m in drillhole CR-22-008, 1.60 g/t Au equivalent over 3.1 m in drillhole CR-22-015, and 1.31 g/t Au equivalent over 10.6 m and 0.61 g/t Au equivalent over 6.1 m in drillhole CR-22-009. Gold Springs Resources Corp. has a current resource estimate for the project that includes measured, indicated and inferred resources consisting of some 965,561 ounces of contained gold and 13,881,347 ounces of contained silver within the North and South Jumbo, Tremor, Charlie Ross and White Point resources. For more information see https://goldspringsresource.com/.

LYON COUNTY

Como District

Sandy Gold Project. NV Gold Corp.'s Sandy Gold project focuses on exploration for epithermal-type mineralization hosted by Tertiary volcanic rocks. The project is in an area of past production within the Walker Lane structural province. The project was sold on August 1, 2023 for cash while retaining a 1.5% net smelter return or equivalent production royalty. For more information see https://nvgoldcorp.com/.

Yerington District

Talapoosa-Appaloosa Project. Gunpoint Exploration Ltd.'s Talapoosa-Appaloosa project is focused on exploration for low-sulfidation gold-silver mineralization within the Walker Lane belt around 45 km east of Reno. The project area hosts a volcanic-related, quartz-adularia, low-sulfidation, epithermal gold-silver system. Gold and silver mineralization is hosted by quartz-chalcedony veins and hydrothermal breccias surrounded by margins of stockwork veining. Appaloosa is an unexplored 7 km long mineralized structural zone that is subparallel to and 1 km northeast of the Talapoosa trend. The Appaloosa part of the project consists of a broad and extensive hydrothermal system with epithermal alteration including sinters, siliceous sediments and vent breccias and zones of silicification up to 300–400 m wide. Gunpoint had an agreement with Newcrest Resources (and subsequently Newmont after the Newmont takeover) where Newcrest could acquire up to a 75% interest in Appaloosa. This option was terminated in March 2024.

Exploration at the property in 2023 consisted of drilling in the Central target area at Appaloosa. A total of six diamond drill holes with a total depth of 1900m were completed during 2023. Drillhole APP-0001 intersected 28.97 m at 0.47 g/t Au and 7.9 g/t Ag, drillhole APP-0002 intersected 12.38 m at 0.47 g/t Au and 2.6 g/t Ag, drillhole APP-0003 intersected 19.0 m at 0.41 g/t Au, and drillhole APP-0004 intersected 26.94 m at 0.59 g/t Au and 12 g/t Ag. For more information see http://www.gunpointexploration.com/.

Yerington District

Mason Project. Hudbay Minerals Inc.'s Mason project is a large greenfield copper deposit located in the historic Yerington mining district and represents one of the largest undeveloped copper porphyry deposits in North America. The acquisition of Mason by Hudbay in 2018 has been followed by the consolidation of a package of patented and unpatented mining claims contiguous to the project area as well as the completion of a number of technical studies, including a revised resource model and the completion of a preliminary economic assessment (PEA) on the project. The PEA was completed in April 2021 and outlines a 27-year mine life with average annual copper production of approximately 140,000 metric tons over the first ten years of full production. Current measured and indicated resources at Mason consist of 2.219 Bt at 0.29% Cu, 67 g/t Mo, 0.029 g/t Au and 0.63 g/t Ag and inferred resources of 237 Mt at 0.24% Cu, 78 g/t Mo, 0.033 g/t Au and 0.73 g/t Ag. These resources include 15,440,969,000 lbs of contained copper, 2,320,380 ounces of contained gold and 45,502,000 ounces of contained silver with an estimated 27-year mine life. Exploration in 2023 included a drilling program in September 2023 to test higher-grade satellite deposits within the Mason property and the proximal Mason Valley expansion project that contains known skarn mineralization as well as several historical underground copper mines that were in production in the early 1900s, including high-grade skarn targets and a large porphyry target below the historical mines. No results were reported from this drilling program. For more information see https://hudbayminerals.com/.

Pumpkin Hollow Mine. Nevada Copper Corp.'s Pumpkin Hollow operations produced 1,487,312 lbs of copper (674 metric tons) in 2023 as a result of the restart of mining in October 2023 after the operation overcame operational and geotechnical challenges that were addressed in 2022 and 2023. These challenges relate to an unidentified weak rock structure that was encountered in the main ramp to the East South zone that required additional drilling and geotechnical mitigation work to reinforce the area prior to proceeding. The mineralization at Pumpkin Hollow is associated with granodiorite to diorite intrusive rocks of the Jurassic Yerington batholith that have been emplaced into limestones of the Triassic Mason Valley formation and calcareous argillites and siliceous shales, siltstones and limestones of the Gardnerville Formation. The emplacement of these intrusions is associated with skarn copper-gold-silver mineralization and significant magnetite. The Western area includes the North deposit, which is centered on a subhorizontal, pipe-like, copper-rich, magnetite-poor skarn breccia body hosted by hornfels-altered units of the Gardnerville Formation. The Western area also includes the South deposit, the first discovery in the project and a magnetite-chalcopyrite body closely associated with the emplacement of a granodiorite unit into limestones of the Mason Valley formation. The third major deposit within the Western area is the Southeast deposit, a 300-ft-wide lens of chalcopyrite-magnetite-garnet-actinolite skarn hosted again by limestone units of the Mason Valley formation that locally contains up to 75% magnetite.

The Eastern area contains the Eastern and E2 deposits, with the former consisting of flat-lying to gently dipping, bedding-controlled, stacked, mineralized zones within limestones of the Mason Valley Formation at depths of 426.7–670.6 m (1,400–2,200 ft). The E2 deposit is a steeply NW-dipping lens of high-grade copper-magnetite skarn breccia within the Mason Valley Limestone that contains chalcopyrite-magnetite mineralization that parallels the marble alteration front in a similar style to East deposit.

The results of drilling at Pumpkin Hollow during 2023 included 20 announced completed underground drillholes with a total depth of 1,511 m (4,958 ft) as part of a planned 31,500 ft total depth program. This drilling identified an extension to mineralization within the ES zone and key intersects included 99 ft at 1.4% Cu, 3.558 g/t Ag and 0.144 g/t Au including 36.5 ft at 2.46% Cu, 5.342 g/t Ag and 0.318 g/t Au in drillhole NC23U-007 and 31.5 ft at 1.59% Cu,

4.342 g/t Ag and 0.264 g/t Au and 35 ft at 1.82% Cu, 3.986 g/t Ag and 0.291 g/t Au in drillhole NC23U-008. Reserves at Pumpkin Hollow were reported in 2019 and 2017 for open-pit and underground reserves, respectively, and consist of open-pit proven and probable reserves of 385.7 million short tons at 0.47% Cu, 0.002 oz/t Au and 0.055 oz/t Ag containing 3,590 million lbs of Cu, 0.617 Moz of Au and 21.266 Moz of Ag and net underground proven and probable reserves of 23.9 Mt at 1.59% Cu, 0.006 oz/t Au, and 0.139 oz/t Ag containing 760 million lbs of Cu, 0.143 Moz Au and 3.32 Moz Ag. Measured and indicated open-pit resources as of 2019 consisted of 553 million short tons at 0.452% Cu, 0.002 oz/t Au, and 0.054 oz/t Ag containing 5,000 million lbs of Cu, 0.879 Moz of Au and 29.778 Moz of Ag. Inferred open-pit resources consist of 28 million short tons at 0.358% Cu, 0.001 oz/t Au and 0.040 oz/t Ag containing 197 million lbs of Cu, 37 koz of Au, and 1.088 Moz of Ag. Measured and indicated underground resources as of 2015 consisted of 54.1 million short tons at 1.39% Cu, 0.005 oz/t Au, 0.116 oz/t Ag, and 17.8% Fe containing 1,503 million lbs of Cu, 0.291 Moz Au, 6.257 Moz Ag, and 9.6 million short tons of Fe. Inferred underground resources as of 2015 consisted of 29.2 million short tons at 1.09% Cu, 0.003 oz/t Au, 0.064 oz/t Ag, and 12.8% Fe containing 636 million lbs of Cu, 87 koz of Au, 1.875 Moz of Ag, and 2.7 million short tons of Fe. Although as mentioned above, mining at Pumpkin Hollow restarted in October 2023. Nevada Copper Corp. filed for Chapter 11 bankruptcy protection on June 10, 2024. On September 10, 2024, Kinterra Capital was designated as the successful bidder for the bankrupt Nevada Copper Corp, acquiring the company for $128 million after a stalking horse bid did not attract any alternative offers in the sales process. For more information see https://nevadacopper.com/.

Yerington Project. Lion Copper and Gold Corp.'s Yerington project is located in Mason Valley, some 80 km (50 miles) southeast of Reno, and is the location of a large known oxide copper deposit that was previously active in the 1990s. In addition to the oxide resource that is the focus of ongoing study and permitting efforts at the property, the MacArthur porphyry sulfide resource remains open in most directions and is the subject of ongoing growth through exploration. Exploration at the Yerington project in 2023 consisted of approximately 3,048 m (10,000 ft) of core drilling, 2,895.6 m (9,500 ft) of reverse circulation drilling and soil and rock chip sampling programs. This exploration is focused on the Bear deposit, the MacArthur East and MacArthur Wedge areas of the project, the Mason Pass prospect, the Reno prospect (previously referred to as the Montana-Yerington prospect) and the Singatse target, approximately one mine north of the Ann Mason deposit. Exploration at the project was partly funded by Nuton, a Rio Tinto venture, who provided Stage 2 funding of $5,000,000 and an immediate advance of $2,500,000 for part of the Stage 3 funding, for a total amount of $7,500,000 to Lion Copper and Gold for Yerington project development. The Stage 3 funding was used for exploration at the Bear deposit in 2023, with diamond-cored drilling intersecting 926 ft of 0.31% TCu including 71 m (233 ft) of 0.47% TCu in drillhole B-053A and 319 m (1,048 ft) of 0.26% TCu including 40 m (131 ft) of 0.50% TCu in drillhole B-054. No other drilling results were reported for 2023. For more information see https://www.lioncg.com/.

MINERAL COUNTY

Aurora District

Aurora. Hecla Mining's Aurora property is located in the northeastern portion of the Bodie Hills and exploration within the property is focused on epithermal gold-silver mineralization. No exploration was reported at the property in 2023. For more information see https://www.hecla.com/.

Spring Peak Project. Headwater Gold Inc.'s Spring Peak project is located adjacent to the past producing Aurora Mine complex and is focused on potential mineralization associated with a large hydrothermal alteration cell that is thought to represent an epithermal precious metal mineralizing system. The core of this cell consists of a 5-m-thick silica sinter that extends >500 m along strike and records hydrothermal vent activity. Exploration at the Spring Peak project during 2023 included 8,475 m of drilling with the aim of further defining and expanding the known Disco zone of mineralization along strike and down dip. This drilling program targeted the same elevation horizon as previous drilling along the trend of the Bear fault, between 150 and 400 m below a zone of silica sinter exposed at surface. At the Disco zone, drillhole SP23-32 intersected 39.81 m at 1.93 g/t Au including 11.43 m at 4.60 g/t Au, drillhole SP23-31 intersected 40.08 m at 1.51 g/t Au including 9.76 m at 4.55 g/t, and drillhole SP23-35 intersected 2.60 m at 1.76 g/t Au including 0.31 m at 12.90 g/t Au. Drilling within the hangingwall of the Disco zone also intersected mineralization, including 27.44 m at 0.95 g/t in drillhole SP23-17, 9.91 m at 1.00 g/t Au in drillhole SP23-40. Drillhole SP23-29, which focused on the Opal Ridge target some 900 m west of the Disco zone, also intersected 0.61 m at 7.24 g/t Au. Continued follow-up drilling to test the depth extent of this mineralized zone is currently being planned. Headwater Gold Inc.'s signed option and earn-in agreements with Newcrest Mining Ltd. also continued during 2023. For more information see https://headwatergold.com/.

Bell District

Golden Mile Project. Exploration at Fortitude Gold Corp.'s Golden Mile project focuses on intrusion-related primary gold and copper mineralization associated with skarn style alteration of carbonate units. Secondary

mineralization at the project is associated with structurally controlled stockwork and breccia zones. The gold-copper skarn mineralization is thought to be associated with a quartz diorite-granodiorite intrusion that is only exposed at surface in three small areas of the project as the majority of the northern part of the intrusion is covered by Tertiary volcanic units. A Plan of Operation was submitted to the Bureau of Land Management for the property in 2023 involving a phased approach to mining Golden Mile. Drilling in 2023 consisted of seven diamond-cored drillholes with a total depth of 973 m (3,194 ft) although no results were released from this drilling. It is anticipated that a drilling campaign will be carried out in 2024 that is expected to be followed by another resource estimation. No other exploration results were released in 2023 with no expansion on the 2021 initial mineral resource estimate, which consists of 163,000 ounces of contained gold in indicated and inferred resources. For more information see https://www.fortitudegold.com/.

Olympic Gold Project. Great Western Mining's Olympic Gold project is located within the Walker Lane belt and contains the OMCO Mine, a past producer that produced gold at 25–30 g/t Au and silver at 30 g/t Au between 1918 and 1939. Stockpiled and spoil material at the site contains around 1,600 oz of Au and 3,000 oz Ag in an inferred resource reported in 2022. Drilling was undertaken at the project in 2023, but no detailed results were released. For more information see https://www.greatwesternmining.com/.

Candelaria District

Candelaria Project. Exploration during 2023 at Silver One Resources' Candelaria project, located within the Candelaria mining district 130 miles southeast of Reno and 55 miles southeast of Hawthorne, continued to focus on fault- and fracture-controlled polymetallic vein-hosted mineralization. The drilling outlined in last year's report was followed up by positive metallurgical testing and the acquisition of a 100% interest in the project from SSR Mining Inc. This acquisition involved the issuing of a total of $3,100,000 of common shares to SSR Mining Inc. over a three-year period from 2017 to 2020 and the assuming of assumed a $2,491,757 reclamation bond filed with the BLM by Silver One Resources. The property has historic resources and a current resource reported in 2020 consisting of existing leach pads at the property. Estimated resources for these leach pads consist of 22.184 Mt of indicated resources at 42.1 g/t Ag and 0.074 g/t Au containing 30.017 Moz of Ag and 52,000 ounces of Au and 11.451 Mt of inferred resources at 41.8 g/t Ag and 0.100 g/t Au containing 23.3 Moz of Ag and 36,700 ounces of Au. For more information see https://silverone.com/.

Cloverdale District

Warrior project. Sierra Nevada Gold's Warrior project is located within the Walker Lane belt 32 km from Gabbs and 80 km to the northwest of Tonopah. Exploration at Warrior is focused on disseminated Au-Ag epithermal, skarn, and Carlin-type mineralization and the project area includes the historic past-producing Warrior Mine. Drilling at the project in 2022 and 2023 consisted of 18 reverse circulation drillholes for a total depth of 2,242 m. This drilling included drillhole WARC007, which intersected 17.07 m at 1.57 g/t Au and 3.43 g/t Ag including 2.44 m at 7.76 g/t Au and 6.25 g/t Ag, drillhole WARC0022, which intersected 20.73 m at 2.13 g/t Au and 3.41 g/t Ag including 10.97 m at 3.76 g/t Au and 4.73g/t Ag. For more information see https://sngold.com.au/.

Garfield District

Garfield Hills Project. Kraken Energy Corp.'s Garfield Hills is focused on exploration for uranium and is located 12 km east of Hawthorne, in Mineral County. The property covers an area of 2,845 acres and exploration drilling in 2023 consisted of 11 drillholes for a total depth of 1,697.2 m, seven of which intersected shallow, flat lying uranium mineralization. Key intersects include 12.5 m at 0.036% U_3O_8 starting from a depth of 23.0 m in drillhole GH22-01 and 7.0 m of 0.029% U_3O_8 from a depth of 17.5 m in drillhole GH23-04. Kraken also undertook regional exploration and soil sampling at the property, including the identification of high U_3O_8 concentrations (up to 1.007% U_3O_8) in surface and soil samples. For more information see https://krakenenergycorp.com/.

Marietta District

Mineral Jackpot Project. Exploration at Great Western Mining's Mineral Jackpot project is focused on gold and silver exploration in an area containing five historic mines that focused on high grade vein-hosted mineralization. Initial drilling in 2022 intersected 7.62 m at 180.94 g/t Ag and 0.315 g/t Au with grab samples of in situ vein material containing 15.2 g/t and 95.6 g/t Au. Drilling at the project in 2023 consisted of a single drillhole, but no results were released from this drilling. For more information see https://www.greatwesternmining.com/.

Mount Grant District

Lapon Canyon Project. Exploration at Walker River Resources' Lapon Canyon project is located within the Walker Lane belt and is focused on a wide (>300 m), long (>4 km along strike) sericite and iron oxide altered and sheared NE-SW trending fault zone. Epithermal-type gold mineralization is present throughout an envelope of lower grade mineralization (0.5 to 2.0 g/t Au) that surrounds high-

grade structurally controlled mineralization that has been identified along a strike length >850 m and over a vertical extent of >400 m. The high-grade gold mineralization is located within discrete, traceable zones at the intersection of flat lying porphyritic dikes and vertical hydrothermal stockworks. No drilling was undertaken at the property in 2023. For more information see https://wrrgold.com/.

Fairplay District

County Line Project. Fortitude Gold Corp.'s County Line project, located along the boundary of Nye and Mineral counties within the Fairplay mining district, is focused on exploration for high sulfidation epithermal mineralization within the Paradise Peak area, which historically produced around 1.5 million ounces of gold and 38.9 million ounces of silver. Exploration at County Line in 2023 included detailed mapping and rock and soil sampling, exploration reverse circulation drilling to further delineate resource potential in the historic County Line main pit and historic East Zone pit, geotechnical and metallurgical studies, and drilling and installation of a water monitoring hole and a water well. A total of 212 drillholes were completed during the year with a total depth of 20,821 m (68,310 ft). The primary focus of the exploration drill program was to infill and delineate mineralization in the historic County Line main pit to further understand the mineralization in this area and to also complete delineation drilling at the historic East Zone pit. Key intersects include 10.67 m at 5.39 g/t Au in drillhole CLRC-163 and 7.62 m at 2.24 g/t Au in drillhole CLRC-110. Exploration programs in 2024 will focus on continued drilling in the East Zone pit, to the south of the East Zone pit, as well as on a silicified hill that is located directly to the north of the County Line pit. Mine planning of the County Line main pit area was completed during 2023 with a phase one open-pit design developed to optimize extraction of the highest-grade resource. A site-plan design was also developed to streamline the processes on the County Line property, and to capitalize on the existing infrastructure at the Isabella Pearl Mine site. Once mined, the plan is to complete stacking of the waste and crushing of mineralized material, after which the crushed mineral is to be heap leached at the Isabella Pearl Mine. No expansion of the maiden resource estimate for the project released in 2022 was announced, which had measured, indicated and inferred resources containing 49,600 ounces of gold. For more information see https://www.fortitudegold.com/.

Santa Fe District

New York Canyon. Emergent Metals Corp.'s New York Canyon project is located around 48 km (30 miles) east of Hawthorne and is being explored for base metal mineralization in the form of copper skarn and copper-molybdenum porphyry systems. The property was under an option agreement with Kennecott Exploration Company, a subsidiary of Rio Tinto, but this agreement was terminated during 2023 after the drilling of two diamond-cored drillholes. Copper mineralization within the project area is primarily hosted by the Triassic Gabbs Formation limestone sequence, the underlying Triassic Luning Formation limestone units, and the overlying Jurassic Sunrise Formation limestone sequence. Skarn mineralization on the property is proximal to Cretaceous felsic intrusive units, with three main mineralized occurrences identified in the property, namely Copper Queen to the west, Champion in the center, and Longshot Ridge on the eastern side of the property. Exploration on the property in 2023 included two diamond drillholes with a total depth of 1,238.63 m (4,359.02 ft) although no results from these drillholes were released. For more information see https://emergentmetals.com/.

Isabella Pearl Mine. Production at Fortitude Gold Corp.'s Isabella Pearl Mine in 2023 was 37,996 ounces of gold and 41,231 ounces of silver high sulfidation-type epithermal mineralization at the site. Exploration at Isabella Pearl during 2023 intersected multiple intervals of oxide gold mineralization at and near surface along the Isabella Pearl trend. This includes a new target area to the north of the Scarlet target 700 m northwest of the Isabella Pearl heap leach and process facility. Key intersects include 13.72 m at 1.28 g/t Au in drillhole IPRC-493 and 50.29 m at 0.86 g/t Au in drillhole IPRC-514. Reverse circulation drillholes beneath the Isabella Pearl open pit also intersected high grade gold mineralization, with key oxide mineralized intersects including 3.05 m at 15.15 g/t Au within 21.34 m at 7.21 g/t Au in drillhole IPRC-353, 18.29 m at 3.72 g/t Au in drillhole IPRC-359. Non-oxide intersects include 6.10 m at 12.17 g/t Au within 41.15 m at 6.25 g/t Au in drillhole IPRC-353. Current proven and probable reserves (including stockpiled material) at Isabella Pearl consist of 0.914 Mt at 2.02 g/t Au and 22 g/t Ag containing 59,400 ounces of gold and 640,600 ounces of silver in addition to 51,900 recoverable ounces of gold on the Isabella Pearl heap leach pad reported at end-2022. For more information see https://www.fortitudegold.com/.

Pearl String. Orogen Royalties' Pearl String project is focused on exploration for high sulfidation epithermal gold mineralization within the northwestern margin of a 25 km long zone of magmatic-hydrothermal alteration dismembered by post-mineral right lateral strike-slip faulting. The southeastern margin of the zone hosts the Isabella Pearl Mine described above. The property was previously optioned to Barrick Gold from 2022 to 2024 who completed a ten hole approximately 3,000 m reverse circulation drill program to test the southern magnetic low in the western target area of the property. No results were released from this drilling. For further information see https://orogenroyalties.com/.

Santa Fe Project. Lahontan Gold Corp.'s Santa Fe project is focused on exploration for epithermal mineralization within the Walker Lane belt. The geology of the property consists of Triassic sediments (predominantly carbonates) of the Luning Formation that have been intruded by Jurassic to Cretaceous diorite and granite units and are overlain by Tertiary volcanic rocks. Alteration and gold mineralization at the property is controlled by NW-SE, NE-SW and E-W trending structures and the Luning units are often brecciated, decalcified, silicified and sulfidized with Tertiary volcanic rocks altered to clay, sulfidized, and locally silicified. Drilling at the project in 2023 included intersects of 35.0 m at 1.02 g/t Au and 3.6 g/t Ag in drillhole CAL23-006R including 21.3 m at 1.37 g/t Au and 5.1 g/t Ag and 4.6 m at 3.05 g/t Au and 10.6 g/t Ag. In addition, drillhole YOR23-006R intersected 30.5 m at 0.74 g/t Au and 0.5 g/t Ag including 10.7 m at 1.01 g/t Au and 1.9 g/t Ag (1.03 g/t Au Eq), drillhole CAL23-004R intersected 38.1 m at 0.87 g/t Au and 2.5 g/t Ag including 10.6 m at 2.02 g/t Au and 2.4 g/t Ag, and drillhole CAL23-001R intersected 82.3 m at 0.68 g/t Au and 2.0 g/t Ag. A maiden resource for the project was released in 2022 consisting of indicated and inferred resources containing 1,547,000 ounces of contained gold and 10,779,000 ounces of contained silver. For more information see https://lahontangoldcorp.com/.

Silver Star District

East Camp Douglas project. Fortitude Gold Corp.'s East Camp Douglas project is located within the Silver Star mining district in Mineral County 10 km (6 miles) southwest of Mina. Exploration at the property is focused on low sulfidation gold mineralization that has been identified within the southern portion of East Camp Douglas and high-sulfidation epithermal gold mineralization within the northern portion of the East Camp Douglas area. Exploration work completed in 2023 included detailed mapping and sampling in the north of the East Camp Douglas area with specific focus on the Hidden Gem and White Rock Spring areas. Exploration drilling focused on both north and south areas and consisted of 115 reverse circulation drillholes for a total depth of 14,566 m (47,790 ft). Key intersects include 1.52 m at 23.00 g/t Au within 4.57 meters at 8.80 g/t Au in drillhole EC-DRC-069, 3.05 m at 5.46 g/t Au in drillhole EC-DRC-065, 6.10 m at 3.94 g/t Au in drillhole EC-DRC-063 and 18.29 m at grading 1.02 g/t Au in drillhole EC-DRC-071. Planned exploration in 2024 includes an initial Exploration Environmental Assessment as well as additional regional and detailed (deposit-scale) geological mapping, sampling and drilling. For more information see https://www.fortitudegold.com/.

NYE COUNTY

Bare Mountain District

Significant exploration continued to be undertaken in the district in 2023 by AngloGold Ashanti Ltd, who are targeting production from their Nevada operations by 2025 and 300,000 ounces of gold production per year within a decade for around 20 years, outlining a medium term aim of the development of a low-cost, long-life Nevada production base. AngloGold Ashanti Ltd undertook 129 km of drilling in Nevada in 2023 for a total cost of $73.9 million, the majority of which was focused on the Merlin deposit within the Expanded Silicon project.

Merlin Project. Significant exploration continued at AngloGold Ashanti Ltd.'s epithermal gold-focused Merlin project, with the majority of the 129 km of drilling undertaken by AngloGold Ashanti at projects in Nevada focused on Merlin, part of the Expanded Silicon project. AngloGold Ashanti aimed to generate a conceptual study designed to integrate the two mineral bodies (Silicon and Merlin) by end-2023. The epithermal mineralization at Merlin appears to be dominantly hosted in the Bullfrog and Tram tuffs with the current exploration target remaining open to the west. AngloGold Ashanti also successfully completed a mineral resource conversion drilling program during 2023, yielding an inferred mineral resource for Merlin consisting of 283.88 Mt at 0.99 g/t Au for a total of 9.05 million ounces of contained gold. This new resource estimate indicates that the Expanded Silicon project, consisting of the Merlin and Silicon deposits, has measured and indicated resources containing 3.4 Moz of gold and inferred mineral resources containing 9.9 Moz of gold. The Merlin pre-feasibility study will continue in 2024, focusing on mining, processing and infrastructure trade-off studies. Infill and extension drilling will also continue during 2024 along with hydrogeological, geotechnical and metallurgical testing. The drilling at Merlin in 2023 also included a number of holes that contained significant visible gold and the deposit remains open to the west and at depth beneath the current planned pit boundary. Key intersects during drilling at Merlin include in drillhole MER-23-0105-RD, which contained 3.27 g/t Au over 285 m and drillhole MDT-21, which contained 2.61 g/t Au over 214.8 m. For more information see https://www.anglogoldashanti.com/.

Mother Lode Project. As outlined in last year's Mineral Industry report, AngloGold Ashanti Ltd.'s Mother Lode project is focused on structurally and stratigraphically controlled disseminated epithermal gold mineralization primarily hosted by porphyritic rhyolite dikes, sedimentary units of the Joshua Hollow formation, and Paleozoic sedimentary rocks. Structural controls at Mother Lode consist of a series of north-trending, 50° to 70° west-dipping rhyolite dike-filled structures. The mineralization at Mother

Lode is both semi-tabular and highly irregular, reflecting the ascent of mineralizing fluids through the dike-filled structures in the underlying Paleozoic rocks, along the Tertiary unconformity and upward into Tertiary units. Mineralizing fluids appear to have spread laterally from mineralized dikes into favorable permeable lithologies and secondary structures. AngloGold Ashanti Ltd. released a maiden resource for the project in 2022 consisting of measured, indicated and inferred resources containing 1,730,000 ounces of gold and 1,910,000 ounces of silver. These are broken down into 60.24 Mt of measured and indicated resources at 0.80 g/t Au for 1.55 Moz of contained gold and 9.86 Mt of inferred resources at 0.55 g/t Au for 0.17 Moz of contained gold. For more information see https://www.anglogoldashanti.com/.

Other AngloGold Ashanti Projects. AngloGold Ashanti Ltd. undertook greenfield exploration at a number of projects in Nevada outside of their main exploration activities at Silicon, Merlin, Mother Lode, and North Bullfrog. This activity includes exploration at Midnight Star, Birthday East, CR, and Lucille. A total of 6,608 m of diamond drilling was completed at the Midnight Star and CR projects in Nevada with further targets remaining to be tested at both projects. Mapping and sampling were also undertaken at the Lucille, Midnight Star, and Birthday East prospects with a 1 x 2 km DCIP geophysical survey completed at the Mars prospect within the Midnight Star project area. A 400 x 400 m soil sampling grid was completed over the Lucille project, with 774 soil samples collected as well as a 234 line km drone magnetic survey also being completed at the Lucille project. For more information see https://www.anglogoldashanti.com/.

Silicon Project. AngloGold Ashanti Ltd.'s Silicon project is located within the western margin of the overlapping calderas of the Timber Mountain caldera complex, part of the southwestern Nevada volcanic field. The project is focused on low to intermediate sulfidation epithermal mineralization within a stack of ignimbrite sheets that are crosscut by complex listric faulting. The mineralization at Silicon formed at ~11.6 Ma during a hiatus between a large-scale ignimbrite event but apparently contemporaneous with rhyolitic volcanism. Higher-grade mineralization is structurally controlled around the Silicon-Tramway faults with lower grade disseminated mineralization hosted within a rhyolite flow. The project has indicated and inferred mineral resources as reported in February 2023 containing 4,220,000 ounces of gold and 17,770,000 ounces of silver. This is split into 121.56 Mt of measured and indicated resources at 0.87 g/t Au and 3.98 g/t Ag with 3.40 Moz contained gold and 15.54 Moz contained silver, indicating a full conversion from inferred resources outlined in 2022, and 36.03 Mt of inferred resources at 0.70 g/t Au with 0.81 Moz contained gold. This increase in contained gold was the result of successful greenfields exploration supported by open-pit optimization at a gold price of $1,750 per ounce gold to demonstrate reasonable prospects of economic extraction. Continued studies will further refine recovery estimates and evaluate the addition of a third processing option that may be more suitable for those materials. For more information see https://www.anglogoldashanti.com/.

Sterling Project. AngloGold Ashanti Ltd.'s Sterling deposit was acquired in November 2022 as a result of the acquisition of Coeur Sterling. As outlined in last year's Mineral Industry report, the mineralization at Sterling is a combination of epithermal and sediment-hosted Carlin-type styles with oxidized gold mineralization controlled by thrusting and steeply dipping north-striking faults within the deposit. Gold at Sterling is hosted by units that span from the basal section of the Bonanza King Formation to the top section of the Carrara Formation. The property also hosts typically 1.5- to 9-m-thick Miocene quartz latite dikes of the southwestern nevada volcanic field, the majority of which are located along or close to the Reudy fault zone. These dikes trend N-S and were probably emplaced along faults or fractures. Other mineralization is located within the footwall of the Fluorspar Canyon fault, where it intersects a prominent N-S oriented fault system that connects with more mineralization to the south. AngloGold Ashanti Ltd. reported a maiden inferred resource of 910,000 ounces of contained gold after the acquisition of Coeur Sterling in November 2022, consisting of 33.41 Mt of resources at a grade of 0.85 g/t Au. Exploration drilling was undertaken at the project in 2023, but no results were released. For more information see https://www.anglogoldashanti.com/.

Reward Project. Augusta Gold Corp.'s Reward project is located to the southeast of Beatty and is focused on exploration for structurally controlled, quartz vein and locally disseminated, sediment-hosted, orogenic-type mesothermal gold mineralization. The project consists of two deposits, namely the Good Hope and Golden Ace deposits, and is hosted within the Bare Mountain Complex that in turn is located within a complex tectonic setting in the Nevada Basin and Range Province. The project was acquired by Augusta Gold Corp. in 2022 from Waterton Nevada Splitter LLC for $12.5 million cash, $15.0 million of Augusta Gold Corp. shares, and a further $17.5 million cash deferred payment. Augusta released a mineral resource estimate for the project during 2022, consisting of 453,800 ounces of contained gold within measured, indicated, and inferred resources. A feasibility study at the project was advanced during 2023 and was completed in September 2024. The company also announced that drilling plans are in place to test additional mineral resource growth potential extending adjacent to and below the current pit shell. Drilling was undertaken at the project in 2023, but no

results were released. For more information see https://www.augustagold.com/.

Belmont District

Belmont Project. Exploration at Electric Metals' Belmont project is focused on epithermal silver mineralization. The property formed part of a November 2023 option and acquisition agreement with Altair Resources Inc. along with Electric Metals' other silver focused projects at Corcoran Canyon and Belmont North. No other results were released during the year. For more information see https://electricmetals.com/.

Bullfrog District

Bullfrog Project. Augusta Gold Corp.'s Bullfrog project is focused on the exploration for and potential development of mining operations focused on epithermal mineralization. The project is located in the southern Walker Lane trend within brittle upper plate volcanic host rocks that are significantly fractured and brecciated as a result of detachment faulting and associated dip-slip and strike-slip displacements. Mineralizing epithermal fluids passed through these host rocks and precipitated micron-sized but high-grade concentrations of gold within quartz-calcite veins as well as disseminated gold within associated stockworks. Vein-hosted mineralization is associated with quartz, calcite and manganese oxides, the latter of which are associated with potential byproduct silver (Ag) recovery. The highest grades within the deposit are typically associated with zones of black manganese-rich material, where early manganiferous calcite has been dissolved to leave brecciated and rubbly zones of quartz, remnant calcite, and manganese oxide. Mineralized veins continue up and down dip from the deposit, but gold grades and thicknesses diminish rapidly above and below these elevations. Mineralized veins and vein-hosting breccias are generally associated with the MP fault and the associated proximal hanging wall area with mineralization also present in upper and lower stockwork zones subparallel to high-grade brecciated veins within the main fault structure.

Exploration drilling at the project was undertaken in 2023, but results were not released. Environmental and metallurgical testing continued during the year, and plans were made to test high potential targets in the Gap target area located north of the planned mining areas at Bullfrog, where intense alteration, preserved lithocap material and significant surface gold mineralization are all located along a major fault corridor. An updated mineral resource estimate for the project was released in 2022, with an increase in contained metal in oxide and sulfide mineralization to 1,467,190 ounces of gold and 3,382,340 ounces of silver in measured, indicated and inferred resources. For more information see https://www.augustagold.com/.

North Bullfrog Project. AngloGold Ashanti Ltd.'s North Bullfrog project focuses on low sulfidation epithermal mineralization similar to other known systems within the Walker Lane mineral belt. As outlined in last year's Mineral Industry report, the project is located within the southwestern Nevada volcanic field in an area with Late Proterozoic to Late Paleozoic metamorphic and sedimentary basement units that are overlain by a thick pile of Miocene volcanic and lesser sedimentary rocks of the 15- to 7.5-Ma southwestern Nevada volcanic field. The mineralization at North Bullfrog is hosted by Miocene rhyolitic volcanic tuff and flow units with steeply dipping structures controlling high-grade gold and silver epithermal vein and stockwork mineralization and within pervasively quartz-adularia altered volcanic rocks that also host broad disseminated low grade mineralization. The majority of mineralization is hosted by the middle Miocene Sierra Blanca tuff and the dominant structural features in the area are two district-scale N-S striking normal faults, although several smaller faults located between the two major faults are important controls on hydrothermal alteration and gold mineralization.

AngloGold Ashanti reported the approval of a feasibility study at the project subject to obtaining necessary approvals and permits. Construction of the North Bullfrog Mine is contingent on obtaining the requisite permitting, which is expected to be received in the first half of 2025. The feasibility study for North Bullfrog proposes open-pit mining using both gravity milling and heap leaching for ore processing. Local, state and federal permitting processes are underway and environmental baseline studies are being reviewed by the appropriate agencies for completeness. This project is expected to be the first of AngloGold Ashanti's projects to enter production, and production is expected to begin at the end of 2025. North Bullfrog is currently expected to produce an average of 117,000 oz of gold a year during the first five full years of mining and an average of 62,000 oz/year over the full 13 year expected life of mine. All in sustaining costs are anticipated to be $882/oz over the first five full years and $854/oz over the life of the mine, with initial project capital expected to be $369 million. Development of North Bullfrog will allow AngloGold Ashanti Ltd. to build a cohesive project development team and improve company understanding of the permitting and project construction process in Nevada. A first-time reserve for the project was also reported during 2023, with probable reserves of 71.93 Mt at 0.43 g/t Au for 1 Moz of contained gold in addition to measured and indicated resources of 42.02 Mt at 0.31 Moz of contained gold and 30.58 Mt of inferred resources at 0.26 g/t Au for 0.26 Moz contained gold. The net reduction in resources was the result of the first announcement of a mineral reserve during the year. A total of 3.3 Moz of silver is also expected to be recovered from North Bullfrog as a byproduct of gold production. For more information see https://www.anglogoldashanti.com/.

Cloverdale District

Fortuity 89 Project. Discovery Harbor Resources Fortuity 89 project is focused on exploring for epithermal mineralization within the Walker Lane mineral belt. The property was optioned to Newcrest in 2021 who carried out a multi-phase exploration program in 2021–2022 that included magnetic, gravity and audio band magnetotelluric geophysical data acquisition, geological and alteration mapping, soil geochemical sampling and reverse circulation drilling. The drilling was unsuccessful in intersecting significant gold, and Discovery Harbor returned a portion of the original Fortuity 89 property to the underlying vendors. Discovery Harbor has also retained some Fortuity 89 claims for potential future exploration. No exploration was undertaken at the site in 2023. For more information see https://discoveryharbour.com/.

Fairplay

Gabbs Project. P2 Gold Inc.'s Gabbs project is focused on exploration for gold-copper mineralization within three known mineralized zones, namely Sullivan, Lucky Strike, and Gold Ledge. These mineralized zones are located within intrusive sills thought to be associated with an alkaline gold/copper porphyry system, with gold mineralization at a fourth zone called Car Body thought to be formed within a low-sulfidation epithermal mineralizing system. P2 Gold Inc. released an updated preliminary economic assessment of the project in 2023 and the project currently contains resources (as of April 2024) that consist of 49.8 Mt of indicated resources at 0.45% Cu, 1.36 g/t Ag and 0.27 g.t Au containing 0.72 Moz Au, 2.17 Moz Ag, and 297.0 million lbs of copper and 112.2 Mt of inferred resources at 0.35% Cu, 0.84 g/t Ag, and 0.23 g/t Au containing 1.28 Moz Au, 3.04 Moz Ag and 567.1 million lbs of copper. For more information see https://www.p2gold.com/.

Manhattan District

Manhattan/Goldwedge Project. Scorpio Gold Corp.'s Manhattan/Goldwedge project is located within the Walker Lane belt on the southern periphery of the Manhattan caldera, some 16 km south of the Round Mountain Mine. The area has been mined historically, with hard rock and placer production estimated to be around half a million ounces of gold. Exploration in the area is predominantly targeting epithermal low to intermediate sulfidation mineralization, and the Goldwedge area contains several styles of gold mineralization from fault breccia- and vein-hosted to stratabound replacement style mineralization in limestone and mineralization associated with pervasive quart-sericite-pyrite alteration. Scorpio expanded the project area in 2020 with the acquisition of Kinross Gold's Manhattan project area. No exploration results were announced at the property during the year. For more information see https://scorpiogold.com/.

White Caps Project. Gold50 Corp.'s White Caps project undertook soil sampling in 2023 after positive grab sampling identified gold concentrations up to 72.4 g/t. Previous production at the historical White Caps Mine produced more than 125,000 ounces at around 30g/t Au. For more information see https://www.g50corp.com/.

Round Mountain District

Round Mountain Mine. Kinross Gold Corp.'s Round Mountain operations produced 230,867 ounces of gold and 400,231 ounces of silver from the mining of mining of low sulfidation epithermal mineralization during 2023, with the mine producing approximately 17 million ounces of gold between initial operations and the end of 2023. Mining uses a conventional open-pit approach with the current pit approximately 3,353 m (11,000 ft) long in a NW-SE orientation and 2,682 m (8,800 ft) wide. The Gold Hill Mine section of the Round Mountain operations is a small deposit located near the main Round Mountain Mine. The mine is operated as an independent operation that also uses conventional open-pit mining methods but with resources and reserves incorporated into Round Mountain estimates.

Exploration and development activity at Round Mountain included the advancement of the Phase S extension with stripping prior to initial production expected in 2025. Phase S is expected to increase Round Mountain's life of mine production by approximately 750,000 ounces of gold. Progress also continued on Phase X with underground definition drilling starting in early 2024 and continued drilling at Gold Hill. The approval of Phase S and continuing work on Phase X, which reached 1,475 m of development of an exploration decline to provide a platform for definition drilling of the main Phase X underground target in 2023, should bring further clarity to the future of Round Mountain operations. The Phase X exploration program plans for definition drill holes in critical areas to test growth potential outward from the main zone of mineralization, testing for the continuity of mineralization along strike in areas where surface drilling has been limited to date. Exploration holes are also planned to be drilled at the end of the decline to test for mineralization beyond the planned development. In parallel with developing the decline, Kinross also undertook commenced opportunity drilling between the open pit and the main underground target during 2023. Detailed engineering for the heap leach extension at Round Mountain is completed and construction activities remain on track. Underground definition drilling commenced in early 2024 and drilling of the primary Phase X target in the second quarter of 2024. At Gold Hill, drilling continues to progress as planned with an infill program from the bottom of the pit and exploration drilling from surface. A total of 7,950 m of exploration drilling at Gold Hill during 2023 was followed by exploration drilling from surface and definition drilling

from the bottom of the pit that is expected to continue into 2024. Exploration drilling during 2023 at Gold Hill tested continuity within the mid-Atlantic vein zone and confirmed an 800 m strike extension to the west with multiple high-grade intersects within the Jersey vein zone. Key intersects in the Jersey vein zone include 2.1 m at 41.5 g/t Au-eq in drillhole D-1195, 2.3 m at 20.4 g/t Au-eq in drillhole D-119, 1.9 m at 29.8 g/t Au-eq in drillhole D-1194 and 1.9 m at 6.1 g/t Au-eq in drillhole D-1196.

As of December 31, 2023, current proven and probable reserves at Round Mountain consist of 77.933 Mt at 0.8 g/t Au containing 1.979 Moz of Au. Indicated resources consist of 120.545 Mt at 0.9 g/t Au containing 3.361 Moz of Au and 4.085 Mt at 8.4 g/t Ag containing 1.1oz of Ag. Inferred resources consist of 95.361 Mt at 0.5 g/t Au containing 1.542 Moz and 330 kt at 1.1 g/t Ag containing 12 koz of Ag. In reserve and resource reporting by Kinross, Round Mountain refers to the Round Mountain project, which includes the Round Mountain deposit and the Gold Hill deposit. The Round Mountain deposit does not contain silver and all silver resources at Round Mountain are contained exclusively within the Gold Hill deposit. Gold mineral reserves and mineral resources therefore reflect both the Round Mountain deposit and the Gold Hill deposit whereas silver mineral reserves and mineral resources are only reported for the Gold Hill deposit.

Kinross also undertook exploration on a number of projects in Nevada that are either 100% owned or are in joint venture with private individuals. This exploration included geophysics, prospecting and geological mapping as well as reverse circulation drilling of targets that were more advanced. A total of 38 reverse circulation drillholes with a total depth of 12,785 m were conducted over the combined land packages during the year. These properties have the potential to host low sulfidation epithermal, Carlin-type and porphyry style deposits although the locations of these properties were not disclosed. Work continues on evaluating and adding new pipeline projects within the principal metallogenic belts in the Great Basin, including the Walker Lane belt and the main Carlin-type deposit trends. For more information see https://www.kinross.com/.

Tonopah District

Tonopah Gold Project. Viva Gold Corp.'s Tonopah project is focused on exploration for low sulfidation epithermal gold mineralization within near vertical quartz-adularia-gold veins hosted by the Palmetto Formation and overlying Tertiary rhyolitic volcanic units. Significant alteration and mineralization in the project area are localized within a low-angle zone that includes and often parallels the erosion surface of the Palmetto Formation as well as several facies within the Tertiary volcanic units, particularly where veins and mineralized structures intersect the Palmetto-volcanic contact zone. The alteration and mineralization at the property are typical of those associated with other low sulfidation epithermal systems, with low sulfide mineralization associated with quartz-adularia and clay-sericite alteration assemblages. Vein textures within the area are indicative of high-level, near-surface mineralization and include void fills, crustiform coatings, colloform banding, and comb structures. Key drilling intersects in 2023 include 55 m at 1.0 g/t Au including 14 m at 1.6 g/t Au and 4.6 m at 4.2 g/t Au in drillhole TG2318, 59 m at 1.9 g/t Au including 9 m at 2.4 g/t Au, 9 m at 3.0 g/t Au, and 41 m at 1.5 g/t Au in drillhole TG2311, 48 m at 1.9 g/t Au including 23 m at 3.5 g/t Au in drillhole TG2310, and 46 m at 1.2 g/t Au in drillhole TG2309. The 2022 resource estimate for the project consists of measured, indicated and inferred resources containing 600,000 ounces of gold. For more information see https://vivagoldcorp.com/.

Hughes Project. Summa Silver Corp.'s Hughes project is focused on exploration for vein-hosted epithermal-style silver and gold mineralization close to Tonopah. Drilling in 2023 included an intersect of 3.0 m at 3.04 g/t Au and 147 g/t Ag in a newly discovered vein zone approximately 650 m east of the Ruby zones in drillhole SUM23-60. The three new discoveries at Hughes in 2023 extended known mineralization to the east of the historic Tonopah mining district between 1.5 and 4.7 km along strike from the district. Two new high-grade veins were discovered during the year at Ruby and Sapphire. The Ruby discovery was intersected in drillhole SUM23-59, which intersected 3 m of 812 g/t Ag and 8.4 g/t Au including 0.6 m at 1,635 g/t Ag and 17.4 g/t Au) 200 m above the targeted Ruby horizon. The Sapphire discovery was intersected in drillhole SUM23-62, which intersected 1.5 m of 175 g/t Ag and 2.56 g/t Au. For more information see https://summasilver.com/.

Tonopah West Project. Blackrock Silver Corp.'s Tonopah West project is focused on exploration for intermediate sulfidation epithermal silver and gold mineralization within the western half of the Tonopah silver district, within the Walker Lane belt. This area historically produced some 174 million ounces of silver and 1.8 million ounces of gold, and the project is the first to focus on the historic workings in the property since final production around 100 years ago. Exploration to date has identified 4 km of vein extensions with the system remaining open for further exploration. An updated resource estimate was released for the project in 2022 consisting of 6.119 Mt of inferred resources at 242.6 g/t Ag, and 2.90 g/t Au containing 47.738 Moz silver and 570,000 ounces of contained Au. For more information see https://blackrocksilver.com/.

PERSHING COUNTY

Antelope District

Majuba Hill Project. Giant Mining Corp.'s Majuba Hill project is focused on exploration for Cu-Au-±Ag mineralization suggestive of both porphyry copper and silver-tin style mineralization; the project was operated by Majuba Hill Copper until a company name change in 2024. Previous mining in the project area was small scale and focused on the Majuba fault zone and veins in subordinate structures. Drilling at the project to date has identified a body of oxide copper-silver mineralization, but this body has not been fully defined or properly modeled to yield a mineral resource estimate. For more information see https://giantminingcorp.com/.

Farrell District

Wildcat project. Integra Resources Corp. acquired the Wildcat project as a result of a merger with Millennial Precious Metals Corp. The property contains gold-dominated low sulfidation quartz-calcite-adularia-illite epithermal vein and disseminated oxide and sulfide mineralization hosted by volcanic and intrusive units of the bimodal basalt-rhyolite assemblage of the northwestern Great Basin. An updated mineral resource estimate for the property and a preliminary economic assessment were both released in 2023. Current mineral resources consist of 59.9 Mt of indicated resources at 0.39 g/t Au and 3.34 g/t Ag containing 746 koz Au and 6.4 Moz Ag and 22.5 Mt of inferred resources at 0.29 g/t Au and 2.74 g/t Ag containing 210 koz Au and 2.0 Moz Ag. For more information see http://www.integraresources.com/.

Imlay District

Florida Canyon Mine. Florida Canyon Mining Inc.'s Florida Canyon Mine is a large epithermal gold deposit adjacent to an active geothermal system. The mine is operated by Florida Canyon Mining Inc., a company formed as a result of the 2024 spin-out of the U.S. and Mexican operations of Argonaut Gold Inc. The mine produced 70,477 ounces of gold during 2023, and the close spatial association with the active geothermal system has led to a general belief that Florida Canyon is a hot spring-style, epithermal gold deposit. The hydrothermal alteration assemblages and mineralogy of both oxidized and unoxidized gold mineralization at Florida Canyon are also indicative of a low-sulfidation, epithermal mineralizing system. The mine has been operating continuously barring sporadic periods of interrupted production since 1986. Mineralization and alteration within the Florida Canyon Mine are generally localized where the Midas Trench lineament is intersected by north-south trending Basin and Range frontal faults on the northwest side of the Humboldt Range. The deposit type is a large fault/fracture-controlled gold system with an overall extent defined by alteration and the oxidation of the hosting metasedimentary rocks. Mineralization is preferentially located along major structural trends, within associated adjacent fractures and foliations, and as dissemination mineralization throughout favorable host rock lithologies. The overall extent of mineralization within surface exposures in the pit area is approximately 2,286 m (7,500 ft) E-W by 1,890 m (6,200 ft) N-S and up to 244 m (800 ft) in vertical thickness.

At Florida Canyon, permits were received to allow the development of Phase III of the South Heap Leach Pad, including bulk earthworks and expansion of the leach pumping and gold recovery systems, with bulk earthworks commending in December 2023. Drilling during 2023 concluded on the 1,250 m West sulfide program in mid-2023 and on the 7,520 m East sulfide program in late 2023 with a 3,760 m in-fill drill program also conducted in the oxide resources in late 2023. Total drilling at Florida Canyon in 2023 consisted of 19 core holes with a total depth of 5,184 m (17,008 ft) and 127 reverse circulation holes with a total depth of 13,862 m (45,480 ft) although no results from this drilling were released. Current probable reserves consist of 86.6 Mt at 0.33 g/t containing 0.930 Moz Au with indicated resources of 113.6 Mt at 0.31 g/t containing 1.132 Moz Au and inferred resources of 119.3 at 0.53 g/t Au containing 2.051 Moz Au. Florida Canyon Gold Inc., also completed a business integration agreement with Integra Resources Corp. in November 2024 whereby Integra acquired all outstanding shares in Florida Canyon Gold Inc. For more information see https://integraresources.com/.

Kennedy District

Star Project. Getchell Gold Corp.'s Star project is focused on two main mineralized occurrences, the formerly producing Star Point copper mine and the Star South Cu-Au-Ag prospect located 2 km to the south. The project area contains three identified targets defined using mapping, sampling and gravity, magnetic, radiometric and induced polarization/resistivity data. No exploration results were released in 2023. For more information see https://getchellgold.com/.

Ramsay District

Gooseberry Project. American Pacific Mining's Gooseberry project is focused on exploration for low sulfidation epithermal mineralization in an area including the historic Gooseberry silver-gold mine that operated between 1900 and 1990. The property is located 48 km (30 miles) from Reno within the Virginia Range. A total of 10 of the 29 proposed drillholes were completed during 2023 with drillhole GB23-002 intersecting 19.8 m of low-grade calcite-quartz veining with the final 4.6 m of the hole returning undetectable gold and silver values. The program was terminated early due to drilling and ground condition

challenges. For more information see https://americanpacificmining.com/.

Rochester District

Rochester Mine, Lincoln Hill, and Nevada Packard. The Coeur Rochester Mine is an open-pit, heap leach silver-gold operation that consists of the main Rochester deposit, the adjacent Nevada Packard deposit southwest of the Rochester Mine, and the Lincoln Hill, Gold Ridge, and Wilco exploration projects. Operations at the Rochester Mine initially began in 1986 and were briefly suspended from 2007 through to 2010 before restarting of mining that continues to the present. The mine produced 38,775 ounces of gold and 3,390,451 ounces of silver in 2023. During 2023, the mine completed the largest expansion project in its history, termed Plan of Operations Amendment 11, or POA 11. This project consisted of the development of a Stage VI leach pad, a Merrill-Crowe processing plant, a crushing circuit, and related infrastructure. The POA 11 project has led to an extension of the life of mine at Rochester to 16 years and production of silver and gold from Rochester in 2024 is anticipated to increase 68% and 12%, respectively. This means that at full expected production levels, Rochester should become the largest annual source of American-produced and refined silver. Exploration during 2024 focused on geologic logging, interpretation and geological modeling with a new geological model completed for East Rochester and re-logging campaigns commencing at Lincoln Hill and Nevada Packard ahead of modeling. Exploration drilling is expected to restart at Rochester in the second quarter of 2024 with a focus on testing higher-grade structures outlined by the new geological model at East Rochester. Once the new geological model for Nevada Packard has been completed, a similar drill program will be undertaken at the project. For more information see https://coeur.com/.

STOREY COUNTY

Comstock District

Comstock Lode Project. Previously explored by Tonogold Resources Inc., the Comstock Lode project focuses on the Occidental/Brunswick Lode and the Silver City lodes, epithermal vein structures containing gold and silver mineralization east of and parallel to the main Comstock Lode, all of which dip to the east at approximately 45 degrees. The Lucerne deposit is located within the Silver City Lode, one of three mineralized zones of interest within the project area. Tonogold released a mineral resource estimate for the Lucerne deposit during 2022 with indicated and inferred resources containing 519,000 ounces of gold and 5,852,000 ounces of silver. However, Tonogold Resources Inc. declined to exercise the option to acquire the Lucerne property from Comstock Inc. in early January 2023, with the option for the American Flats processing facility and the mineral exploration lease covering the Northern Targets terminated by Comstock Inc. as a result of past-due balances. Subsequently, Comstock Inc. announced that its wholly-owned subsidiary Comstock Northern Exploration, LLC entered into a Mineral Exploration and Mining Lease Agreement with Mackay Precious Metals Inc. to lease the northernmost patented mining claims, mineral exploration rights and town lots controlled by Comstock. These Northern targets encompass both the Gold Hill and northern Occidental Lode claim groups in the historic, world-class, Comstock mining district and Comstock Inc reports that this agreement generated more than $2 million in cash revenue in 2023. For more information see https://comstock.inc/.

WASHOE COUNTY

Deephole District

Mountain View Project. Integra Resources Corp. acquired the Mountain View project as a result of a merger with Millennial Precious Metals Corp. Similar to Integra's Wildcat project, the Mountain View property contains gold-dominated low sulfidation quartz-calcite-adularia-illite epithermal vein and disseminated oxide and sulfide mineralization hosted by volcanic and intrusive units of the bimodal basalt-rhyolite assemblage of the northwestern Great Basin. The project has indicated resources of 28.8 Mt at 0.63 g/t Au and 3.68 g/t Au containing 578 koz Au and 3.4 Moz Ag and inferred resources of 4.2 Mt at 0.45 g/t Au and 1.83 g/t Ag containing 60.1 koz of Au and 0.2 Moz Ag. For more information see http://www.integraresources.com/.

Leadville District

Hog Ranch Project. Rex Minerals Ltd.'s Hog Ranch Property is located approximately 45 km from the California border and 91 km from the Oregon border within northwestern Nevada around 270 km north of Reno. The property consists of the Bells project area within the southern end of the property and the Krista project area at the northern end of the property. The project also contains a number of other targets that include Cameco, Airport, and Gilliam. Exploration in this area is focused on epithermal hot spring-type gold systems similar to other epithermal gold deposits within this area. Mineralization at Hog Ranch is hosted by a series of relatively flat lying or gently west-dipping welded and often flow-banded rhyolite flows and unwelded volcanic tuffs. The property contains a number of regional structures that have NE-SW and NW-SE orientations, crosscut the stratigraphy and are a key control on gold mineralization. The project area contains two styles of gold mineralization, namely extensive shallow and low-grade gold mineralization within 100 m of the paleowater

table, which extends along more porous unwelded volcanic tuff units, and higher-grade quartz-adularia vein-hosted gold mineralization within feeder structures underneath the large blanket of disseminated gold mineralization. The latter is likely to have developed at more than 200 m below the present-day surface and is analogous to high-grade vein-hosted gold mineralization elsewhere within this region.

Exploration during the year consisted of a strategic review of the property and discussions with interested potential joint venture parties. Lithium mineralization was also identified on the property during the year, with 12.2 m at 971 ppm Li identified in drillhole HR22-007, drilled in 2022. The property has 2021 indicated and inferred oxide resources consisting of 158 Mt at 0.41 g/t Au containing 2.11 Moz Au and inferred sulfide resources consisting of 6.7 Mt at 0.7 g/t Au containing 0.15 Moz of Au. Rex Minerals was also acquired by MACH Metals Australia Pty Ltd. in October 2024. For more information see https://www.rexminerals.com.au/.

San Emidio District

Wind Mountain Project. Bravada Gold Corp.'s Wind Mountain project is located around 160 km northeast of Reno and is focused on exploration in a past-producing area with two former open pits that yielded nearly 300,000 ounces of gold and more than 1.7 million ounces of silver from 1989 to 1999. A new resource estimate and preliminary economic assessment for the project was released in 2022. The resource estimate includes 495,900 ounces of contained gold and 12,304,000 ounces of contained silver in indicated and inferred resources. No exploration results for the project were released during the year. For more information see https://bravadagold.com/.

WHITE PINE COUNTY

Bald Mountain District

Bald Mountain Mine. Kinross Gold Corp.'s Bald Mountain Mine produced 143,105 ounces of gold and 39,211 ounces of silver during 2023. Placer gold with minor amounts of copper, silver, and antimony were initially mined in the area between the 1870s and 1890s, with modern exploration beginning in the 1970s and mining starting in the early 1980s. Current operations are open pit with production from a number of different pits targeting Carlin-type mineralization. Proven and probable reserves at Bald Mountain consist of 28.265 Mt at 0.5 g/t Au containing 0.489 Moz of Au with measured and indicated resources of 240.716 Mt at 0.5 g/t containing 3.686 Moz of Au and inferred resources of 49.041 Mt at 0.3 g/t Au containing 0.489 Moz of Au. Exploration drilling at Bald Mountain in 2023 consisted of 148 reverse circulation drillholes with a total depth of 28,030 m focused on near-term growth and enabling the addition of 78 koz of Au to reserves during the year. Planned exploration in 2024, will focus on low-strip ratio and near-pit extensions of mineralization across six target areas in the North and South area of operations, as well as the testing of new target areas within the Bida trend. For more information see https://www.kinross.com/.

Butte Valley District

Limousine Butte. NevGold's Limousine (Limo) Butte project is located at the southern end of the Carlin trend and is focused on exploration for Carlin-type mineralization. The area has been explored since the 1940s with some mining occurring between 1988 and 1990. The mineralization in the project area is sediment-hosted and consists of disseminated gold mineralization associated with the hydrothermal alteration and silicification of the carbonate-bearing Mississippian and Devonian calcareous shale host rocks. The project area contains NW-SE trending structures that localize mineralization in areas where these structural features intersect the NE-SW trending Black Metals and Exchequer faults, most likely as a result of hydrothermal fluids travelling along the NW-SE structures. Gold mineralization was preceded by a minimum of two episodes of brecciation and silicification with mineralized breccias consisting of silicified fragments in a matrix of massive silica that also contains pyrite, stibnite, stibiconite, and barite. The offsetting of early-formed jasperoids within the NE-SW trending structures by the NW-SE trending faults created channels for mineralizing fluids within the heavily fractured host rocks.

An updated geological model was generated for the project during 2023 incorporating project-wide geological mapping and the results of drilling in 2022. This new model has allowed the generation of new targets for future exploration. For more information see https://nev-gold.com/.

Selena. Ridgeline Minerals Selena project is a shallow oxide, silver-gold-lead-zinc project that is focusing on exploration for zoned Ag-Au-Pb-Zn carbonate replacement deposit-type mineralization. The project contains potentially open-pittable mineralization in the Chinchilla, Juniper, Revival, and Broken Egg areas as well as deeper high-grade potential areas. The project is located close to a known copper-gold porphyry system located ~1 km to the west of the property, which Ridgeline interprets to be the primary source of the hydrothermal fluids that formed the mineralization on the property. Drilling at Selena in 2023 consisted of five diamond-cored drillholes with a total depth of 2,034 m. Key intersects at the Upper Chinchilla zone included 0.4 m at 570.2 g/t Ag, 20.8% Pb, 1.5% Zn, and 0.3 g/t Au within 24.4 m at 134.1 g/t Ag, 2.5% Pb, 2.4% Zn, and 0.1 g/t Au in drillhole SE23-050 with drillhole SE23-049 at the Lower Chinchilla zone intersecting 1.5 m at 51.6 g/t Ag, 1.9% Pb, 1.9% Zn, and 0.4 g/t Au and 1.1 at 0.4% Cu, 0.2%

W, 0.3% Zn, and 2.0 g/t Ag. For more information see https://www.ridgelineminerals.com/.

Pancake District

Pan Project. Calibre Mining Corp.'s Pan project consists of an open-pit heap leach operation mining gold from Carlin-type mineralization to the southeast of Eureka. Production in 2023 was 41,385 ounces of gold and 1,750 ounces of silver. The project area contains three main mineralized zones named North, Central, and South. The mineralization at Pan is spatially related to the Devils Gate Limestone–Pilot Shale contact in all three zones and is also controlled by steeply dipping N-S faults and WNW-ENE trending fold axes. The deposits host Carlin-type mineralization consisting of disseminated gold hosted within sedimentary rock units, the majority of which is present within solution breccias developed in association with faults. Other mineralization is hosted in favorable stratigraphic locations, including within the lower Pilot Shale and the siltier upper portions of the Devils Gate Limestone.

Planned exploration drilling at Pan in 2023 consisted of 88 drillholes for a total depth of approximately 40,000 m. Exploration drilling at the Dynamite North and Palomino targets located immediately north and south of the current open-pit operation, respectively, continue to expand zones of known mineralization with grades higher than Pan's currently stated mineral resource grade of 0.4 g/t Au. These additional higher-grade results, in combination with the newly discovered Coyote target also announced in 2023 to the south of the Pan Mine, continue to demonstrate the potential to increase resources and grade at Pan. Key drill intersects from the Palomino target include 3.84 g/t Au over 15.2 m including 4.19 g/t Au over 13.7 m in drillhole PR23-026, 1.23 g/t Au over 38.1 m including 2.97 g/t Au over 12.2 m in drillhole PR23-080, 1.13 g/t Au over 22.9 m including 2.82 g/t Au over 4.6 m in drillhole PR23-056, 0.89 g/t Au over 54.9 m including 1.17 g/t Au over 4.6 m, 1.41 g/t Au over 9.1 m and 1.19 g/t Au over 10.7 m in drillhole PR23-066, and 0.59 g/t Au over 32.0 m in drillhole PR23-086. Exploration drilling at the Dynamite North target included intersects of 0.70 g/t Au over 18.3 m and 0.79 g/t Au over 32 m including 2.31 g/t Au over 6.1 m and 1.21 g/t Au over 3.1 m in drillhole PR23-047 and 0.50 g/t Au over 91.4 m in drillhole PR23-050.

Current mineral resources and ore reserves for the Pan project include proven and probable reserves consisting of 24.634 Mt at 0.34 g/t Au containing 0.273 Moz of gold and a probable leach pad inventory of 26,000 ounces of gold. Measured and indicated resources (inclusive of reserves) consist of 0.074 Mt at 0.44 g/t Au for 1,000 ounces contained Au and 29.177 Mt at 0.36 g/t Au containing 0.339 Moz of Au, respectively. Inferred resources at Pan consist of 1.479 Mt at 0.37 g/t Au containing 18,000 ounces of Au. For more information see https://www.calibremining.com/.

Robinson District

Robinson Mine. KGHM continued delineation drilling within current porphyry copper-gold mining operations and continued with near mine exploration within the Lane Valley to the northwest of the Robinson Mine in 2023. Mining operations at Robinson in 2023 produced 23,209 ounces of gold, 222,258 ounces of silver, 72,986,728 lbs of copper and 135,796 lbs of silver. This lower production was attributed to the processing of ore from a transition zone as well as processing of low-quality ore inventories, leading to a drop-in recovery and in copper content in concentrate. The Robinson operations have a current life of mine through to 2039 and have updated production plans, including mining from the Ruth West 6 pit and changes in mining sequence in the Liberty pit. For more information see https://kghm.com/en.

White Pine District

Gold Rock Project. Calibre Mining Corp. acquired the Gold Rock project from Fiore Gold in 2021, and the project focuses on similar Carlin-type mineralization as that found at Calibre Mining Corp.'s Pan project described above. Drilling in 2023 was planned to focus on Gold Rock Deep, a northeastern extension of the main Gold Rock surface oxide deposit, where initial drilling confirmed Carlin-style sulfide mineralization with the potential of a larger, higher-grade deposit at depth although no results have been released to date. Current resources at Gold Rock include 18.996 Mt of indicated resources at 0.66 g/t Au containing 0.403 Moz of Au and 3.027 Mt of inferred resources at 0.87g/t Au containing 84,000 ounces of gold. For more information see https://www.calibremining.com/.

Green Springs Project. In 2022, Centerra Gold Inc. announced that it acquired an option to earn a 70% interest in the Green Springs Property from Contact Gold Corp. for $1,000,000 cash and $10,000,000 in exploration expenditures over 4 years. Centerra approved participation in exploration at Green Springs for the second year of this agreement in late 2023. Orla Mining Ltd. also acquired Contact Gold and both the Pony Creek and Green Springs projects in April 2024. The Green Springs project is located near the southern end of the Cortez trend and includes three shallow past-producing open pits and multiple discoveries made by Contact Gold, including the high-grade oxide, near surface X-Ray and Tango zones. The gold mineralization at Green Springs is hosted within the same Chainman Shale and Pilot Shale units that host the Gold Rock and Pan discoveries. Exploration during 2023 included 4,028 m of drilling within 29 drillholes focused on the Echo, C-D Gap, Alpha, X-Ray, and Tango zones, with oxidized gold mineralization intersected at the Echo, Alpha, Tango and X-Ray zones. Drilling at the X-ray zone expanded the footprint of known mineralization in this area, which remains open to the south, west, and northeast. Key oxide mineralized

intersects included 1.14 g/t Au over 27.43 m from a depth of 16.76 m in drillhole GS23-06 including 1.73 g/t Au over 10.67 m, 1.97 g/t Au over 35.05 m from a depth of 16.76 m in drillhole GS23-07 including 5.06 g/t Au over 10.67 m and 6.96 g/t Au over 4.57 m, and 1.90 g/t Au over 25.91 m from a depth of 89.92 m in drillhole GS23-10. Key oxide mineralized intersects in the Echo zone include 0.77 g/t Au over 19.81 m from a depth of 94.49 m in drillhole GS23-03 and 0.38 g/t Au over 39.62 m from a depth of 83.82 m in drillhole GS23-04. For more information see https://orlamining.com/ and https://www.centerragold.com/.

LITHIUM EXPLORATION

Altair. Astute Metals NL undertook exploration drilling for sediment/clay-hosted lithium mineralization at the Altair project in 2023. The project is located to the southwest of Tonopah and was originally staked proximal to outcropping Tertiary sedimentary units of the Siebert Formation that host sediment/clay-hosted lithium elsewhere in Nevada. Astute Metals drilled three holes in 2023, with cored drillhole AL01 intersecting two zones of lithium mineralization including 33.5 m at 481 ppm Li at a depth of 80.8 m and 33.5 m at 508 ppm Li from 147.8 m to the end of hole at 181.4 m. Two further reverse-circulation drillholes were completed in 2023 for a combined depth of 312.4 m, with AL03 intersecting 13.7 m at 365 ppm Li from 163 m to the end of hole at 176.8 m and AL02 intersecting anomalous lithium (>100 ppm) in four distinct 1.5 m zones, with a highest concentration of 148.5 ppm lithium. These intersections indicate that the mineralized Siebert Formation sediment/clay-hosted lithium mineralization extends over 1.9 km of strike although the mineralization sits beneath significant thicknesses of gravel overburden. The presence of this barren cover led to Astute Metals relinquishing the property in August of 2024 after no other reported exploration activity. For more information see https://astutemetals.com/.

Big Smoky Valley. West Cobar Metals' Big Smoky Valley project is targeting sediment/clay-hosted lithium mineralization approximately 30 km northeast of Ioneer's Rhyolite Ridge deposit and 20 km north of Albemarle's Silver Peak operation. Geological mapping at the property suggests that potentially thick sequences of prospective Siebert Formation mudstone and tuff units dip shallowly into the project area, where they are likely covered by thin alluvial and colluvial sedimentary units. A total of six reverse-circulation drillholes were completed in 2023 to a maximum individual depth of 148 m. Siebert Formation claystones and volcaniclastics were intersected in all drillholes although only two of these drillholes (BSV04 and BSV05) contained anomalous concentrations of lithium (>140 ppm Li over 1 m). For more information see https://www.westcobarmetals.com.au/.

Bonnie Claire. Nevada Lithium Resources Inc.'s Bonnie Claire project is focused on somewhat atypical sediment/clay-hosted lithium mineralization within the Sarcobatus Flat area, some 40 km northeast of Beatty in Nye County. The project is located within a playa-filled closed basin and valley near the southwestern margin of the Basin and Range Province in western Nevada. Lithium mineralization is hosted by lacustrine evaporite or salt minerals located in interstitial pore spaces within fine-grained clay, silt, and sand units. The lithium is seemingly present as lithium carbonates and lithium salts. Sonic and diamond-core drilling was undertaken at the property in 2023, with two initial vertical sonic drillholes up to 213 m (700 ft) in depth completed during the year. Diamond drillhole BC2303C intersecting 128 m of upper zone mineralization at 967 ppm Li including 73 m at 1,282 ppm Li and 439 m of lower zone mineralization at 2,575 ppm Li, including 354 m at 3,044 ppm Li, 207 m at 4,154 ppm Li, and 49 m at 5,054 ppm Li. Drillhole BC2301C intersected 113 m of upper zone mineralization at 969 ppm Li including 55 m at 1,171 ppm Li and 530 m of lower zone mineralization at 2,219 ppm Li, including 335 m at 3,076 ppm Li and 110 m at 4,291 ppm Li. Current inferred resources at Bonnie Claire contain 18.37 Mt of lithium carbonate equivalent. For more information see https://nevadalithium.com/.

Clayton. Acme Lithium Inc.'s Clayton project is focused on lithium brine exploration in the Clayton Valley region of Esmeralda County, Nevada. The project has inferred resources containing 0.3 Mt of contained lithium carbonate equivalent that is described as being extractable over a 40-year period. Exploration at the Clayton project included the completion of dissolved mineral resource exploration drillhole DH-1A, which increased the known depth of the lower gravel unit that hosts lithium brines from approximately 381 to 554.7 m (1,250 to 1,820 ft) from surface, with a brine sample collected from this drillhole at depths from 560.8 to 573 m (1,840 to 1,880 ft), yielding lithium concentrations up to 71 mg/l. A dissolved mineral resource exploration cased test well, TW-1, was also successfully completed during 2023, again targeting the lower gravel unit and its associated deep and laterally expansive aquifer. The perforated casing of TW-1 intersects the lower gravel unit from 396 to 548.6 m (1,300 to 1,800 ft). A 10-day pumping test at TW-1 was also undertaken during the year, with the resulting data allowing estimations of lower gravel unit transmissivity and storativity. For more information see https://acmelithium.com/.

Clayton Ridge. U.S. Critical Minerals Corp.'s Clayton Ridge project is focused on exploration for sediment/clay-hosted lithium mineralization within an uplifted basin to

the east of Clayton Valley. The area contains lithium-bearing clay units that are underlain and overlain by rhyolitic lithic tuffs and air-fall tuffs, respectively. Initial drilling at the project took place in 2023, with a total of 1,455 m of core drilling in 14 drillholes ranging in depth from 41.45 to 160.3 m. This drilling aimed to traverse the lithium-bearing clay units within the south, central and northern sub-basins of the uplifted Clayton Ridge basin. Elevated lithium concentrations were identified in 13 of the 15 holes drilled in 2023, but the highest values and thickest intersects were located in the eastern part of the drilling program. Key intersects include in drillhole CR09-23, which intersected 17.4 m at 724 ppm and in drillhole CR10-23, which intersected 14.4 m at 768 ppm Li. For more information see https://uscmcorp.com/.

Fish Lake Valley. Lithium Corp.'s Fish Lake Valley project is focused on exploration for both sediment/clay-hosted lithium mineralization and lithium and boron brines within a 11,360 acre project area in northern Esmeralda County. As with the North Big Smoky/Carvers project, Morella Corp. currently has a joint venture earn-in agreement for up to 60% of the project and both Lithium Corp. and Morella undertook exploration at the project during 2023. This included a high-resolution 2D seismic reflection survey that identified sedimentary units within a half-graben setting as well as other structures that enabled the identification of high-priority brine targets for drill testing. A single drillhole was also completed in 2023 by Morella Corp., which intersected sedimentary and volcanic units that may be a good source rock for lithium brine accumulations as well as identifying a high geothermal gradient that indicates the project area may have lithium brine potential beneath the playa at Fish Lake Valley. For more information see https://lithiumcorporation.com/ and https://www.morellacorp.com/.

Gabriel. Tearlach Resources undertook exploration for sediment/clay-hosted lithium mineralization at the Gabriel project in 2023. This exploration is under an option agreement with Black Rock Silver, and the property consists of approximately 3,920 acres of unpatented mining claims three miles north of Tonopah. Historic drilling intersected claystone intervals within the prospective Miocene Siebert Formation that are lithium-mineralized, most likely in the in the form of lithium-bearing clays similar to other lithium deposits in the district. The Siebert Formation is composed of mostly tuffaceous, pelitic, calcareous, and locally dolomitic lacustrine sediments and the majority of the lithium mineralization within the formation is stratiform/stratabound and most likely is hosted in two discrete claystone horizons.

A total of 11 drillholes were completed at the property in 2023. Key intersects include 127.0 ft at 574 ppm Li in drillhole GAB-008, 131.0 ft at 658 ppm Li including 33.3 ft at 1,196 ppm Li in drillhole GAB-012, 115.9 ft at 645 ppm Li including 35.1 ft at 914 ppm Li and 6.3 ft at 1,300 ppm Li in drillhole GAB-013, 88.0 ft at 495 ppm Li in drillhole GAB-016, 60.4 ft at 535 ppm Li and 61 ft at 802 ppm Li in GAB-018, and 61.8 ft at 549 ppm Li and 47.7 ft at 729 ppm Li in GAB-019. Tearlach Resources also reanalyzed pulps for drillholes previously undertaken at the property, with the resulting data including lithium concentrations 14–33% higher than the original assays, further expanding the mineralized potential of the project to the southwest. For more information see https://tearlach.ca/.

Gemini. Nevada Sunrise Metals Corp.'s Gemini project covers an area of 7.293 acres within the Lida Valley, some 6 miles east of Lida. The valley is a flat, arid basin similar to the Clayton Valley and exploration drilling was undertaken in late 2022 and early 2023, assessing the potential of the project area to host both sediment/clay-hosted lithium mineralization and lithium brine resources. A total of three drillholes were completed with a total depth of 5,310 ft. Drillhole GEM22-03 intersected 930 ppm Li over 1,130 ft including 1,342.20 ppm Li over 350 ft and 1,955 ppm lithium over 30 ft. Drillhole GEM23-04 intersected 1,412 ppm Li over 1,440 ft including 3,557 ppm lithium over 110 ft and 4,330 ppm lithium over 30 ft. Drillhole GEM23-05 intersected 635 ppm Li over 1,135 ft including 1,096 ppm lithium over 360 ft and 1,308 ppm lithium over 180 ft. The project has a 2024 inferred resource consisting of 1,200 Mt of mineralization at 1130 ppm Li for 7.1 Mt of contained lithium carbonate equivalent. For more information see: https://nevadasunrise.ca/.

Halo. POWR Lithium Corp.'s Halo project is located close to Tonopah and is focused on exploration for sediment/clay-hosted lithium mineralization. Drilling at the project in 2023 consisted of a four-drillhole program with a total depth of 883.9 m. Key intersects include 38.23 m at 938 ppm Li in drillhole Halo-001-23, 20.25 m at 1,026 ppm Li in drillhole Halo-002-23, 62.2 m at 994 ppm Li in drillhole Halo-003-23, and 19.81 m at 1,368 ppm Li in drillhole Halo-0040-23. POWR Lithium Corp. subsequently announced the decision to terminate the option with Halo Lithium LLC related to the Halo property as a result of current market conditions and the costs and technical resources required to develop the project, instead electing to focus on other projects, including its ELi property in Little Smoky Valley, Nevada. For more information see https://powrlithium.com/.

Horizon. Pan American Energy Corp.'s Horizon project targeted sediment/clay-hosted lithium mineralization near Tonopah as part of an option agreement with Horizon Lithium LLC, which potentially would have allowed Pan American to earn a 100% interest in the project by making cash payments and share issuances to Horizon Lithium LLC. A 20-drillhole exploration program was completed during the year with a total depth

of 4,372 m. A mineral resource estimate for the project was also released, consisting of indicated resources containing 1.325 Mt of contained lithium carbonate equivalent and inferred resources consisting of 8.879 Mt of contained lithium carbonate equivalent. Pan American Energy Corp. also announced on August 2024 that it had terminated the option agreement with Horizon LLC as a result of current market conditions and the costs and the technical resources required to develop claystone lithium deposits. For more information see https://panam-energy.com/.

Jackpot Lake. USHA Resources' Jackpot Lake project is targeting lithium brine resources within Clark County. The project is located in a geological setting similar to that of Albemarle's Silver Peak operations and the company is targeting shallow brine reservoirs at depths <600 m located within hosting units that are approximately 450 m thick. Soil sampling in the project area identified anomalous levels of lithium and drillholes have encountered lithium enrichments that average 334 ppm Li with a maximum of 820 ppm Li taken from shallow surface soils encountered during drilling in 2022. Drilling was undertaken at the project in 2023 to build on the initial drilling undertaken in 2022 with the aim of advancing two drillholes to 2,000 feet of depth each, potentially expanding on known higher porosity zones. No results from this drilling have been reported although the company indicates that it intends to advance to resource definition. A release in July 2024 also indicated that the property was under consideration by Stardust Power, who have the right to earn up to a 90% interest in the property subject to a 2% net smelter return for total consideration of $26,025,000 over five years. For more information see https://usharesources.com/.

Montezuma Wells. West Cobar Metals' Montezuma Well project is targeting sediment/clay-hosted lithium mineralization approximately 1.1 km to the west of American Lithium Corporation's TLC deposit and 2.5 km north of American Battery Technology's Tonopah Flats discovery. Mapping on the property suggests that claystones of the Siebert Formation, a major host for sediment/clay-hosted lithium in this region, could be upfaulted and shallower within the Montezuma Well area. West Cobar drilled two reverse circulation drillholes in 2023. but both encountered shallow (67 and 75 m, respectively) coarse boulder-sized alluvial deposits that caused both drillholes to be abandoned as a result of drilling difficulty. The presumably underlying prospective Siebert Formation claystones were not intersected in either drillhole and thus the property remains untested for any lithium mineralization. West Cobar is currently evaluating whether to test the property at depth with a more substantial drill rig. For more information see https://www.westcobarmetals.com.au/.

Mustang. Red Mountain Mining's Mustang project is targeting sediment/clay-hosted lithium mineralization within the southeastern part of the hydrologically closed Monte Cristo Valley. The project consists of 1,070 hectares of an alluvial outwash plane with well exposed fine-grained sedimentary units and lithic tuffs. The claim area is within a mapped caldera with the Monte Cristo Valley containing a significant area of volcanic rock capable of potentially supplying lithium to the closed basin. Exploration in 2023 included a total of 11 drillholes, eight of which intersected lithium mineralization. Significant intersects include in 51.8 m at 644 ppm Li from a depth of 12.2 m in drillhole RMDH-21, including 29 m at 701 ppm from the same depth, 54.9 m at 500 ppm Li from a depth of 48.8 m in drillhole RMDH-15, 21.3 m at 606 ppm Li from a depth of 4.6 m in drillhole RMDH-27, and 10.7 m at 557 ppm Li from a depth of 4.6 m in drillhole RMDH-23. For more information see https://www.redmountainmining.com.au/.

Nevada Lithium. Future Battery Metals Ltd's Nevada Lithium project consists of four areas considered prospective for sediment/clay-hosted lithium mineralization named Lone Mountain, Traction, San Antone and Western Flats within a total project area of >90 km^2 close to Tonopah. The property also initially contained the Heller prospect, but no further work is going to be undertaken at this target. The project has a current mineral resource estimate consisting of indicated and inferred resources that contain some 6.224 Mt contained lithium carbonate equivalent at a concentration of 783 ppm Li. Future Battery Metals Ltd. undertook three phases of drilling at the project in 2023. The first of these involved 15 reverse circulation drillholes with a total depth of 2,900 m focusing on sedimentary/clay-hosted lithium mineralization within the San Antonne East and Western Flats project areas. Key intersects include 109.7 m at 766 ppm Li from a depth of 135.6 m in drillhole WF23-011 including 29 m at 1,010 ppm Li from a depth of 210.3 m, 44.2 m at 570 ppm Li from a depth of 169.2 m in drillhole WF23-006, and 35.1 m at 463 ppm Li from a depth of 106.7 m in drillhole WF23-001. The mineralization intersected by drillhole WF23-011 also remains open to the west and south.

Phase 2 drilling in 2023 focused on the Western Flats and Lone Mountain prospect areas and aimed to extend known lithium mineralization intersected during phase 1 in drillhole WF23-011. Mineralized intersects encountered during this phase indicates that the prospective lithium clay/sedimentary unit extends across a strike of at least 3.7 km NE-SW and 2.6 km E-W, remaining open in multiple directions. Key intersects include 179.8 m at 766 ppm Li from a depth of 39.6 m in drillhole WF23-015 including 19.8 m at 1,010 ppm Li from a depth of 80.8 m, 170.7 m at 764 ppm Li from a depth of 67.1 m to the end of hole in drillhole WF23-014 including 27.4 m at 1,030 ppm Li from a depth of 112.8 m, 44.2 m at 542 ppm Li from a depth of 114.3 m in

drillhole WF23-013, and 22.9 m at 652 ppm Li from a depth of 163.1 m in drillhole WF23-013.

Phase 3 drilling at the project in 2023 consisted of three diamond-cored drillholes that twinned previous reverse-circulation drillholes at the Lone Mountain prospect and six reverse-circulation drillholes for a total depth of 1,177 m, focused on an area to the south of Lone Mountain. Key intersects include 226 m at 855 ppm Li from a depth of 140 m in drillhole WF23-011C including 66 m at 1,001 ppm Li from a depth of 216 m, 148 m at 795 ppm Li from a depth of 152 m in drillhole WF23-009C including 60 m at 918 ppm Li from a depth of 191 m, and 180 m at 818 ppm Li from a depth of 40 m in drillhole WF23-015C including 51 m at 915 ppm Li from a depth of 53 and 23 m at 1,081 ppm Li from a depth of 182 m.

A total of three reverse-circulation drillholes were also completed during 2023 at the Heller prospect, but none of these drillholes intersected lithium mineralization, and Future Battery Minerals has elected to undertake no further work at this target. For more information see https://futurebatteryminerals.com.au/.

Nevada North. Surge Battery Metals' Nevada North project is focused on exploration for sediment/clay-hosted lithium mineralization within the Granite Range to the southeast of Jackpot, Nevada, about 73 km NNE of Wells. Previous drilling identified mineralized lithium-bearing clays over a strike length of 1.62 km. Mineralized intersects from this earlier drilling were at least 400 m thick. The deposit has a September 2024 mineral resource estimate consisting of 11.24 Mt of contained lithium carbonate equivalent at a grade of 3,010 ppm Li with a 1,250 ppm Li cutoff. Exploration drilling in 2023 consisted of sonic drilling as well as four diamond drillholes that were designed to expand the footprint of the known lithium-rich clay at the project over a strike length of more than 3,500 m and expand the width of this known mineralization to 950 m from the previously drill-indicated 400 m. Key intersects include four mineralized horizons in drillhole NN2307 that included 1,410 ppm Li over 7.6 m, 3,268 ppm Li over 21.3 m, 1,230 ppm Li over 3.1 m, and 2,361 ppm Li over 18.3 m. Drillhole NN2310 intersected three mineralized horizons that included 1,479 ppm Li over 7.6 m, 4,084 ppm Li over 30.9 m, and 1,749ppm Li over 9.1 m. Drillhole NN3211 intersected 3,722 ppm Li over 34.9 m, 2,237 ppm Li over 4.6 m, 2,825 ppm Li over 3 m, and 2,660 ppm Li over 4 m. Drillhole NN2312 defines the limits of mineralization to the northwest and intersected a single mineralized horizon at surface with 1,480 ppm Li over 3.7 m. For more information see https://surgebatterymetals.com/.

North Big Smoky/Carvers. Lithium Corp.'s North Big Smoky/Carvers project is exploring for lithium brine mineralization in Nye County, 121 km (75 miles) to the north of Tonopah. Morella Corp. currently has a joint venture earn-in agreement for up to 60% of the project and undertook exploration at the project during 2023. Exploration at the site undertaken to date includes Controlled Source Audio Frequency Magnetotelluric, Passive Seismic, and Magnetotelluric geophysical surveys, as well as a surface sediment geochemical survey, with a four-drillhole sonic drilling program completed in 2023. This drilling intersected lithium enrichments up to 230 ppm Li, although the deeper brine target at the project still requires further testing. For more information see https://lithiumcorporation.com/ and https://www.morellacorp.com/.

Polaris. Astute Metals NL undertook exploration air core drilling for sediment/clay-hosted lithium mineralization at the Polaris project in 2023, close to their Altair project and to the south of Tonopah. Three out of the four drillholes undertaken at the project in 2023 intersected the prospective Siebert Formation, but no assay results were released. As is the case with the Altair project, the presence of barren cover and poor drilling results led to Astute Metals relinquishing the property in August of 2024 after no other reported exploration activity. For more information see https://astutemetals.com/.

Rhyolite Ridge. Ioneer's Rhyolite Ridge project is one of two lithium projects in Nevada that is expected to proceed to production in the near future. The project is located 105 km (65 miles) to the southwest of Tonopah and contains measured, indicated and inferred resources of 360 Mt at 1,750 ppm Li and 6,850 ppm B, yielding 3.35 Mt of contained lithium carbonate equivalent and 14.060 H_3BO_3 as reported at March 2023. Drilling during 2023 at Rhyolite Ridge provided key geotechnical and other information for the continuing evaluation of the project under the National Environmental Policy Act. Ioneer also collected samples for geochemical analysis and metallurgical testing as well as moving detailed engineering design further toward completion. Commencement of construction of the mine is expected to start in 2024, with a 24-month construction period predicted to be completed in 2026. For more information see https://www.ioneer.com/.

Scotty. Loyal Lithium's Scotty project is located within the Sarcobas Flat area and covers an area of 78.1 km^2. It is located 189 km northwest of Las Vegas and 517 km from Reno in the Tier 1 mining jurisdiction. Exploration at Scotty focuses on both sediment/clay-hosted lithium mineralization and lithium brine potential and is adjacent to Iconic Minerals Ltd.'s Bonnie Claire project. Exploration in 2023 included the vertical sonic drilling of three drillholes with an average depth of 171 m. This drilling indicated that the sediment/clay-hosted lithium mineralization in this area is present at a consistent depth over a length of 1.9 km. The drilling confirmed the consistent depth of the lithium mineralization between the drillholes, and key intersects include 117.35 m at 813 ppm Li from a depth of 15.24 m in

drillhole SC23-001, 82.3 m at 1,106 ppm Li from a depth of 21.34 m in drillhole SC23-002, and 124.97 m at 1,237 ppm Li from a depth of 9.14 m in drillhole SC23-003. For more information see https://loyallithium.com/.

Silver Peak. Albemarle's Silver Peak operations continued to be the only primary lithium producer in the U.S. in 2023. The lithium brine operation at Silver Peak is located approximately 48 km (30 miles) southwest of Tonopah, in Esmeralda County within Clayton Valley. Lithium brine is extracted at Silver Peak to produce lithium carbonate and, to a lesser degree, lithium hydroxide. Lithium brine extraction in the Clayton Valley began in 1965 and have operated continuously, with Albemarle purchasing the operation as a result of the takeover of Rockwood in 2015. The Silver Peak site covers a surface of more than 13,500 acres, >10,500 acres of which is owned through a subsidiary of Albemarle, with the remaining acres consisting of federal land that is leased pursuant to unpatented land claims that are renewed annually by Albemarle. The total area of active operation is 7,390 acres, primarily associated with the evaporation ponds that are used to process the lithium, with the processing from lithium brine extraction to lithium carbonate or hydroxide production taking approximately two years. Manufacturing and administrative activities at Silver Peak take up an area around 20 acres in size.

Although there are no current exploration activities at Silver Peak, Albemarle is currently in the process of expanding production capacity and has also started to evaluate sedimentary/clay-hosted lithium and other available resources in Nevada for the commercial production of lithium. Production at Silver Peak is expected to double by 2025 as a result of Albemarle starting to fully use their existing brine water rights. For more information see https://www.albemarle.com/.

Smoky Lithium. Victory Battery Metals' Smoky Lithium project is located in Esmeralda County, Nevada, within the Big Smoky Valley, some 32 km (20 miles) north of Clayton Valley. The target in this area is sediment/clay-hosted lithium mineralization and the project as a total area of some 7,000 acres. Exploration drilling in 2023 included four cored drillholes with a combined depth of 599.4 m (1,966.5 ft). Diamond drillhole DDH23-01 intersected 33.8 m of 1,149 ppm Li at a depth between 127 and 160.8 m, including 25.8 m at 1,267 ppm Li. For more information see https://www.victorybatterymetals.com/.

Solar Lithium. Cruz Battery Metals Corp.'s Solar Lithium project is located to the northwest of Tonopah and is focused on exploration for sedimentary/clay-hosted lithium mineralization. The project has a 2022 mineral resource estimate consisting of 8.83 Mt contained lithium carbonate equivalent in measured and indicated resources with a further 1.86 Mt contained lithium carbonate equivalent in inferred resources. Cruz Battery Metals Corp. undertook two drilling programs at the project during 2023, the first of which consisted of four drillholes, all of which reportedly intersected lithium mineralization. Key intersects include drillhole Hole-6, which had a high concentration of 1,460 ppm Li and intersected 871 ppm Li over 15 m (50 ft), drillhole Hole-7, which had a high concentration of 1,220 ppm Li and intersected 873 ppm Li over 14 m (47 ft) starting at 5.5 m (18 ft), and Hole-8 and Hole-9, which had high Li concentration values of 1,240 and 1,160 ppm Li, respectively. Phase 4 drilling consisted of three reverse-circulation drillholes. Drillhole Solar-13, the drillhole farthest to the north in this phase of drilling, had a high concentration value of 1,050 ppm Li and intersected 626 ppm Li over 40 m (130 ft). Drillhole Solar-11 had a high concentration value of 950 ppm Li and intersected 612 ppm Li over 18 m (60 ft). Drillhole Solar-10, the southernmost drillhole in this phase, had a high concentration value of 1,060 ppm Li and intersected 476 ppm Li over 21 m (70 ft). For more information see https://www.cruzbatterymetals.com/.

Thacker Pass. Lithium Americas continued construction at the sedimentary/clay-hosted lithium-focused Thacker Pass project during 2023 as well as releasing an NI43-101 report during the year. The Thacker Pass deposit is located within the southern portion of the McDermitt caldera and is located subhorizontally beneath thin alluvial cover as well as being partially exposed at the surface. The sedimentary section of the deposit consists of alternating layers of claystone and volcanic ash with basaltic lavas occurring intermittently within the sedimentary sequence. The sedimentary/clay-hosted lithium at Thacker Pass is hosted by two forms of clay mineral, namely smectite and illite. The smectite clay is located at relatively shallow depths in the deposit and contain roughly 2,000–4,000 ppm Li. In comparison, the illite is located at moderate to deep depths within the deposit and typically contains >4,000 ppm Li, sometimes reaching concentrations of 9,000 ppm Li. Construction in 2023 included site clearing, water supply commissioning, site access and infrastructure improvements, major earthworks and detailed engineering in preparation for major construction to commence in 2024. In 2023, Lithium Americas also acquired repurposed temporary housing and kitchen facilities for the workforce hub to provide housing for construction workers in the town of Winnemucca. The company also continued to work with the U.S. Department of Energy Loan Programs Office to advance due diligence and term sheet negotiations for a loan as part of the Advanced Technology Vehicles Manufacturing Loan Program, with conditional approval received in March 2024. This loan, if fully approved, is expected to fund up to 75% of capital costs for the construction of Phase 1 at Thacker Pass, with Phase 1 resulting in production capacity of 40,000 metric tons lithium carbonate equivalent per year, ramping up to 80,000

metric tons lithium carbonate equivalent per year production capacity. Total capital cost for phase 1 is currently estimated to be $2.93 billion, with Lithium Americas' 2023 expenditure at Thacker Pass being approximately $194 million. Mechanical completion of Thacker Pass Phase 1 is targeted for 2027 following a three-year construction period. Exploration at Thacker Pass in 2023 included a drilling program consisting of 97 cored drillholes totaling 15,270 m (50,099 ft) with sampling and analysis not reported during 2023. This exploration program confirmed that sedimentary/clay-hosted lithium mineralization is common throughout the Thacker Pass area. For more information see https://lithiumamericas.com/.

TLC. American Lithium Corp.'s TLC project is located 10 km to the northwest of Tonopah, to the east of the Big Smoky Valley, and west of the San Antonio Mountains in Nye County, Nevada. Mapping at the property indicates the mineralization is overlain by alluvial outwash material with an average thickness of 4 m. Individual washes expose prospective fine-grained sediments and lithic tuffs of the Miocene Siebert Formation, which in the property area consists of finely laminated claystone beds with lenses of sandstone and conglomerate, and occasional thin volcanic tuff and ash layers. The TLC project hosts sedimentary/clay-hosted lithium mineralization with an updated mineral resource estimate for the project reported in early 2023 and a maiden preliminary economic assessment released in February 2023. The new mineral resource estimate reported a 64% increase in measured and indicated resources to 4.2 Mt contained lithium carbonate equivalent (860 Mt at 924 ppm Li) and 4.63 Mt contained lithium carbonate equivalent (1,192 Mt at 727 ppm Li) resources, respectively. Inferred resources consist of 1.86 Mt lithium carbonate equivalent (486 Mt at 713 ppm Li), giving a total resource of approximately 10.69 Mt contained lithium carbonate equivalent. Step-out drilling during 2023 consisting of 26 diamond core and 16 reverse-circulation drillholes expanded the resource footprint during the year, with the results of this drilling likely to be added to the resource block model and an updated mineral resource estimate in the near future. Key intersects include 73.1 m at 1,148 ppm Li in drillhole TLC-2222C between 17.1–90.2 m downhole, 81.4 m at 1,135 ppm Li in drillhole TLC-2321C between 27.1–108.5 m downhole, and 80.8 m at 1,090 ppm Li in drillhole TLC-2242 between 3.0–83.8 m downhole. This identification of additional shallow, high-grade lithium mineralization to the northeast of the existing resource should enable a further increase in the mineral resource estimate. American Lithium Corp. also undertook optimization work during the year focused on improving leaching conditions and lithium recovery. The company also made a strategic investment of CAD $5,360,000 in Surge Battery Metals Inc., another explorer focused on lithium in Nevada. For more information see https://americanlithiumcorp.com/.

Tonopah Flats. American Battery Technology Corp.'s Tonopah Flats project is focused on sedimentary/clay-hosted lithium mineralization and is located within the Big Smoky Valley near Tonopah. The project area covers more than 10,340 acres of land, and to date, American Battery Technology Corp. has undertaken geological mapping, sampling, drilling, geochemical analysis, and extraction testing to characterize the mineralization located in the project area. During 2023, the company reported the results of a third exploration drill program, consisting of 8 infill and step-out drillholes that reached a maximum depth of > 426.7 m (>1,400 ft). Significant numbers of samples within each drillhole returned concentrations >300 ppm Li often at shallow depths (<6 m or <20 ft, below surface). Maximum lithium concentrations within these drillholes include 1,560 ppm Li in drillhole TF-2323, 1,650 ppm Li in drillhole TF-2324, 1,730 ppm Li in drillhole TF-2325, and 1,700 ppm Li in drillhole TF-2328. American Battery Technology Corp. also released a new mineral resource estimate consisting of inferred resources containing 15.8 Mt of lithium carbonate equivalent. For more information see https://americanbatterytechnology.com/.

West Tonopah. Enertopia Corp.'s West Tonopah project is located 4 miles to the west of Tonopah and is focused on exploration for sedimentary/clay-hosted lithium mineralization. The project area covers some 1,818 acres of the Big Smoky valley and contains exposed lithium claystone units that elsewhere are covered by up to 21 m (70 feet) of Quaternary cover material. Drilling in 2023 consisted of 12 drillholes, all of which terminated in lithium claystone and included drillhole DH23-01, which intersected 5 feet at 1,520 ppm Li within a larger zone of 33.5 m (110 feet) at 1,029 ppm Li at depths between 74 and 107.6 m (243 and 353 ft). The company also released a mineral resource estimate for the project, with inferred resources for the west and east resource areas consisting of 109 Mt of mineralization at 722 ppm Li containing 420,000 metric tons lithium carbonate equivalent and 9.314 Mt of mineralization at 499 ppm Li containing 25,000 metric tons lithium carbonate equivalent, respectively. This means that the overall project has inferred resources that contain 445,000 metric tons of lithium carbonate equivalent. For more information see https://enertopia.com/.

Zeus. Noram Lithium Corp.'s Zeus project is focused on exploring for sedimentary/clay-hosted lithium mineralization and is located in Clayton Valley. The property covers an area of 2,800 acres and is focused on exploration for lithium in clay units, with higher grade intersects associated with black, sulfidic clay units. Exploration in 2023 included a 10-drillhole program that aimed to test for the presence of a second layer of lithium

mineralization, increase drill density within the high-grade part of the known deposit, and to undertake step-out drilling to the southeast and northwest to validate the existing geological model. Key intersects include 47.7 m at 1,108 ppm Li from 4.3 to 52.0 m, including 5.7 m at 1,454 ppm Li from 24.1 to 29.8 m in drillhole CVZ-082 and 85.1 m at 966 ppm Li from 4.1 to 89.2 m, including 5.5 m at 1,377 ppm Li from 36.9 to 42.4 m, 2.4 m at 1,471 ppm Li from 48.5 to 50.9 m, and 6.1 m at 1,409 ppm Li from 57 to 63.1 m in drillhole CVZ-083. An updated mineral resource estimate for the project was released in May 2024, including indicated resources of 586 Mt at 957 ppm Li containing 2.987 Mt of contained lithium carbonate equivalent and inferred resources of 300 Mt at 861 ppm Li containing 1.375 Mt of contained lithium carbonate equivalent. For more information see https://noramlithiumcorp.com/.

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INDUSTRIAL MINERALS

by Rachel Micander

Data reported for individual commodities below were obtained from the Nevada Division of Minerals (NDOM) and the U.S. Geological Survey (USGS). Data are given in short tons unless otherwise noted. Individual and compiled state production data are from the annual status and production report issued by NDOM. USGS data (mostly domestic production, consumption, prices, and trends) are from the minerals commodities summaries on the agency's website located here: https://www.usgs.gov/centers/nmic/commodity-statistics-and-information. Exploration and mining plans and notices were obtained from information filed with the Bureau of Land Management.

Aggregate (Dimension Stone, Sand and Gravel, Crushed Stone, and Decomposed Granite)

According to the USGS mineral industry survey, 1.5 billion metric tons of crushed stone, valued at more than $24 billion was produced in 2023. Additionally, 920 million metric tons of construction sand and gravel, valued at $11 billion was produced nationwide during 2023. Of the aggregate operations in Nevada that reported annual status and production to NDOM, a total of 11,949,708 tons of aggregate were mined at 29 operations throughout 2023. 166,977 tons of decomposed granite (DG) were mined at the Dressler pit in Douglas County and 402,949 tons were mined from Donovan pit in Washoe County. 914,909 tons of sand were mined from various pits in Lyon, Washoe, Churchill, Elko, and Clark counties. 24,026 yards of gravel were mined from pits in Pershing and Elko counties.

Approximately 9,611,156 tons of aggregate were produced in 2023. DG was produced from the Dressler pit (159,987 tons) in Douglas County and the Donovan pit (387,652 tons) in Washoe County. In addition, 213,349 tons of DG were produced at the Lone Mountain pit in Clark County, operated by Mel Clark, Inc. Sand was produced from various pits in Lyon, Washoe, Churchill, Elko, and Clark counties, totaling 672,054 tons. Gravel was produced from three pits in Elko, Nye, and Churchill counties. 22,882 tons were produced from the Padro quarry in Elko County, operated by Harney Rock and Paving Co. Have Welder Will Travel, Inc produced 7000 tons form the Big Claude Mine in Nye County. 25,720 tons were produced by Hiskett and Sons, LLC at their Flattop pit in Churchill County.

An approximate total of aggregates shipped in 2023 was 8,591,827 tons. 155,327 tons of DG were shipped from the Dressler pit and 402,949 tons shipped from the Donovan pit. A total of approximately 592,971 tons of sand were shipped from operations in in Lyon, Washoe, Churchill, Elko, and Clark counties. Harney Rock and Paving Co. shipped 250 tons of gravel from the Padro quarry and Hiskett and Sons, LLC shipped 23,936 tons from the Flattop pit.

Approximately 2.3 million tons of dimension stone, valued at $410 million, was sold or used by U.S. producers in 2023. In Nevada, two operations reported mining, producing, and/or shipping quartzite throughout 2023. Las Vegas Rock mined 468 tons, produced 765 tons and shipped 765 tons of quartzite from their Rainbow Quarries facility in Clark County. Mt. Moriah Stone Quarries, LLC mined 3,257 tons and shipped 4,871 tons of quartzite from their quarry in White Pine County.

The numbers reported above, obtained from the annual status and production report, should not be considered representative of all aggregate mined, produced, or shipped in the state. Aggregate operators are not obligated to report annual production numbers to NDOM.

Barite

In 2023, domestic barite mining activities were carried out by three companies in Nevada. Production in 2023 continued to increase, although specific data were not disclosed to protect company proprietary information. Throughout the year, approximately 2.5 million metric tons of barite were sold in the United States, sourced from both domestic production and imports. These sales were facilitated by crushers and grinders operating across nine different states.

More than 90% of the barite sold in the United States is used as a weighting agent in fluids used in the drilling of oil and natural gas wells. Most of the crude barite mined and ground in Nevada was sold to drilling companies in western and central parts of the United States. Offshore drilling operations in the Gulf of Mexico and onshore drilling operations in other parts of the U.S. utilized imported barite because of increased rail and truck transportation costs, when compared to ocean freight. Barite is also used in the automotive industry, and in paint, plastics, and rubber. Due to barite's ability to block x-ray and gamma-ray emissions, it is used in high-density concrete for radiation shielding in multiple industries where such radioactive emissions pose a threat to exposure (USGS, 2023).

Barite production came from four properties in Nevada. Those were the Big Ledge Mine/Osino mill in Elko County, the Rossi Mine and Dunphy mill also in Elko County, the Battle Mountain grinding plant in Lander County, and the Maggie Creek operation in Eureka County.

The Rossi Mine and Dunphy mill, operated by Halliburton Energy Services, mined a total of 171,365 tons and produced 114,927 tons of barite. A total of 72,614 tons of barite was shipped by this operation. The Big Ledge/Osino mill owned by Drilling Minerals Industries, LLC shipped 61,171 tons of barite. The Battle Mountain grinding plant, owned by M-I LLC shipped 249,336 tons of

barite. The Maggie Creek operation, owned by Progressive Contracting, Inc. mined 55,932 tons of barite. They produced and shipped 80,989 tons of barite in 2023.

Progressive Contracting Inc. filed a mining plan for barium/barite in T37N, R51E, Section 3 of Elko County. This plan is located within the Beaver mining district, a non-metallic district in the southern Tuscarora Mountains.

Cement

In 2023, U.S. the production of Portland cement experienced a slight decline to an estimated 88 million metric tons. Simultaneously, masonry cement production also saw a slight decrease to an estimated 2.4 million metric tons. Cement production took place at 99 facilities spread across 34 states and Puerto Rico. The leading cement-producing states, ranked in descending order of production, were Texas, Missouri, California, and Florida. These four states collectively accounted for approximately 43% of the total cement production in the United States.

Nevada Cement Co. is the only producer of cement in Nevada and distributes bulk and sack cement. Nevada Cement mined both limestone and pozzolan from operations in Lyon, Pershing, and Churchill counties; however, no cement production or shipments were reported during 2023. See sections on Pozzolan and Lime, Limestone, and Dolomite for more detailed information and production amounts.

Clay Minerals

Domestic clay production was estimated to be 26 million metric tons valued at $1.7 billion in 2023, the same as what was reported for 2022. Production came from 120 companies operating clay and shale mines across 38 states. The USGS divides clay into ball clay, bentonite, common clay, fire clay, fuller's earth, and kaolin.

In the past, operations in Nevada have mined and produced alum sulfur, bentonite, hectorite, kaolinite, montmorillonite, saponite, sepiolite, smectite, and mixed clays. According to the annual status and production report, 10,400 tons of bentonite and 51,500 tons of sepiolite were mined by Lhoist North America at their Amargosa Clay operation in Nye County. In addition, they produced 13,183 tons of bentonite, 963 tons of saponite, and 26,304 tons of sepiolite from the same facility. Nevada Cement Co. mined 15,000 tons of kaolinite at their Flanigan Clay Mine in Washoe County. Vanderbilt Minerals, LLC produced 1,012 tons of smectite at their Buff/Satin Mine in Pershing County. Vanderbilt Minerals also produced 1,518 tons of smectite at their Blanco Mine in Esmeralda County and 154 tons of smectite at the New Discovery Mine and mill in Nye County.

American Colloid Company shipped 670 tons of bentonite from their Nassau facility in Pershing County. Lhoist North America shipped 12,093 tons of bentonite, 963 tons of saponite, and 23,542 tons of sepiolite all from the Amargosa Clay operation in Nye County. Vanderbilt Minerals shipped 1100 tons of smectite from the Buff/Satin Mine, 1386 tons from the Blanco Mine, and 66 tons from the New Discovery Mine and mill.

Diatomite

In 2023, the nationwide production of diatomite, also known as diatomaceous earth, amounted to an estimated 830,000 metric tons, with a processed value estimated at $340 million (free on board, or f.o.b., at the plant). This production was carried out by six companies operating across 12 mining areas and nine processing facilities located in California, Nevada, Oregon, and Washington. Approximately 50% of the diatomite produced was utilized in the manufacture of filtration products, while the remaining 50% found applications in absorbents, fillers, lightweight aggregates, and various other industrial uses. A relatively small fraction, less than 1%, was dedicated to specialized pharmaceutical and biomedical purposes.

A total of 281,924 tons of diatomite were mined by three different companies across five counties in Nevada throughout 2023. U.S. Silica mined 62,897 tons from the Fernley Diatomite operation (Churchill County), 44,922 tons from the Clark Mine in Storey County, and 144,345 tons from the Colado Mine in Pershing County. Grefco Minerals, Inc. mined 8,255 tons from the Basalt Diatomite Mine in Mineral and Esmeralda counties. Imerys Minerals of California, Inc. mined 21,505 tons from the Nightingale pit in Churchill County.

Approximately 232,117 tons of diatomite were produced by the same three companies at six different operations. Grefco Minerals produced 6,352 tons from the Basalt Diatomite Mine. Imerys Minerals of California produced 23,731 minerals from the Nightingale pit. U.S. Silica produced 6,382 tons from the Hazen pit in Lyon and Churchill counties, 49,414 tons from the Clark Mill in Storey County, 108,318 tons from the Colado plant, and 37,920 tons from the Fernley Diatomite operation.

Shipped diatomite came from the same operations that produced diatomite and totaled 206,992 tons statewide. Grefco Minerals shipped 6312 tons from the Basalt Diatomite Mine, Imerys Minerals of California shipped 23,236 from the Nightingale pit, and U.S. Silica shipped a combined total of 93,025 tons of diatomite from their Hazen Mine, Clark mill, Colado plant, and Fernley Diatomite operation.

Feldspar

In 2023, the estimated value of U.S. feldspar production was $60 million. Feldspar was produced by six companies located in California, Idaho, North Carolina, and Virginia. Feldspar processors also reported recovering mica and silica sand as joint products. Additionally, one company

produced nepheline syenite for use as a flux, though production data were not available.

While no feldspar was produced in Nevada during 2023, Industrial Minerals and Tech, LLC filed a notice for feldspar in T21N, R27E, Section 4 of Churchill County, approximately 2.4 miles south of the southern edge of the Desert mining district in the Hot Springs Mountains.

Gemstones

The combined value of domestic production of natural and synthetic gemstones was $99 million, a small increase from the previous year. Domestic production of natural gemstones include agate, beryl, coral, diamond, garnet, jade, jasper, opal, pearl, quartz, sapphire, topaz, tourmaline, and turquoise, among others. Nevada produces opal, petrified wood, and turquoise from a few gemstone mines throughout the state and is the third highest producer of gemstones (by value) nationwide (USGS, 2023).

Opal is produced from a few small mines in the Virgin Valley area of northern Humboldt County, a well-known source of gemstones in North America. The best-known mines are the Bonanza, Rainbow Ridge, and Royal Peacock mines, which are pay-to-dig operations. According to the annual status and production report, Bonanza Opal Mine mined, produced, and shipped 98 pounds (~44.5 kg) of common opal, 3 pounds (1.4 kg) of gem opal, and 8 pounds (3.6 kg) of opal potch. Rainbow Ridge Opal Mine mined a total of 100 pounds (45.4 kg) of common opal. No amounts were reported produced or shipped for this location. A small amount of common opal (0.3125 pounds/~0.142kg) was mined at the Red-N-Mine in Humboldt County, though no amounts were reported produced or shipped.

Turquoise is produced from several small operations in Nevada. Lone Mountain Mining, LLC reportedly mined, produced, and shipped 500 pounds (227 kg) of turquoise from the Lone Mountain Mine in sections 7 and 18 of T1N, R41E in the Lone Mountain mining district of Esmeralda County.

Gypsum

Domestic crude gypsum production was estimated to be 22 million metric tons valued at $264 million. Leading crude gypsum producing states were California, Iowa, Kansas, Nevada, Oklahoma, and Texas. A total of 47 companies produced or processed gypsum at 46 mines across 15 states. Domestic production is primarily used for agriculture, cement production, and manufacturing of wallboard and plaster products. Total wallboard sales were estimated to be 27 billion square feet during 2023.

PABCO Building Products, LLC, mined 1,293,898 tons of gypsum from the PABCO Gypsum plant and mine in Clark County, northeast of Las Vegas. The company also produced 802,836 tons and shipped 13,426 tons of gypsum. PABCO Gypsum processes its gypsum to make wallboard at a plant adjacent to their mining operation (PABCO Gypsum, undated).

Empire Mining Co., LLC, operates the Empire quarry mine and mill located in Pershing County. They mined 393,690 tons of gypsum, produced 422,422 tons, and shipped 374,501 tons throughout 2023.

The Art Wilson Company of Carson City mined 224,354 tons of gypsum from the Adams Claim Gypsum Mine in Lyon County. 224,354 tons were produced and 221,042 tons of gypsum were shipped from this location.

H. Lima Nevada, LLC mined and produced 73,000 tons of gypsum and shipped 70,240 tons from its Lima Nevada gypsum mine in Clark County.

Lime, Limestone, and Dolomite

According to the USGS, an estimated 17 million metric tons of quicklime and hydrated lime were produced nationwide in 2023, valued at about $2.6 billion. The USGS rolls its production figures of limestone and dolomite not used in lime production into their figure for crushed stone. Nevada reported limestone production was 923,879 tons and dolomite production was 302,793 tons.

Graymont Western US, Inc. operates the Pilot Peak high calcium lime operation in Elko County and produced 482,000 tons of lime in 2023.

Lhoist North America mined 250,000 tons of dolomite and 1,148,000 tons of limestone during 2023. They produced 250,000 and 923,000 tons of dolomite and limestone, respectively. Graymont Western US, Inc. mined 1,320,000 tons of limestone and did not produce or ship any product during the year.

Nevada Cement Co. mines limestone from three quarries in Churchill, Pershing, and Lyon counties. The company's main production came from its Churchill limestone quarry in the Trinity Range, where 505,650 tons of limestone were mined throughout 2023. The company mined 110,000 tons from its Relief Canyon pit (Pershing County) and 55,000 tons from its Fernley limestone operation (Lyon County).

Min-AD, Inc. mined 59,382 tons of dolomite, produced 51,901 tons, and shipped 53,593 tons of dolomite from their facilities in Winnemucca. Dolomite is mined from the Dun Glen Formation at the MIN-AD Mine located about 6 miles (10 km) south of Winnemucca at the base of the Sonoma Range in Humboldt County.

Nutritional Additives Corp. produces agricultural and nutritional dolomite products from its Sexton Mine along the northwest edge of the Sonoma Range about eight miles (14 km) south of Winnemucca. The company produced 892 tons of dolomite; however, no amounts were reported mined or shipped for 2023.

Along with gypsum, the Art Wilson Co. mined and produced 879 tons of limestone from the Adams Claim Gypsum Mine. They shipped 917 tons of limestone from the same location.

Bridgesource, LLC filed 5 mining plans for limestone in T14S, R67E, Section 32, T15S, R67E, Sections 4,5, 7, and 8 in Clark County. The sections are located due east of Moapa in the northern portion of the Moapa mining district, which is a non-metallic district.

Magnesia

In 2023, the production of magnesium compounds in the U.S. came primarily from seawater and natural brines. The total value of shipments for all types of magnesium compounds was estimated to be $470 million. The extraction of magnesium compounds from seawater was carried out by one company in California and another in Delaware. Additionally, one company in Michigan extracted these compounds from well brines, while two companies in Utah focused on lake brine sources. Olivine [$(Mg,Fe)_2SiO_4$] was mined by one company in Washington while Magnesite ($MgCO_3$) was mined by one company in Nevada. Premier Magnesia, LLC owns and operates the Gabbs magnesia operation in Nye County, which is the only place in the country where magnesite is mined.

Premier Magnesia mined 577,094 tons of magnesite, produced 129,168 tons of magnesium oxide, and shipped 113,387 tons of magnesium oxide throughout 2023.

Perlite

Domestic processed crude perlite sold and used in 2023 amounted to 450,000 metric tons valued at $30 million. Crude perlite production came from nine operations across six western states. According to the 2023 Mineral Commodity Summary published by the USGS, about 47% of perlite production is used in building and construction products, 16% is used as horticultural aggregate, 15% as fillers, and 14% as a filler aid. The remaining 8% is used for special insulation and other miscellaneous uses.

Perlite is a type of volcanic glass, typically formed from the hydration of obsidian, that can expand up to 20 times its original size when rapidly heated. Perlite is widely used in construction because it is lightweight, fire-resistant, and an excellent insulator. In horticulture, it helps retain moisture and improves soil aeration without causing compaction. Perlite is chemically inert and does not degrade over time.

Statewide, two operations reported perlite production in the annual status and production report. Wilkin Mining and Trucking, Inc. mined 2,064 tons from their Tenacity Perlite Mine in Lincoln County. No perlite was reportedly produced or shipped from this operation. The Tenacity Perlite Mine is located in the South Pahroc Range mining district about 25 miles (40 km) west of Caliente, Nevada.

U.S. Silica produced 9,492 tons and shipped 6,434 tons of perlite from the Colado Plant in Pershing County during 2023. The crude perlite comes from the Popcorn Mine (also known as the Desert Mountains perlite deposit and Perlite Mine) about 15 miles (24 km) south of Fallon in Churchill County (U.S. Silica).

Pozzolan

According to the annual status and production report, Nevada Cement Co. mined 15,000 tons of pozzolan from its Mustache quarry near Fernley.

Pozzolans contain silica, or a combination of silica and alumina, which by itself has little or no cementitious properties. In the presence of moisture, pozzolans chemically react with calcium hydroxide at room temperature to form compounds with cementitious properties. Pozzolans can be naturally occurring (volcanic ash) or artificially produced (fly ash from coal combustion or silica fume from silicon metal production). They are used in construction to improve the performance of concrete and other cement-based materials.

Salt

Domestic production of salt remained constant at 42 million metric tons valued at $2.6 billion. Nevada's only salt producer, the Huck Salt Co. produced 10,000 tons and shipped 19,626 tons of salt throughout 2023. The salt is mined from a playa on Fourmile Flat about 25 miles (40 km) southeast of Fallon in Churchill County.

Silica

According to the annual status and production report, J.R. Simplot mined and produced a total of 1,000,000 tons of silica sand from their Simplot Silica Products operation in Clark County, Nevada. They shipped a total of 752,158 tons of silica sand from the same operation.

Zeolites

In 2023, seven companies operated nine zeolite mines in six states, producing about 84,000 tons of natural zeolites. Chabazite was mined in Arizona, and clinoptilolite was mined in California, Idaho, New Mexico, Oregon, and Texas. Erionite, ferrierite, mordenite, and phillipsite were likely produced in small quantities as well. The majority of zeolite production (74%) came from three leading companies (USGS, 2023). In 2023, the primary domestic uses of this product were for animal feed, odor control, and water purification. Other applications included various unspecified purposes, pet litter, fertilizer carriers, wastewater treatment, air filtration, oil and grease absorption, fungicide or pesticide carriers, aquaculture, and desiccant.

Nevada contains large known resources of zeolite; however, production has been small, and no zeolite is currently mined in Nevada. Zeolite minerals (most of which are rare) reportedly found in Nevada include analcime,

chabazite, clinoptilolite, epistilbite, erionite, ferrierite, heulandite, mordenite, natrolite, offretite, phillipsite, scolecite, and stilbite. In 2023, 8,344 and 5,679 tons of zeolite were produced and shipped, respectively, from the Shenandoah mill in Nye County operated by KMI Zeolite, Inc.

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GEOTHERMAL ENERGY

By Maria Richards and Chao Lu

OVERVIEW

In 2023, Nevada generated approximately 26.1% of the United States' geothermal electricity, second only to California (EIA, 2024). Nevada's total installed geothermal energy nameplate capacity reached around 846.2 megawatts electric (MWe) (tables 1 and 2; fig. 1). Capacity for 2023 was increased with the commissioning of Ormat Technologies, Inc.'s new geothermal power plant in North Valley, which added an additional 25 MWe to Nevada's geothermal portfolio.

The total gross state geothermal power generation in 2023 rose to 606.9 MWe, with net generation (power to market) reaching 492.5 MWe. The difference between gross and net generation represents parasitic losses from the electrical energy required to operate geothermal plants (e.g., downhole pumps). In 2023, these losses averaged 19%, marking a decrease from previous years.

In 2023, Nevada's total geothermal power generation reached 5,391,114 megawatt-hours (MWh) gross, a 4% increase over 2022. Geothermal energy contributed 3.79% of the state's gross mineral proceeds, as noted in the Nevada Department of Taxation's 2023 annual report (NvTax, 2023). The estimated average price for geothermal electricity in Nevada was 7.9 cents per kilowatt-hour (kWh) (fig. 2). Geothermal plants generated 10.1% of Nevada's electricity in 2023, continuing a steady growth trend since 2020 (see fig. 3). It is important to note that this generation percentage reflects production within the state, not consumption, as some of Nevada's geothermal power is sold to utilities in California and Utah, such as the Sacramento Municipal Utility District, Southern California Public Power Authority, and the University of Utah, through various power purchase agreements (PPAs).

In November 2023, the U.S. Bureau of Land Management (BLM) conducted a geothermal lease sale, offering 45 parcels totaling 134,867 acres. Of these, 33 parcels were sold, covering 96,606 acres—down from 2022 (fig. 4; table 3a). The average price per acre was $8.50, with the highest bid reaching $130 per acre, marking a $29 increase from the previous year. Total revenue for the BLM reached $1,025,396, including the bonus bid, administrative fees, and first-year lease rental set at $2 per acre. Additionally, a non-competitive "day after" sale was held, whereby 12 nominated parcels were offered, and seven parcels sold, totaling 19,230 acres (table 3b) for $22,767. Altogether, 115,836 acres were acquired for geothermal exploration in Nevada in 2023 through both competitive and non-competitive lease sales (fig. 5).

Drilling activity in Nevada remained low in 2023, with no new geothermal production wells drilled. Three wells were drilled over the year, consisting of one geothermal observation well, one injection well, and one temperature-gradient well. The state issued a total of 18 drilling permits in 2023.

Trends

In 2023, average wellhead fluid production temperatures ranged from 97–189°C (207–372°F), with an average temperature of 139°C for electricity generation. Two direct-use applications reported geothermal fluid temperatures between 77–95°C (171–203°F) (fig. 6). Production flow rates for individual wells averaged 132 liters per second (l/s) (approximately 2,097 gallons per minute, gpm) for electricity generation, with the Don A. Campbell geothermal field recording the highest flow rates at 385 l/s (6,102 gpm). Three newer geothermal fields in Nevada—McGinness Hills, Tungsten Mountain, and Don A. Campbell—achieved the highest production well flow rates, averaging 247 l/s (3,915 gpm) per well. These fields accounted for nearly 65% of total fluid production from geothermal plants in Nevada in 2023.

The 2023 trends show an increase in power production because of new plants: Star Peak and North Valley; as well as changes at the power plants and well field for McGinness Hills, and Tungsten Mountain (fig. 7). Beowawe and Dixie Valley show the most consistency in power production over the decades (fig. 8).

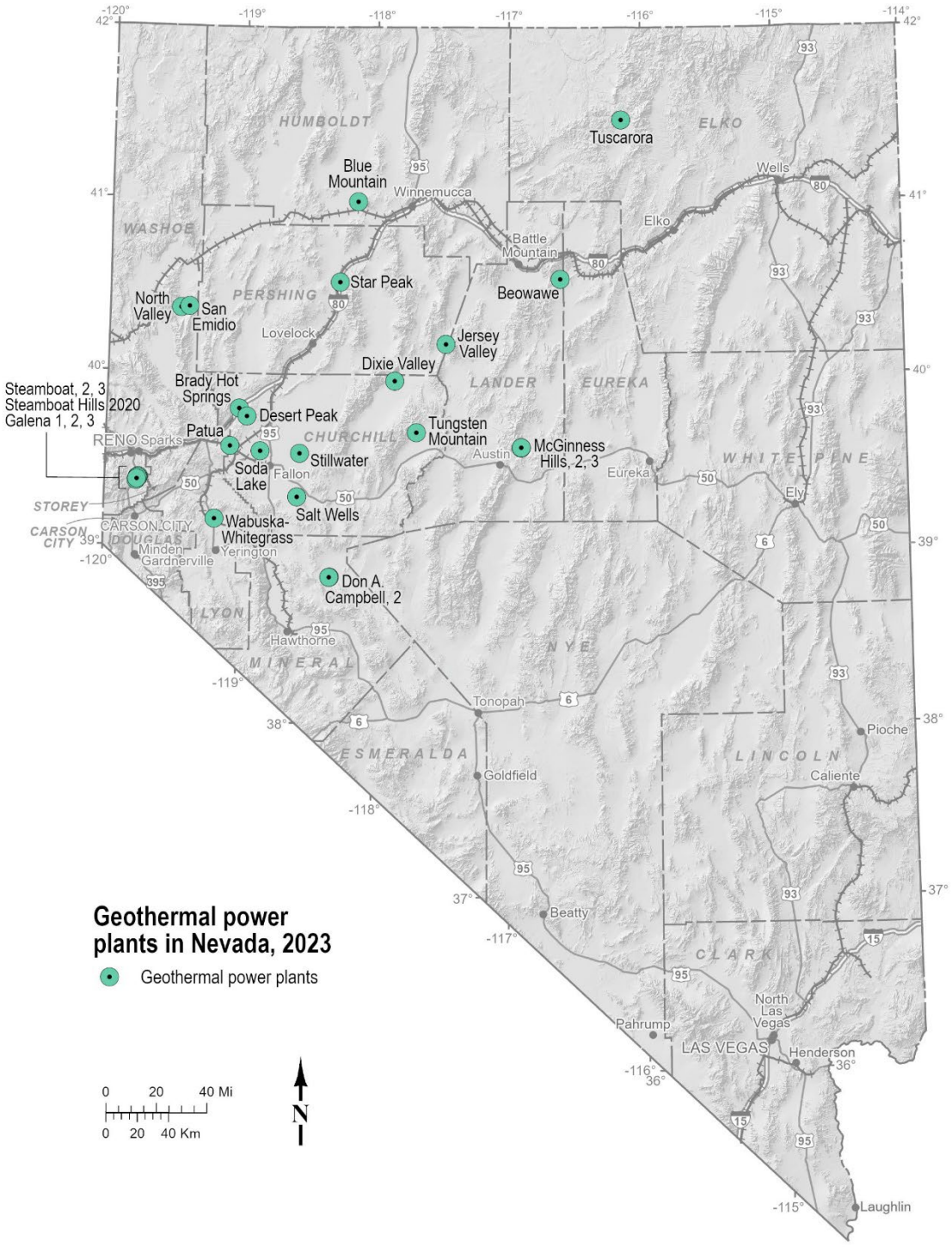


Figure 1. Location of geothermal power plants in Nevada in 2023.

Table 1. Nevada geothermal power plants and generation estimates, 2023

Plant name	Nameplate Capacity (MWe)[1]	Flash or Binary	Commission Year	2023 Production (MWhr)		2023 Production (MWe)[2]		Operator
				Gross	Net	Gross	Net MWe	
Beowawe	19.2	F/B	1985	120,041	97,405	13.7	11.1	Ormat Nevada Inc.
Blue Mountain (Faulkner)	50.0	B	2009	304,973	198,805	34.8	22.7	Cyrq Energy
Brady Hot Springs	26.1	F/B	1992	131,023	94,786	15.0	10.8	Ormat Nevada Inc.
Desert Peak	25.0	B	2006	128,459	93,719	14.7	10.7	Ormat Nevada Inc.
Dixie Valley	70.9	F	1988	539,767	475,365	61.6	54.3	Ormat Nevada Inc.
Don A. Campbell	22.5	B	2013	158,299	122,055	18.1	13.9	Ormat Nevada Inc.
Don A. Campbell II	25.0	B	2015	140,029	100,389	16.0	11.5	Ormat Nevada Inc.
Jersey Valley	23.5	B	2011	105,493	66,824	12.0	7.6	Ormat Nevada Inc.
McGinness Hills Complex	202.8							Ormat Nevada Inc.
McGinness Hills		B	2012	393,224	312,210	44.9	35.6	
McGinness Hills II		B	2015	404,454	642,258	46.2	73.3	
McGinness Hills III		B	2018	686,689	567,910	78.4	64.8	
North Valley	25.0	B	2023	87,991	75,832	3.3	2.9	Ormat Nevada Inc.
Patua	48.0	B	2012	190,629	108,566	21.8	12.4	Cyrq Energy
Salt Wells	24.0	B	2009	94,055	66,349	9.8	6.9	Enel North America
San Emidio	12.0	B	2012	103,026	75,124	10.8	7.9	Ormat Nevada Inc.
Soda Lake	26.0	B	1991	136,369	104,608	15.6	11.9	Cyrq Energy
Star Peak	14.0	B	2022	75,194	50,150	8.6	5.7	Open Mountain Energy
Steamboat Hills Complex	84.0							Ormat Nevada Inc.
Galena 1		B	2005	138,280	110,871	15.8	12.7	
Galena 2		B	2007	79,694	38,240	9.1	4.4	
Galena 3		B	2007	131,137	93,795	15.0	10.7	
Steamboat II		B	1992	65,232	42,056	7.4	4.8	
Steamboat III		B	1992	69,446	46,016	7.9	5.3	
Steamboat Hills		F	1988	269,641	224,209	30.8	25.6	
Stillwater	47.3	B	2009	220,262	77,895	25.1	8.9	Enel Stillwater
Tungsten Mountain	62.5	B	2017/2022	408,547	343,399	46.6	39.2	Ormat Nevada Inc.
Tuscarora	32.0	B	2012	180,598	129,723	20.6	14.8	Ormat Nevada Inc.
Wabuska	6.4	B	1984	28,562	18,211	3.3	2.1	Whitegrass No. 1
Total:	**846.2**			**5,391,114**	**4,376,769**	**606.9**	**492.5**	

[1] Nameplate capacity is the manufacturer's rating of equipment output capacity, as reported to the Nevada Division of Minerals by the plant operators and does not necessarily reflect the capability of the currently developed resource. These nameplate capacities are estimates, and several different values can be found in the literature. Generator nameplate capacity refers to the size of the actual generator, but not to the turbine size or the actual capacity of the power plant. There are no public documents breaking down nameplate capacity of the turbines so these numbers may not adequately reflect actual generation.

[2] Production values were calculated by dividing annual megawatt hours (MWh) produced by the number of hours in a year.

Table 2. Geothermal power plant operator contact information.

Company Address	Local Contact	Plant Name	MWe
Cyrq Energy 15 West South Temple, Suite 1900 Salt Lake City UT 84101 (801) 875 4200 https://cyrqenergy.com/	NGP Blue Mountain 1 15250 Blue Mountain Road Winnemucca, NV 89445 (775) 786-4322	Blue Mountain (Faulkner 1)	50
	Patua Geothermal Power Plant 17388 Patua Road Hazen, NV 89408 (775) 217-2650	Patua	48
	Soda Lake Power Plant 5500 Soda Lake Road Fallon, NV, 89406 (775) 867-5093	Soda Lake	26
Enel North America 1755 East Plumb Lane, Suite 155 Reno, NV 89502 (775) 329 0700 https://www.enelgreenpower.com/countries/north-america/united-states	(775) 423-5374 (775) 423-0322	Salt Wells Stillwater	24 47.3
Open Mountain Energy 3451 N. Triumph Blvd, Suite 201 Lehi, UT 84043 (385) 352-8858 http://openmountainenergy.com/	21 Julian Lane Yerington, NV 89447 (385) 352-8858	Wabuska (Whitegrass No.1) Star Peak	6.4 14
Ormat Technologies, Inc. 6140 Plumas St Reno, NV 89511 (775) 356-9029 https://www.ormat.com/en/home/a/main/	(775) 635-2130 (775) 322-7782 (775) 423-5800 (775) 423-6535 (775) 852-1444 (775) 384-7807 (775) 557-2015 (775) 557-2015 (775) 852-1444 (775) 852-1444 (775) 852-1444 (775) 384-7807	Beowawe Brady Hot Springs Desert Peak Dixie Valley Jersey Valley McGinness Hills (1, 2 + 3) North Valley San Emidio (Empire) Steamboat Complex Tungsten Mountain Tuscarora Don Campbell (Wild Rose)	19.2 26.1 25 70.9 23.5 202.8 25 12 84 62.5 32 47.5
	Total Installed MW (2023 nameplate capacity)		**846.2**

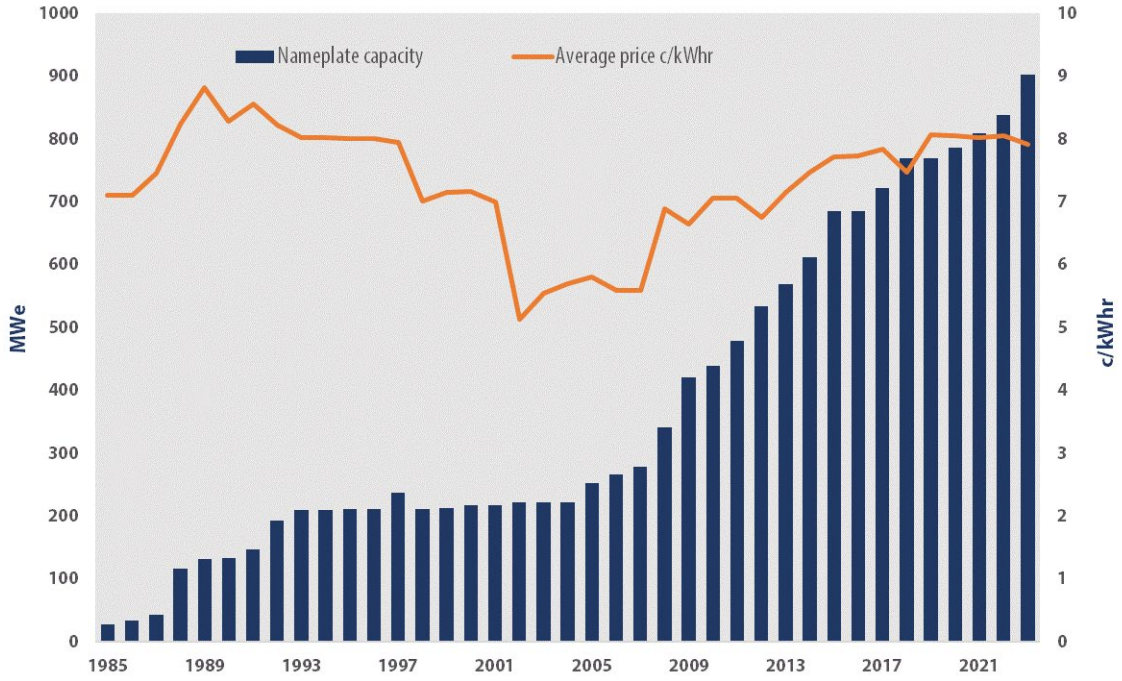


Figure 2. Trends in annual, net geothermal electricity generation (MWe, blue bars) and the estimated average price of geothermal electricity (calculated from gross proceeds and reported net production through 2023) in cents per kilowatt hour (c/kWh, orange line). The actual price for any individual power plant may be different and is held confidential by the state energy office.

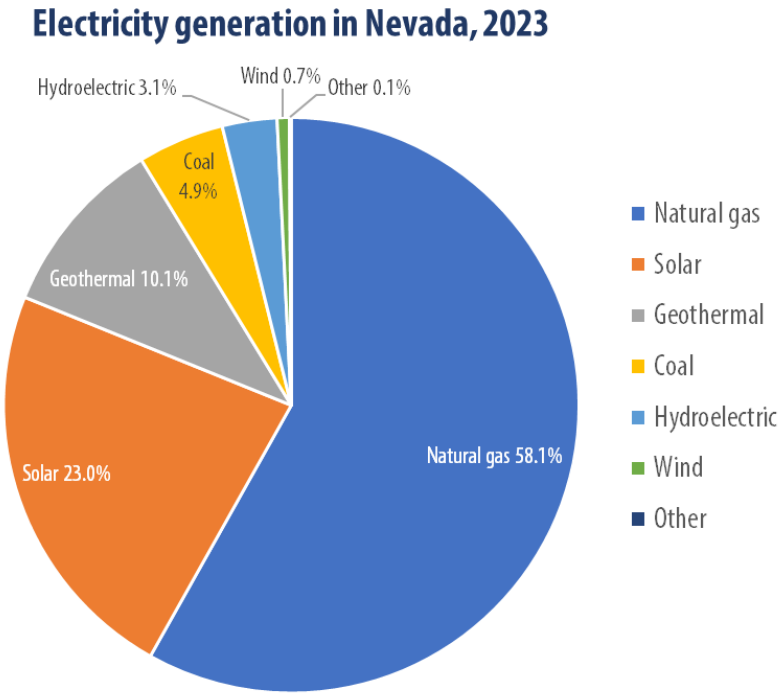


Figure 3. Sources of Nevada electricity generation in 2023. Data sourced from the U.S. Energy Information Administration (EIA)[1].

[1] https://www.eia.gov/electricity/state/nevada/

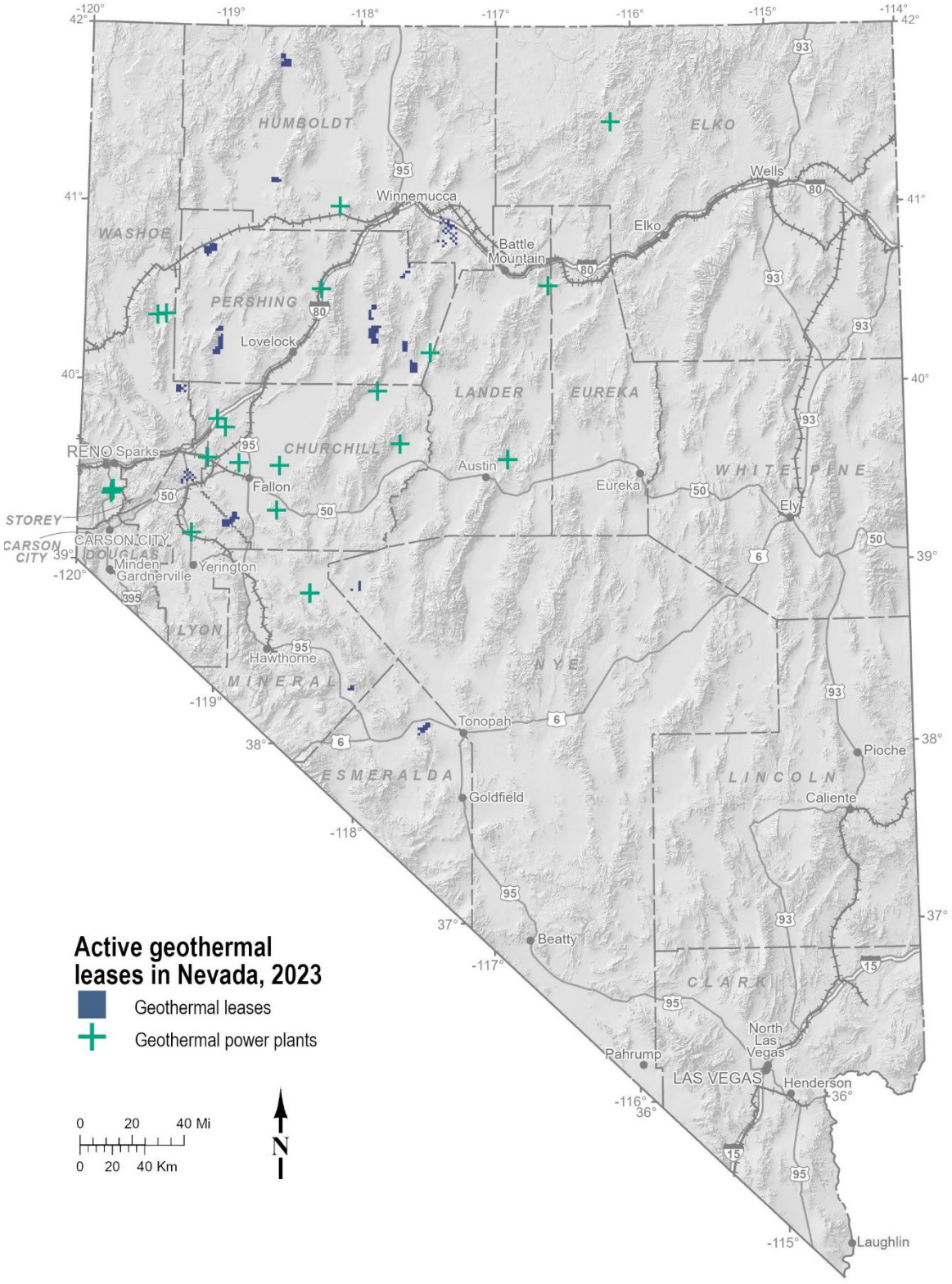


Figure 4. Geothermal leases sold in Nevada in 2023 by Bureau of Land Management.

Table 3a. Geothermal competitive leasing activity in Nevada, 2007–2023.

Year	Parcels Offered	Acres Offered	Parcels Sold	Acres Sold	Total receipts[1]	Highest bid per acre	Avg. bid per acre	% Acres Sold	% Parcels Sold
2007	43	122,849	43	122,849	$11,669,821	$95	$92.90	100%	100%
2008	35	105,212	35	105,212	$28,207,806	$268	$266	100%	100%
2009	108	323,222	82	243,727	$8,909,445	$3,800	$34.50	75%	76%
2010	114	328,020	75	212,370	$2,762,292	$1,000	$10.90	65%	66%
2011	51	151,119	17	42,627	$456,353	$60	$8.70	28%	33%
2012	33	94,829	8	27,834	$112,540	$2	$2	29%	24%
2013	13	16,284	9	10,373	$42,870	$2	$2	64%	69%
2014	2	3,438	1	40	$315	$2	$2	1%	50%
2015	0	0	-	-	-	-	-	-	-
2016	22	46,976	14	32,075	$30,552	$2	$2	68%	64%
2017	20	38,208	10	19,209	$78,444	$2	$2	50%	50%
2018	10	27,331	2	2,321	$26,422	$12	$9.20	8%	20%
2019	142	387,032	37	102,403	$637,892	$20	$4.20	26%	26%
2020	18	35,232	11	23,351	$148,009	$42	$4.30	65%	61%
2021	32	83,544	26	73,631	$1,602,207	$100	$22	88%	81%
2022	79	232,484	64	184,613	$3,374,892	$111	$17.6	79%	81%
2023	45	134,867	33	96,606	$1,025,396	$130	$8.50	72%	73%
Totals:	767	2,130,452	469	1,307,539	$59,185,256		$45.60	61%	61%

[1] *Includes bids, first year lease rental at a price of $2 per acre and application fee (~$175 per parcel; this changes year-to-year).*

Table 3b. Non-competitive geothermal leasing activity in Nevada, 2018–2023 ('day-after' sale).

Year	Parcels Offered	Acres Offered	Parcels Sold	Acres Sold	Total Receipts[2]	% Acres Sold	% Parcels Sold
2018	8	24,749	0	0	0	0	0
2019	105	281,967	19	64,420	$72,875	23%	18%
2020	7	11,881	2	3,335	$4,225	28%	29%
2021	6	9,913	1	629		6%	17%
2022	13	39,571	8	25,536	$34,665	64%	62%
2023	12	38,261	7	19,230	$22,767	50%	58%

[2] *First year lease rental at a price of $2 per acre and application fee ($450 per parcel in 2021).*

Table 4. Geothermal wells reported as drilled, re-drilled, or completed in 2023.

County	Area	Permit #	Operator Name	Well Number	Well Type	UTM Easting[1]	UTM Northing[1]	Land Type	Permitted depth (m)[2]
Humboldt	Blue Mtn	1509	Cyrq Energy	BM 73-22	Observation	403649	4537581	BLM	2441

[1] North American 1983 Datum UTM 11N (in meters).
[2] Permitted depth for each well obtained from the Nevada Division of Minerals (https://minerals.nv.gov/Programs/Geo/GeoPermits/).

Table 5. Geothermal drilling activity in Nevada, 2007–2023.

Year	Number of permits issued	Number of wells drilled	Number of production wells drilled
2007	71	41	5
2008	130	53	16
2009	195	71	16
2010	119	74	19
2011	85	37	19
2012	49	24	12
2013	21	23	8
2014	27	14	6
2015	26	17	7
2016	14	16	9
2017	35	29	5
2018	23	25	3
2019	18	7	2
2020	21	9	2
2021	14	1	1
2022	0	1	0
2023	18	3	0

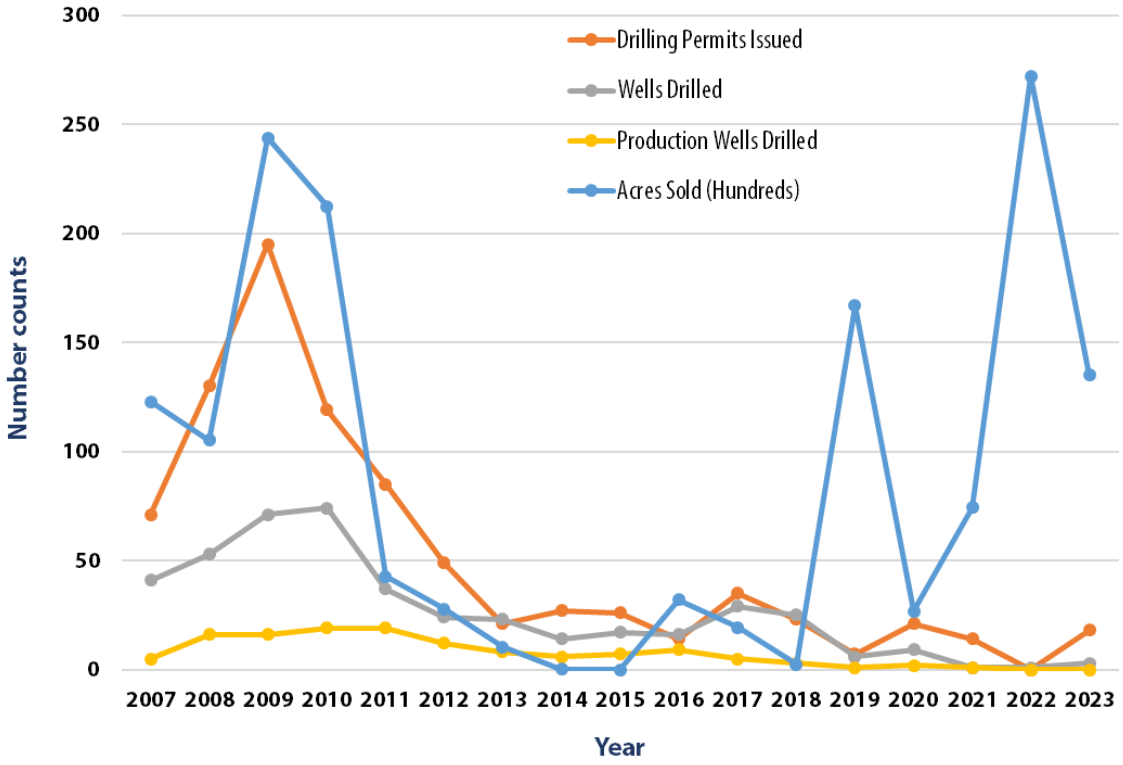


Figure 5. Trends in geothermal leasing and drilling activities in Nevada from 2007 to 2023. Note: acreage for 2019–2023 includes parcels sold through both competitive and non-competitive ('day-after') lease sales.

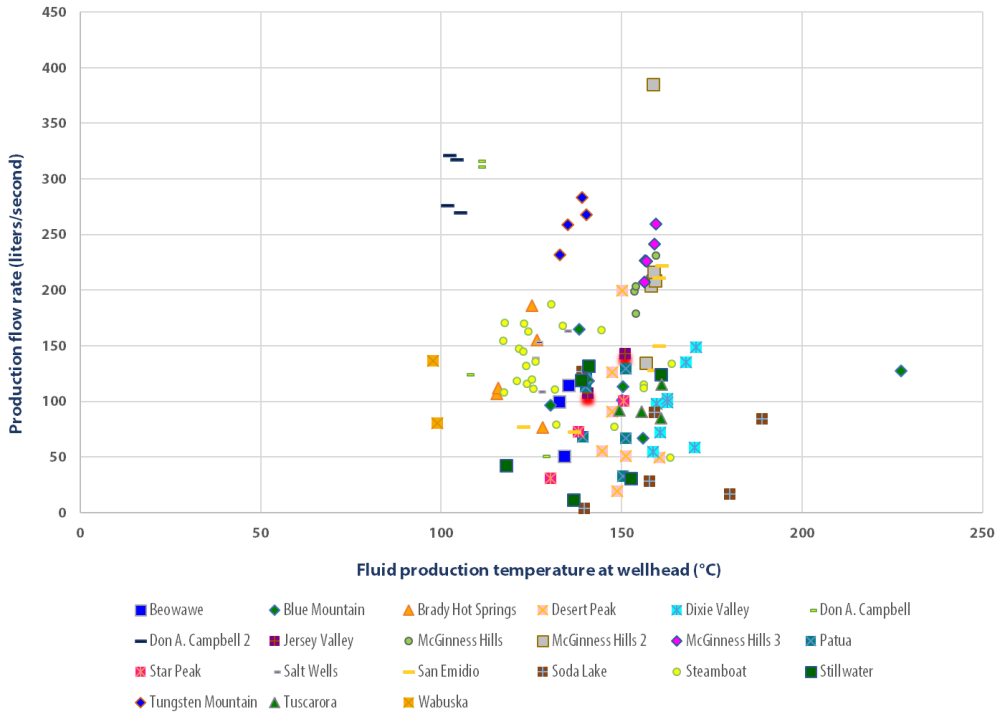


Figure 6. Average production flow rates of geothermal wells in Nevada in 2023 and their associated temperatures as measured at the wellhead. Data based on information provided to the Nevada Division of Minerals, 2023. Note that temperatures reported for wells in Dixie Valley and Beowawe represent post-flash temperatures.

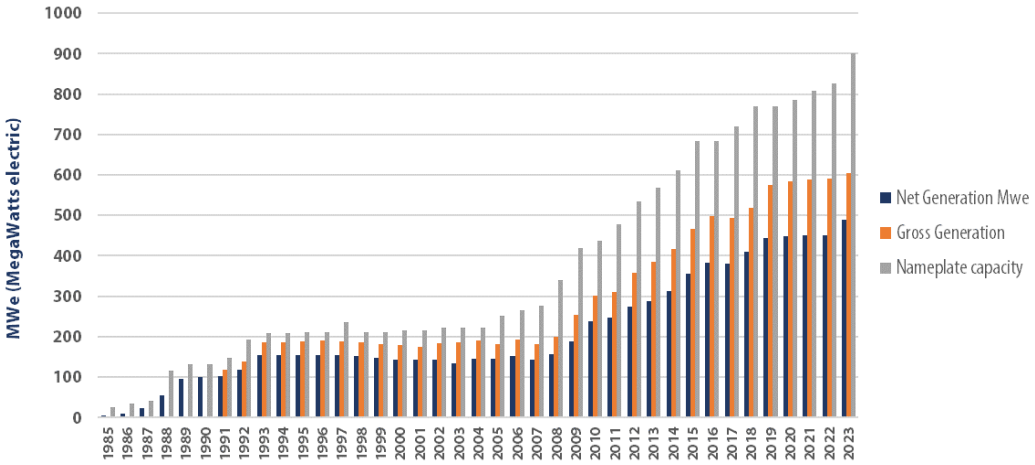
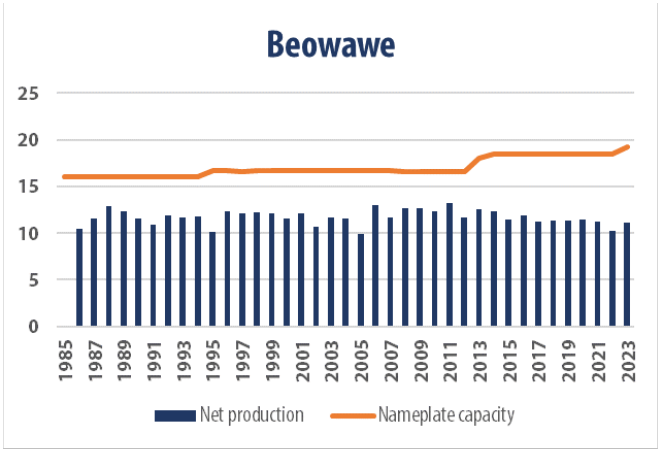
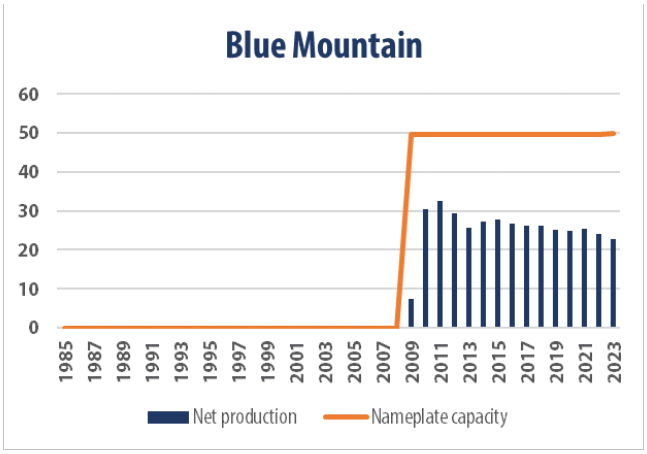
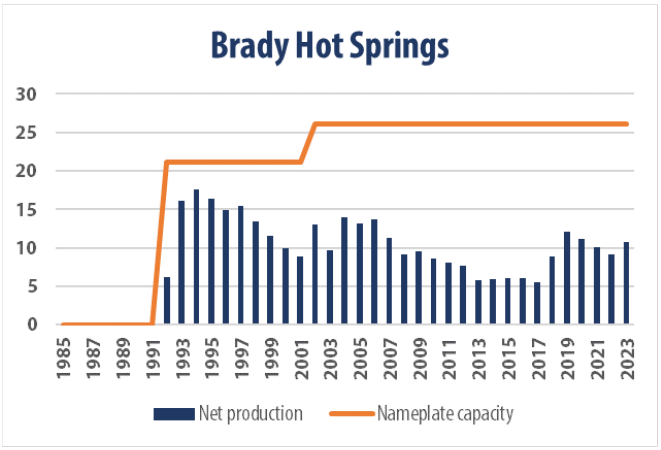
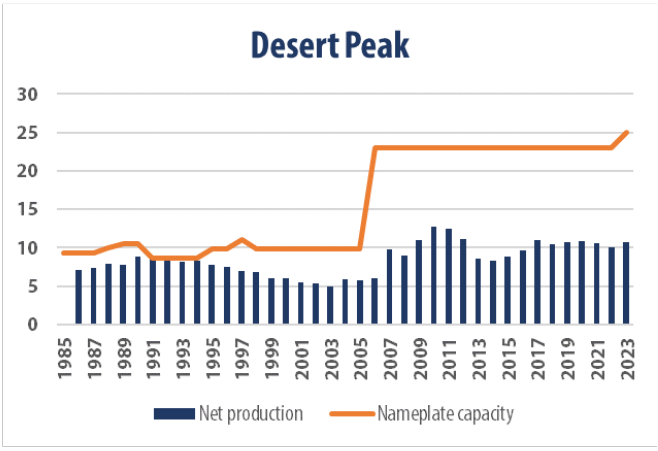


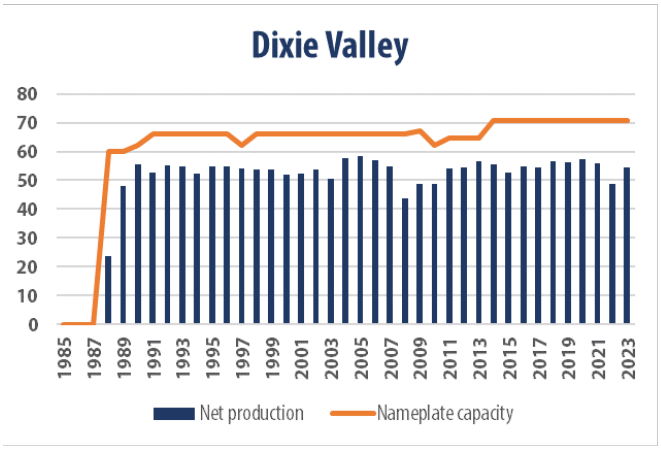
Figure 7. Growth in installed nameplate capacity, and net and gross geothermal power production in Nevada between 1985 and 2023, as reported to the Nevada Division of Minerals. Gross and net generation are calculated by dividing annual net generation in megawatt-hours by the number of hours in a year.











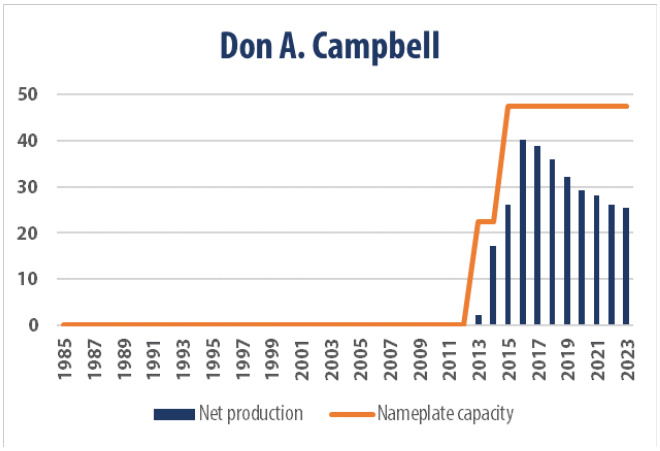


Figure 8a. The following figures are the evolution of nameplate capacity (MWe) and net power generation (MWe) for geothermal power plants in Nevada. The legend is the same for all figure 8 plots, with date along the bottom axis, net production for each year shown as a blue bar with the annual MWe on left axis, and for comparison the total possible at that plant is the nameplate capacity drawn as an orange line in MWe.

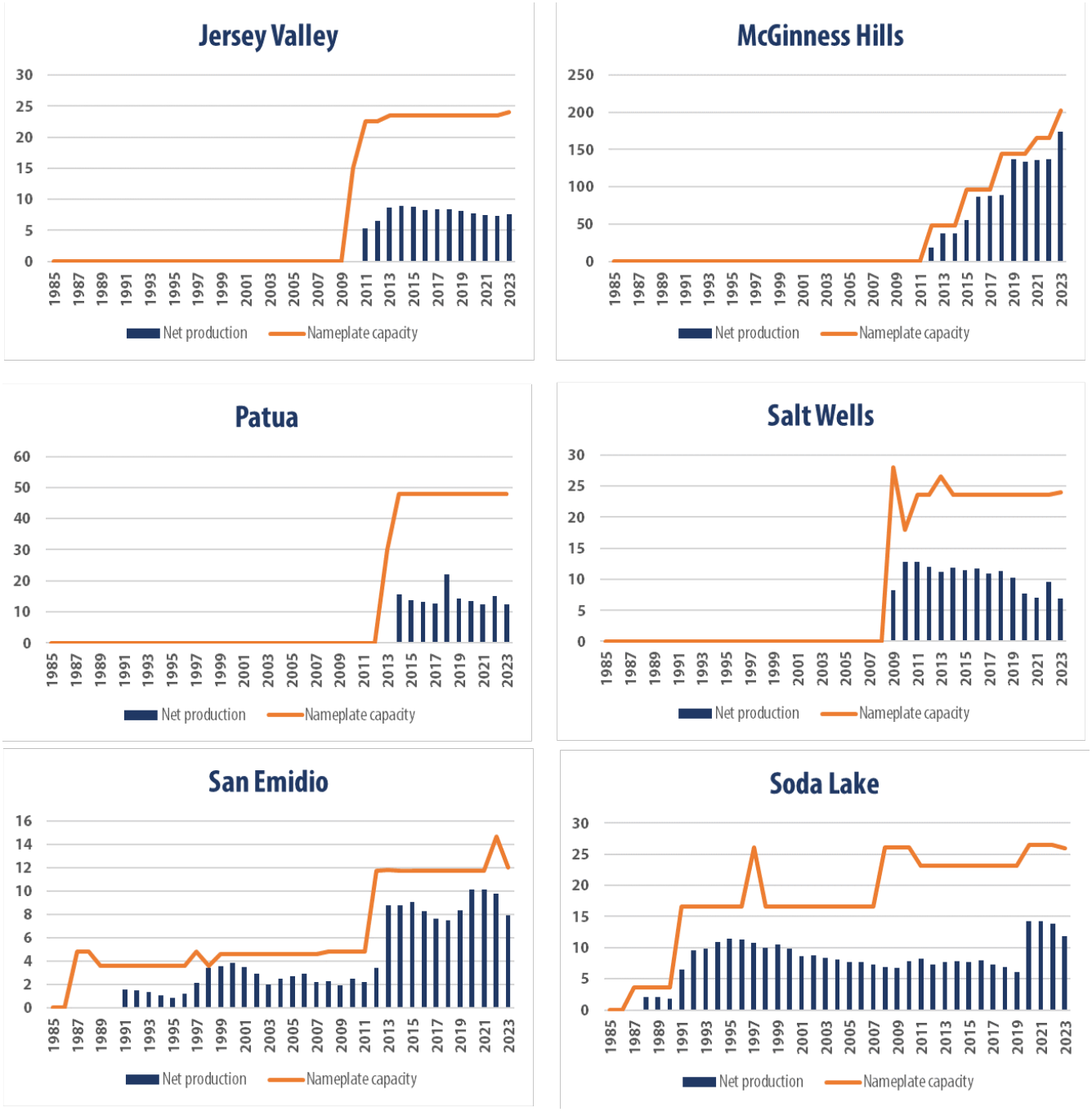


Figure 8b. The following figures are the evolution of nameplate capacity (MWe) and net power generation (MWe) for geothermal power plants in Nevada. The legend is the same for all figure 8 plots, with date along the bottom axis, net production for each year shown as a blue bar with the annual MWe on left axis, and for comparison the total possible at that plant is the nameplate capacity drawn as an orange line in MWe.

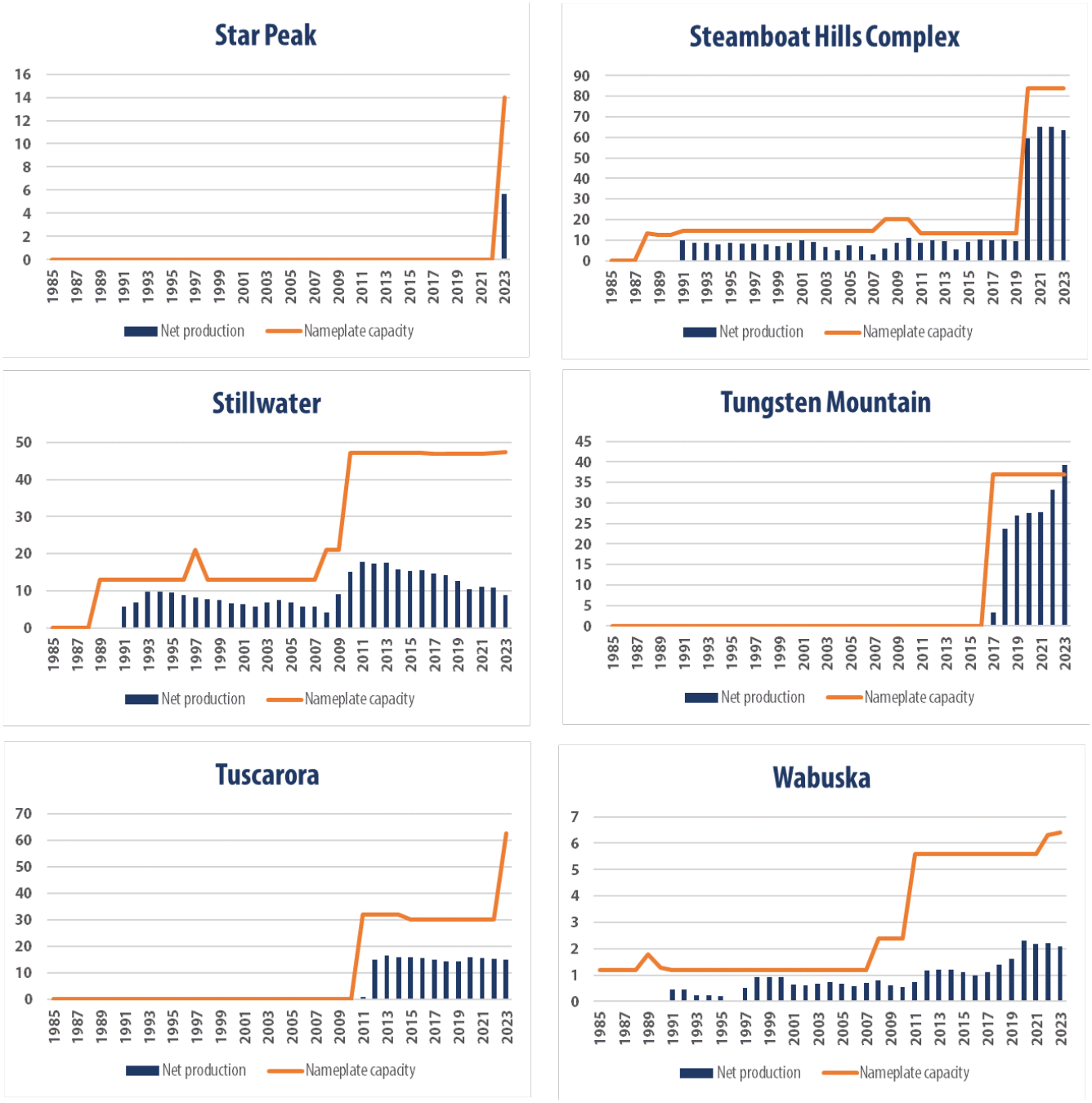


Figure 8c. The following figures are the evolution of nameplate capacity (MWe) and net power generation (MWe) for geothermal power plants in Nevada. The legend is the same for all figure 8 plots, with date along the bottom axis, net production for each year shown as a blue bar with the annual MWe on left axis, and for comparison the total possible at that plant is the nameplate capacity drawn as an orange line in MWe.

Company News in 2023

Nevada's geothermal industry grew in 2023, primarily due to expanded exploration activities. As an initial step in this process, companies submit a National Environmental Policy Act (NEPA) assessment to evaluate potential impacts on the area, which is required to gain approval for exploration. The NEPA application submitted by **Ormat** was approved for the Lone Mountain area related to their Pearl Geothermal Exploration project near Dyer in Esmeralda, County. Once approved, **Ormat** submitted permits to drill well 55-6 as a core well. Following up on a second area near Goldfield, **Ormat** requested permits to drill three observation wells. **Baseload Power Weepah Hills, LLC** completed their NEPA assessment for four new geothermal production wells on existing well pads in the Weepah Hills area near Dyer, Esmeralda County.

Geothermal power project expansion is the goal of **Open Mountain Energy, LLC** (OME), which submitted a proposal to construct and operate the Wabuska Geothermal Exploration Project. This includes up to 11 exploration wells, allowing OME to expand the existing power plant. The project is on public lands managed by the BLM in Lyon County. Public comments were accepted through December 6, 2023.

One big geothermal news story was regarding **Fervo Energy** and their successful test of concept for their design of an enhanced geothermal system. **Fervo Energy**, a Department of Energy awardee, and Google partnered on an Enhanced Geothermal System (EGS) that uses a horizontal doublet well system design next to the Blue Mountain geothermal field run by **Cyrq Energy**. The additional 3.5 MW of geothermal power is added to the Faulkner 1 Geothermal Plant.

Significant Federally Funded Geothermal Research Projects in Nevada in 2023

In 2023, there were three active geothermal research projects in Nevada that were supported by federal funds from the U.S. Department of Energy (DOE) Geothermal Technologies Office (GTO) and the USGS National Geological and Geophysical Data Preservation Program (NGGDPP). These projects are briefly reviewed as follows.

1. INGENIOUS

- **Project PI**: James Faulds, Great Basin Center for Geothermal Energy, Nevada Bureau of Mines and Geology (NBMG), UNR.
- **Project partners**: USGS, Utah Geological Survey, Idaho Geological Survey, Raser Power Systems LLC, Geothermal Resource Group, National Renewable Energy Laboratory, Lawrence Berkeley National Laboratory, Innovate Geothermal Ltd., Hi-Q Geophysical, Teverra LLC, Aprovechar Lab L3C
- **Project duration:** 5 years: February 2021–January 2026.
- **Total project funding:** $11,677,411 (DOE-GTO)
- **Project goal:** Accelerate discoveries of new, commercially viable hidden geothermal systems in the Great Basin region (GBR) in the Basin and Range Province of the western USA, while significantly reducing the exploration and development risks for all geothermal resources to identify prospective geothermal resources and reduce exploration risk. This ambitious 5-year-long project proposes to fully integrate play fairway analysis (PFA), 3D and conceptual modeling, resource capacity estimation, machine learning (ML), the application of advanced geostatistics, and value-of-information (VOI) analysis to develop a comprehensive exploration workflow toolkit for the GBR. This toolkit will include predictive geothermal play fairway (PF) maps at both the regional-and prospect-scale, updated regional geoscience data compilations for much of the GBR, detailed 3D maps and conceptual models, software tools to facilitate practical use of the refined exploration workflows, and a developers' playbook. Building on geothermal PF efforts in central Nevada, NE California/NW Nevada, and western Utah, the INGENIOUS project is expanding these study areas to the broader GBR for early-stage prospect identification. Concurrently, several blind prospects are being analyzed through detailed geological and geophysical investigations followed by drilling thermal-gradient holes (TGH).

2. Understanding a Stratigraphic Hydrothermal Resource – Geophysical Imaging at Steptoe Valley, Nevada

- **Project PI:** Sandia National Laboratories (PI-Paul Schwering) with subawards and co-PI's at several institutions, including the Nevada Bureau of Mines and Geology at UNR (co-PI James Faulds).
- **Project duration:** 2.5 years: 1 October 2020 to 30 March 2023.
- **Total project funding:** $1,500,000 (DOE-GTO)
- **Project goal**: Advance the understanding of the nature and extent of the hidden, stratigraphic hydrothermal geothermal resource in Steptoe Valley, Nevada and recommend an optimized strategy for subsequent exploration and development for this resource and analogous resources. This will be achieved by supplementing legacy geophysical and well information with new gravity, magnetics, and CSEM-MT surveys, conducting joint inversion modeling to inform a revised 3D geological model of the basin, and using these data to develop thermal-hydrologic models of the inferred stratigraphic resource in Steptoe Valley.

3. National Geological and Geophysical Data Preservation Program, Award 1:

Nevada Geoscience Data Preservation and Dissemination

- **Project PI:** Elijah Mlawsky, Nevada Bureau of Mines and Geology, UNR
- **Project duration:** September 2023 – September 2024
- **Total project funding:** $90,000 (USGS-NGGDPP)
- **Project goal:** Enhance the machine readability and accessibility of geothermal well logs (including temperature, pressure, resistivity, density and porosity) through digitization of existing paper-to-pdf scans using specialized software. Resulting tabular and .las datasets are quality assured, ascribed detailed metadata, and keyed to additional well datasets in the GBCGE (Great Basin Center for Geothermal Energy) Subsurface Database for increased discoverability via filter and query on the Subsurface Database Explorer web application (https://www.gbcge.org/subsurface). The proposed sites for geothermal well log digitization included Railroad Valley, White River Valley, and Pine Valley, Nevada. At these sites, approximately 120 temperature and geophysical logs are available in scanned pdf format and will be digitized to create tabular data. Capturing tabular log data will bolster important functionality of the subsurface geothermal database managed by the NBMG, allowing for improved geothermal resource evaluation and inclusion in machine learning algorithms to reduce geothermal exploration risk.
- NBMG will also conduct pXRF and pLIBS geochemical analyses on available drill core samples during the sample inventory portion of this award. Resulting geochemical data will likewise be entered into the Subsurface Database.

ACKNOWLEDGMENTS

We extend our thanks to Lucia Patterson, Valerie Kneefel, Robert Ghiglieri, and Dustin Holcomb at the Nevada Division of Minerals for providing updated data on geothermal leases, gross proceeds, drilling permits, and production statistics. Appreciation also goes to Elijah Mlawsky at NBMG for assisting with the extraction of annual production statistics from the Great Basin Center for Geothermal Energy database. Additionally, we thank James Faulds and Cary Lindsey (GBCGE-NBMG) for their valuable comments and review of the draft document.

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EIA, 2024. Energy Information Administration, *Electric Power Monthly*, Tables 1.3.B and 1.16.B, February 2024 preliminary data.

NvTax, 2023. Hughes, Shellie, 2023, Annual Report 2022-2023, State of Nevada Department of Taxation.
https://tax.nv.gov/wp-content/uploads/2024/03/FY23-Annual-Report.pdf

WEB LINKS TO OTHER GEOTHERMAL INFORMATION

For further information on geothermal resources in Nevada check the following websites:

- The Nevada Bureau of Mines and Geology ARC-GIS Open Data website: https://data-nbmg.opendata.arcgis.com/
- The Great Basin Center for Geothermal Energy https://gbcge.org/
- Map of geothermal resources in Nevada, NBMG Map 161, available online in PDF format: http://www.nbmg.unr.edu/Geothermal/PublishedMaps.html (includes zipped file of GIS layers)
- Nevada Bureau of Mines and Geology Geothermal Resources of Nevada website at http://www.nbmg.unr.edu/Geothermal/
  This site contains geothermal exploration data, interactive maps, lease and information, and numerous geothermal digital data sets. These data are increasingly made available through the National Geothermal Data System (https://www.geothermaldata.org) and the Department of Energy's Geothermal Data Repository (https://gdr.openei.org/).
- Nevada Commission on Minerals, Nevada Division of Minerals at http://minerals.state.nv.us/ and http://minerals.nv.gov/Programs/Geo/Geo/.
- National Renewable Energy Laboratory Geothermal Data Repository, https://www.nrel.gov/geothermal/data-tools.html
- United States Energy Information Administration, Nevada State Energy Profile online https://www.eia.gov/state/print.php?sid=NV.
- Summary of supporting data for USGS regional heat-flow studies of the Great Basin, 1970–1990, by John H. Sass, Susan S. Priest, Arthur H. Lachenbruch, S. Peter Galanis, Jr., Thomas H. Moses, Jr., John P. Kennelly, Jr., Robert J. Munroe, Eugene P. Smith, Frederick V. Grubb, Robert H. Husk, Jr., and Charles W. Mase; USGS Open-File Report 2005-1207 online version 1.0 on the Web at http://pubs.usgs.gov/of/2005/1207/.
- Geothermal industry temperature profiles from the Great Basin, by John H. Sass, Susan S. Priest, Arnold J. Blanton, Penelope C. Sackett, Stephanie L. Welch, and Mark A. Walters; USGS Open-File Report 99-425 online version 1.0 on the Web at http://pubs.usgs.gov/of/1999/of99-425/webmaps/home.htm.
- The Bureau of Land Management Land and Mineral Records-LR2000 system website, https://www.blm.gov/services/land-records. Provides reports on BLM land and mineral use authorizations for oil, gas, and geothermal leasing, rights-of-ways, coal and other mineral development, land and mineral title, mining claims, withdrawals, classifications, and more on federal lands or on federal mineral estate.
- The U.S. Department of Energy (DOE) Geothermal Technologies Office (GTO)'s (https://energy.gov/eere/geothermal/geothermal-energy-us-department-energy) Office of Scientific and Technical Information (OSTI) have scanned approximately 3,300 agency and national lab technical reports. These files are in a PDF, full-text-searchable format and accessible online at http://www.osti.gov/scitech/ and https://www.osti.gov/home/collections.

OIL AND GAS

by David Reynolds and Rachel Micander

PRODUCTION

According to the Nevada Division of Minerals, Nevada's net oil production in 2023 was 207,451 barrels of oil, which came from 61 active wells in Nye and Eureka counties. Oil production decreased 12.6% from 237,412 barrels in 2022. Production came from ten fields, seven are in Railroad Valley (Nye County), which accounted for 91% of the state's production, and three fields in Pine Valley (Eureka County), which accounted for about 9% of the state's production. Nevada ranked 27th out of the 32 oil-producing states (U.S Energy Information Administration) which amounted to 0.0044% of total domestic production. Nevada Division of Minerals reported 194,328 barrels of oil sold in 2023, which is a 17.0% decrease from the 234,256 barrels sold in 2022. Unless otherwise noted, production data comes from the Oil Patch reports and oil and gas production and well data provided by the Nevada Division of Minerals. The largest single producing well was Grant Canyon 10 which produced 26,245 barrels throughout the year. Trap Spring 9 was the second highest producing well at 14,903 barrels followed by Munson Ranch 13-41X, which produced 12,639 barrels.

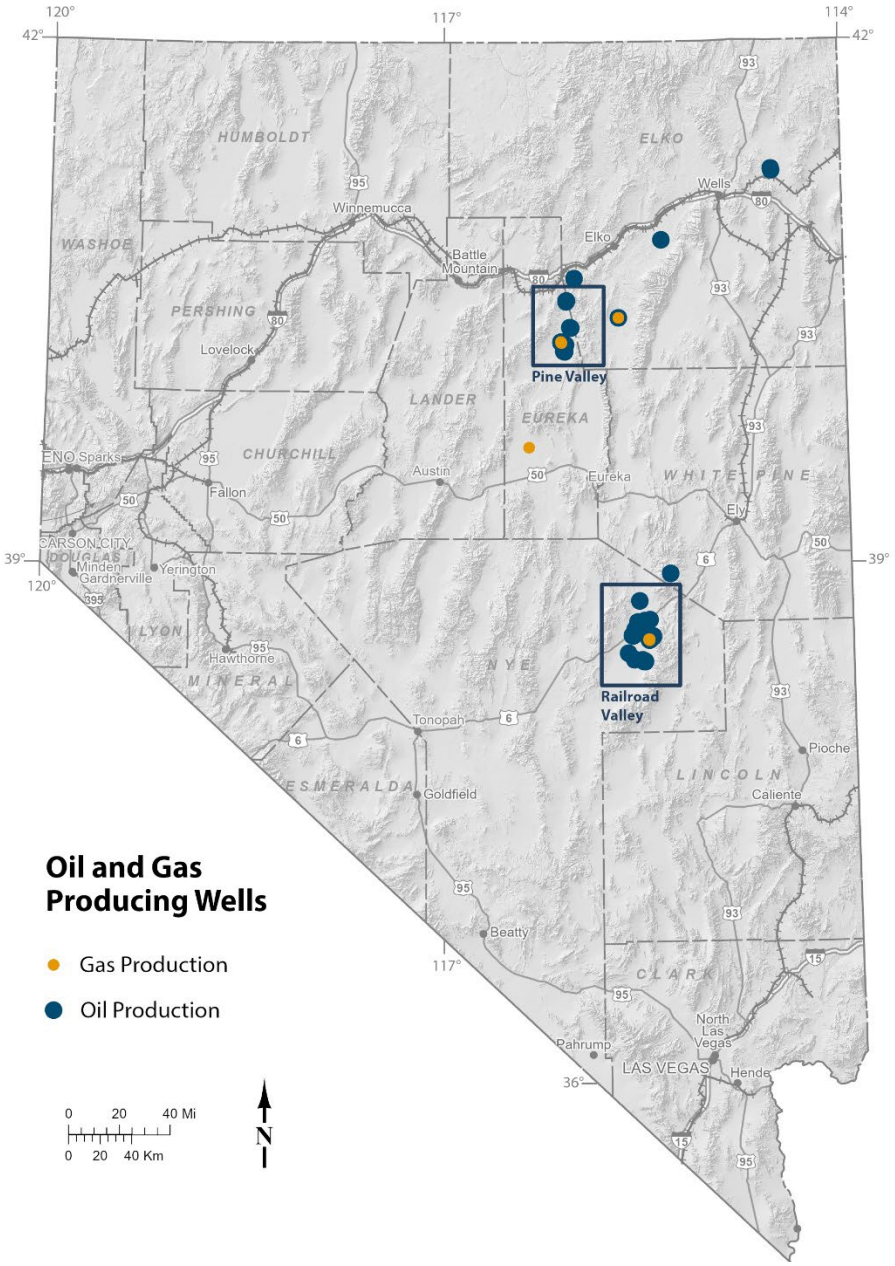

Figure 1. Map of oil and gas producing wells in Nevada. Blue boxes denote inset maps of Railroad Valley (fig. 2) and Pine Valley (fig 9).

Gas production in Nevada is minor and comes from 2 fields: Kate Springs, located in Nye County and Three Bar, located in Eureka County. Total gas produced thorough the year was 4,092 mcf (million cubic feet), a 24.9% decrease from 5,449 mcf produced in 2022. In the Three Bar field, Three Bar Federal 25-2 and Three Bar 6R produced 2,596 mcf and 1,370 mcf respectively. Four wells reportedly proceeded gas in the Kate Spring field, but no production was reported after January 2023.

Water production in 2023 totaled 5,304,971 barrels, a 1.9% increase over 5,207,117 barrels produced in 2022. 53 wells in Railroad Valley produced 66.4% the water at 3,424,663 barrels. Eight wells in Pine Valley produced 1,880,308 barrels (35.4%). Trap Spring 3 had the highest water production with 1,282,471 barrels and 8905 barrels of oil. This gave a water to oil ratio of 144.02, the 3rd highest ratio for a single well in Nevada. Grant Canyon 7 produced 179,410 barrels of water and had the second highest water to oil ratio of 197.63. Blackburn 19 produced 467,985 barrels of water and only 443 barrels of oil giving it a water to oil ratio of 1,056, the highest water to oil ratio of any well in the state in 2023. All water or brine produced from oil fields is reinjected.

OIL GRAVITY

Oil gravity or American Petroleum Institute (API) gravity is a measure of how heavy or light an oil is compared to water. Oil gravity is a useful attribute in describing the oil character of fields. If it is similar for all wells in a field, it suggests the wells are producing from the same reservoir. If the oil gravity is different across the field, it suggests there may be different producing reservoirs with different oil properties. Not all wells report oil gravity nor was it collected or recorded historically. Several wells in Nye County show clear differences in the oil gravity based on numbers currently reported. The Kate Springs and Currant fields have very low oil gravities of 10.5 and 15 respectively. All other fields in Nye County have oil gravity values between 21 and 29. The Trap Spring field has a distinct area of 6 wells with lower gravity wells in the south, averaging 22.1 oil gravity. The northern part of the field has an average oil gravity of 27.14. In Eureka County, the Three Bar field has an oil gravity of 25.86 and the Blackburn field has an average oil gravity of 28.09.

FIELD REPORTS

A total of 10 fields produced oil in 2023. Several other small fields have not procured for several years. Oil production occurs in two main locations—Railroad Valley and Pine Valley. Railroad Valley has 7 active fields (fig. 2): Trap Spring/Munson Ranch, Grant Canyon, Eagle Springs, Ghost Ranch, Bacon Flat, Kate Springs, and Sans Spring fields. Pine Valley has 3 active fields (fig. 9) which are the Three Bar, Blackburn, and Tomera Ranch fields.

Railroad Valley fields

The seven active producing fields are ordered in descending production amount for 2023. As previously stated, Railroad Valley fields produce 91% of Nevada's oil, with the Trap Spring field producing 53% alone. Commercial oil production was first discovered in Railroad Valley in 1954 (Eagle Springs field).

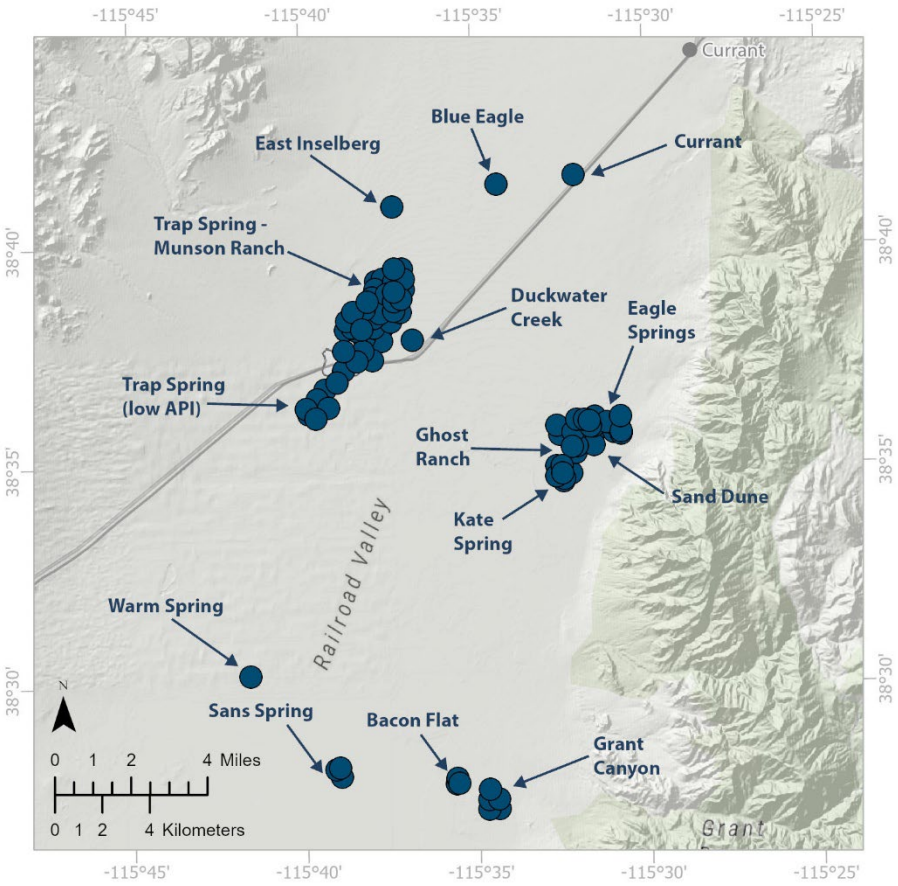

Figure 2. Map of oil fields in Railroad Valley (Nye County) from Nevada Division of Minerals.

Trap Spring Field

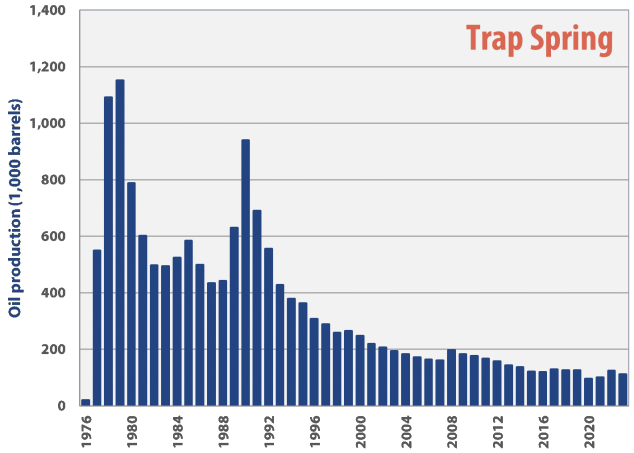

Figure 3. Annual oil production from the Trap Spring field in Railroad Valley, Nye County, from discovery in 1976 to 2023.

The Trap Spring field produces from the Oligocene tuff of Pritchards Station with a combination structural and stratigraphic trap (Garside et al., 1988) between about 3,210 and 4,950 feet (979 and 1,509 m). The field had 30 active producers in 2023, down from 32 wells in 2022. They produced 110,705 barrels from all wells in 2023, down 10.0% from the 122,998 barrels of oil produced in 2022. This accounted for 53.36% of all Nevada oil production during 2023. The field also produced 2,367,805 barrels of water, a 3.93% decrease from the 2,463,469 barrels of water produced in 2022.

Peak annual production (fig. 3) occurred in 1979 at 1,056,507 barrels from just 11 wells. Further development from 1984 through 1991 reached a second peak of 924,781 barrels of oil in 1990. More wells were added by 1999, but only a small increase in production was observed in 1999 and 2008. The discovery well—Trap Spring No. 1—was drilled by Northwest Exploration and had an initial production of 417 barrels of oil per day from well depths 4,220–4,853 feet.

The oil API gravity shows two distinct oil weights across the field. One group of wells has an average gravity of 22.05 and includes 8 of the Trap Spring wells in the southern part of the field (permits 185, 188, 196, 197, 219, 231, 232, and 574). The rest of the Trap Spring field (31 wells) to the north have an average gravity of 27.11. The nearby East Inselberg 36-33 well to the north has heavier oil (lower gravity) than either of these groups—measuring 16.10—which may suggest a separate reservoir.

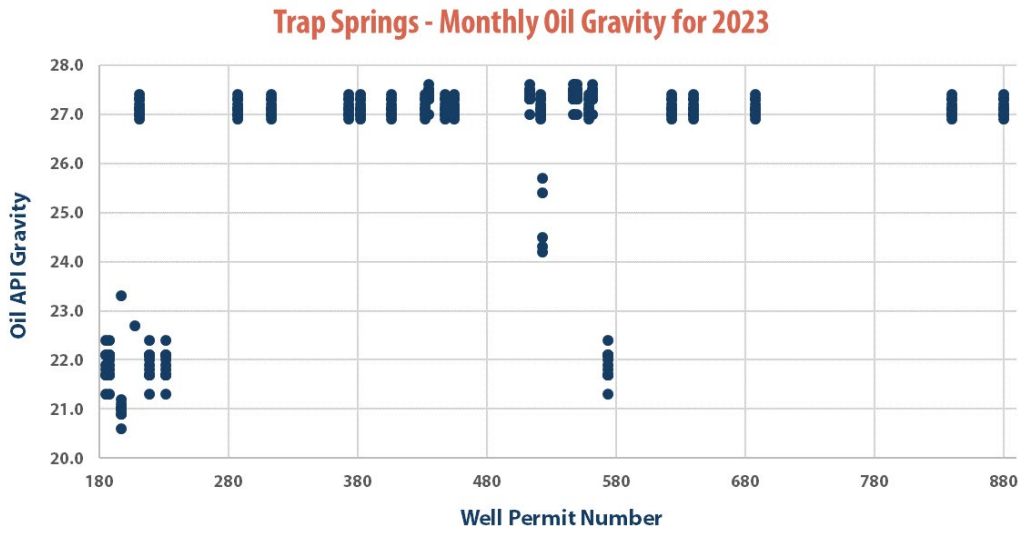

Figure 4. Trap Springs oil gravity by Well Permit Number. There are six wells with API gravity below 24 and there are 22 wells with API gravity above 26. Two other wells have intermediate values.

Grant Canyon Field

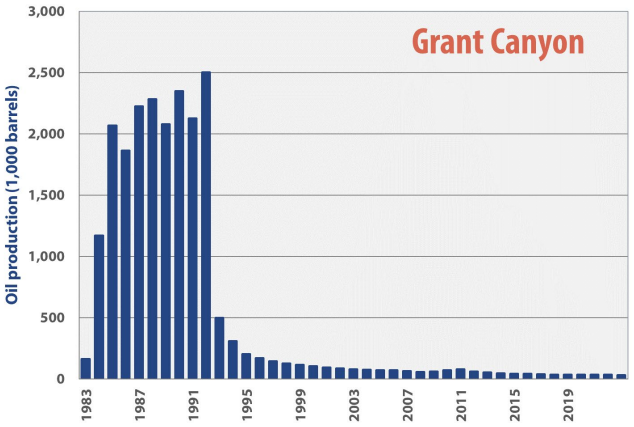

Figure 5. Annual oil production from the Grant Canyon field in Railroad Valley, Nye County, from discovery in 1983 to 2023.

The Grant Canyon field has produced the most oil of any field in Nevada with a cumulative total of 21,742,427 barrels through 2023. It produces from dolomitic rocks of the Devonian Guilmette Formation (Garside et al., 1988) between about 2,160 and 4,300 feet (659 and 1,333 m). The field had three active producers in 2023 that produced 31,508 barrels of oil for the year and accounted for 15.2% of total Nevada oil production. Oil production decreased from 2022 by 4.42%. The Grant Canyon No 10 (permit 706) was the largest oil producer in the state with 26,338 barrels in 2023. Water production was 538,230 barrels in 2023, up slightly by 0.16% from 2022. Water production from Grant Canyon 7 was only 66,010 barrels for 2023, but it has a large water to oil ratio of 197.33 as compared to the other two wells with ratios of 41.21 (permit 705) and 10.46 (permit 706). The average API gravity for all wells was 26.08.

The discovery well for the Grant Canyon field was drilled in 1983 by Northwest Exploration—Grant Canyon No. 1 (permit 353). This well produced oil from September 1983 to 1987 with a cumulative production of 839,134.21 barrels and is currently used for re-injecting water. Between 1983 and 1985, a total of 7 wells were drilled in the field and annual oil production averaged over 2 million barrels per year between 1985 and 1992 (fig. 5). In 1993 oil production fell to 495,934 barrels. Two more wells were drilled in 1993 and 1994 and another two wells in 2007; however, these wells made little impact on oil production. In 2014, two existing wells were converted to injection wells.

Eagle Springs Field

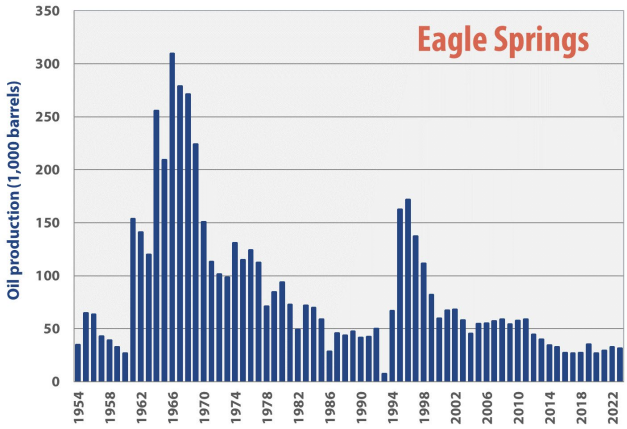

Figure 6. Annual oil production from the Eagle Springs field in Railroad Valley, Nye County, which has produced from discovery in 1954 to 2023. It is the first commercial oil field in Nevada.

The Eagle Springs field was the first commercial oil discovery in Nevada in 1954. Shell Oil Co. drilled the discovery well—Eagle Springs #1 (now #1-35, well permit 004)—finding oil in February of 1954. The field produces from Oligocene ignimbrites (volcanic pyroclastic rock), the Eocene Sheep Pass Formation (lacustrine carbonates), and the Pennsylvanian Ely Limestone (Garside et al., 1988) between about 5,780 and 7,360 feet (1,762 and 2,244 m). Cumulative oil production through 2023 for the Eagle Springs field was 5,893,371 barrels, ranking third in size of Nevada's oil fields.

The field had 11 active producers in 2023, down one producing well since 2022. Production for the field was 31,201 barrels of oil for the year, a 4.13% decrease from 2022. This field represented 15.0% of all oil produced in Nevada in 2023. The field produced 254,074 barrels of water, a 12.86% decrease from 2022. The average API gravity for all 11 wells was 25.74.

Annual oil production from the Eagle Springs field showed several stages of development since first production in June of 1954. Historically, 10 new wells were drilled in this field during the 1960s, and by 1966, the highest annual production of 309,433 barrels was achieved (fig. 6). Several more wells were drilled in the 1990s and by 1996, there were 15 active wells with a second production peak at 171,638 barrels of oil. Water production increased with increased drilling starting in 1995 and reached a peak of 842,435 barrels in 2008. In 2023 the average water to oil ratio was 17.56, with some wells having significantly higher water production. Eagle Springs 82-35 had a water to oil ratio of 71.70 in 2023 with very little oil production (122 barrels).

Eagle Springs 74-35 had a water to oil ratio of 30.43 and only produced 422 barrels of oil throughout the year.

Ghost Ranch Field

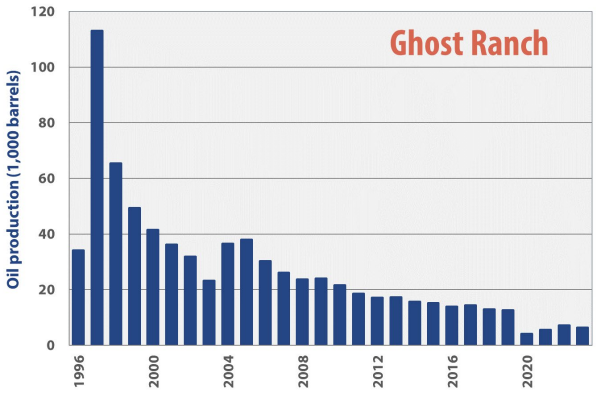

Figure 7. Annual oil production from the Ghost Ranch field in Railroad Valley, Nye County, from discovery in 1996 to 2023.

The Ghost Ranch field produces from late tertiary landslide breccia blocks of Devonian Guilmette Limestone and dolomite (LaPointe et al., 2007) between about 4,350 and 4,620 feet (1,326 and 14,09 m). The field had four active producers in 2023 the same as 2022, producing 6,400 barrels of oil, a 9.67% decrease from 2022. The Ghost Ranch field accounted for 3.10% of 2023 Nevada's oil production. There were 233,003 barrels of water were produced across the field, a 17.72% decrease from 2022. The average water to oil ratio for the top 3 wells was 42.46; however, one well (Ghost Ranch 2-21X, permit 800), had an anomalously low water to oil ratio of 0.23. The average API gravity of the four wells was 16.97, which is lower than the average for Railroad Valley. This may be indicative of a distinct oil reservoir compared to other fields in Railroad Valley.

Historically, the first production of oil from this field was in April, 1996. All wells in this field were drilled between 1996 and 1997. Peak production was reached in 1997 at 113,016 barrels oil per year (fig. 7). A secondary production peak in 2004–2005 may have been due to reworking some wells.

Bacon Flat Field

The Bacon Flat field produces from dolomite in the Devonian Guilmette Formation (Garside et al., 1988) between about 4,960 and 5,350 feet (1,512 and 1,634 m). The field's one producer (Bacon Flat 23-17A, permit 710), which has been active since 1994, produced 4,982 barrels of oil and 30,077 barrels of water in 2023 and accounted for 2.4% of Nevada's total oil production. Oil production increased 3.92% and water production decreased 12.95% from 2022. The average water to oil ratio for this well was 6.10. The average oil API gravity for the Bacon Flat field was 28.26 and is one of the lighter (higher gravity) values in this area. Please note that the early production data for the Bacon Flat field are incomplete with no complete data from discovery in 1981 to 1994—so no production graph is shown.

Kate Spring Field

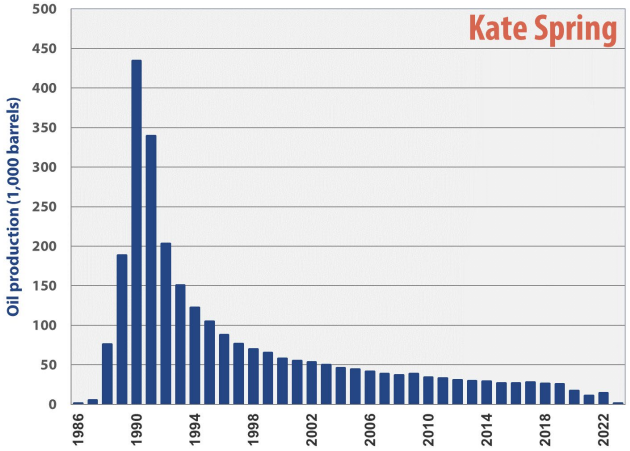

Figure 8. Annual oil production from the Kate Spring field in Railroad Valley, Nye County, from discovery in 1986 to 2023.

The Kate Spring field produces from the Tertiary Horse Camp Formation (breccia) and the Devonian Guilmette Formation (Garside et al., 1988) between about 4,450 and 4,820 feet (1,357 and 1,470 m). In 2023, there were 3 wells that had a combined annual production of only 1,355 barrels of oil showing a 90.58% decrease from 2022 production values. This field was shut in after January, 2023 and only accounted for 0.7% of 2023 Nevada oil production. Similarly, water production dropped to 2,675 barrels, a 92.77% decrease from 2022. The average water to oil ratio for the field was 2.02. One unique attribute of the Kate Spring field is the extremely low oil API gravity, only 10.5. This is by far the heaviest oil of any field in Nevada. Additionally, this field is one of the few natural gas producers.

Historically, this field recorded first production in January of 1986, and 8 wells were drilled between 1986 and 1991. Peak annual oil production was reached in 1991 at a combined total of 434,349 barrels of oil (fig. 8). Cumulative oil production for this field reached 2,705,743 barrels, making it the fifth largest field in Nevada.

Sans Spring Field

The Sans Spring field produces from the Oligocene Garrett Ranch Group (volcaniclastic rocks and ignimbrites) (LaPointe et al., 2007) between about 5,640 and 5,770 feet

(1720 and 1759 m). Only the Sans Springs 5-14A well was active during 2023 between June and September. This well produced a total of 555 barrels of oil. Production decreased by 22.38% from 2022 and accounted for about 0.3% of Nevada's total oil production. There was no reported water production from this well and the average oil gravity of this field was 24.9.

Pine Valley Fields

Pine Valley was first successfully explored for oil in 1982 when the Blackburn field was discovered. Other discoveries included the Tomera Ranch field (1987), the North Willow Creek field (1988), and the Three Bar fields (1990). No other discoveries have been made in Pine Valley since these fields. The three active producing fields are ordered in descending production amount. North Willow Creek field has been shut in since 2013.

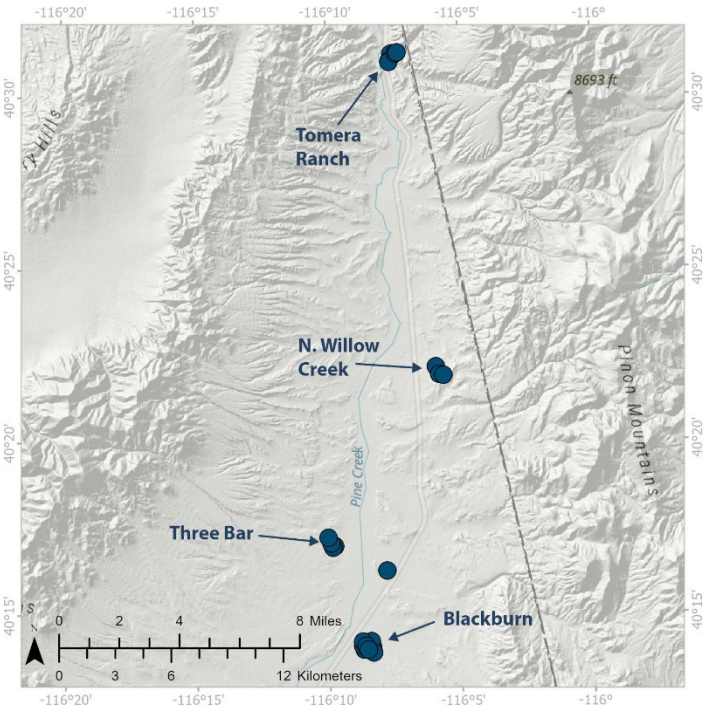

Figure 9. Map of oil fields in Pine Valley (Eureka and Elko counties).

Blackburn Field

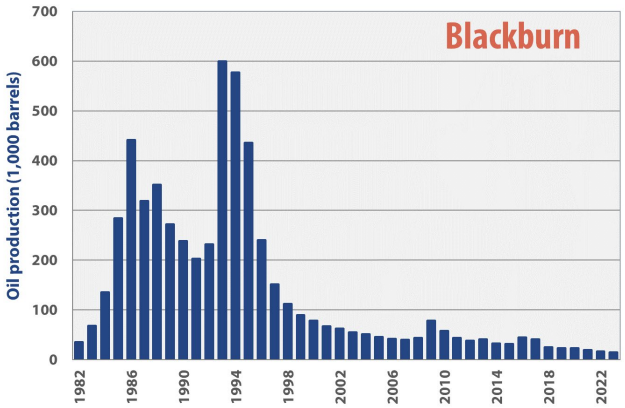

Figure 10. Annual oil production from the Blackburn field in Pine Valley, Eureka County, from discovery in 1982 to 2023.

The Blackburn field produces from the Oligocene Indian Well Formation (tuff and tuffaceous sandstone), Mississippian Chainman Shale (sandstone), and Devonian Nevada group (dolomite) (Garside et al., 1988) between about 6,700 and 6,750 feet (2,043 and 2,058 m). The field had four active wells in 2023 with total production of 14,704 barrels of oil (7.1% of the state total) and 1,871,981 barrels of water (35.29% of the state total). This field produced the second most water in Nevada from just 4 wells. Two wells had low water to oil ratios (5.91 and 1.96) but the Blackburn 19 well has a water to oil ratio of 1,477.09. Blackburn 18 had a water to oil ratio of 330.55. The average oil API gravity for the field was 28.06.

Historically, the first production for this field was from the Blackburn 3 well in April, 1982. Production had a first peak during 1986 at 441,163 barrels for the year from 4 wells (fig. 10). Two more wells were added, and by 1993, production reached a secondary peak of 599,857 barrels. Following the peak, production declined fairly steadily despite the addition of two more wells.

Three Bar Field

The Three Bar field produces from sandstone and volcanic rock of the Miocene Humboldt Formation, the Oligocene Indian Well Formation, and sandstone and carbonate rocks from the Cretaceous Newark Canyon Formation (LaPointe et al., 2007). There were two producing wells in 2023 that totaled 6,041 barrels of oil, a 0.65% increase compared with 2022 production. 2023 oil production represented 2.9% of statewide oil production. 8,327 barrels of water were produced, marking an increase of 3.34% compared with 2022. Two wells in the Three Bar

field produced gas, but production records for individual wells are not complete.

Historically, a total of 8 wells were drilled in this field. Three Bar Federal 25-A (discovery well) first recorded oil production in March 1990 and produced until May 1992 totaling 18,419 barrels of oil and 54,192 barrels of water. Three Bar 5 well only produced from July 1993 to November 1994 and totaled 2,090 barrels of oil and 18,693 barrels of water. This field had no recorded production from 1995 through 2018. Finally, in September 2019 a new well started producing and another well was added in October 2021, substantially increasing production. However, compared to 2022 production figures, both oil production only increased by 39 barrels (0.65%). Water production only increased by 3.45% to 8,327 barrels in 2023. The average oil gravity of this field was 25.86.

Tomera Ranch Field

Two wells in the Tomera Ranch field each produced 87.8 barrels of oil only during October, 2023. The wells were shut in for the remainder of the year. There were no reports of produced water or oil gravity. Past production from three now plugged and abandoned wells in the Tomera Ranch field were from the Oligocene Indian Well Formation (tuffaceous sandstone) between about 1,150 and 1,950 feet (351 and 595 m) (LaPointe et al., 2007).

Minor Fields

Minor fields represent discoveries that have not had substantial oil production recently. None are currently producing even though their wells may be only suspended or shut in, and not yet plugged. There are 4 minor fields in Railroad Valley (Nye County), one minor field in Pine Valley (Eureka County), four minor fields in Elko County, and one minor field in White Pine County.

Railroad Valley's largest minor field is the Sand Dune field that was discovered in 1998. This field had a cumulative production of 169,530 barrels through 2018 and has been mostly shut in since then. It produced from Permian and Pennsylvanian limestones (LaPointe et al., 2007) between about 5,970 and 6,200 feet (1,820 and 1,890 m). It is adjacent and southeast of the Eagle Springs and Ghost Ranch fields. Past oil production came from Sand Dune 88-35 (permit 816) which is currently shut in.

Next in oil production is the Duckwater Creek field which was discovered in 1990 and produced from Duckwater Creek 19-11 (permit 542). It produced from the tuffs of the Oligocene Garrett Ranch Group (LaPointe et al., 2007) between about 5,680 and 5,830 feet (1,732 and 1,777 m). It had cumulative production of 19,338 barrels with the largest annual production occurring in 1991. It was shut in in 2015 but has not been plugged. The Duckwater Creek field is located just southeast of the big Trap Springs field.

The Currant field was discovered in 1979 with the drilling of the Currant 1 well (permit 241)—the field's only well—which produces from the Eocene Sheep Pass Formation (LaPointe et al., 2007) between about 6,850 and 7,080 feet (2,088 and 2,159 m). Production records for this well from 1979 to 1994 are not available. This well produced until 2015 and the Nevada Division of Minerals report total production of this well at 1,289.57 barrels but this is incomplete. This well is currently shut in.

The East Inselberg field was discovered in 2005 with the drilling of the East Inselberg 36-33 well (permit 860) in 2005. It produced from the Devonian Guilmette Formation between about 1,046 and 1,171 feet (319 and 357 m) and only produced 656 barrels of oil between 2005 and 2015. The well is currently shut in.

The North Willow Creek field is one of two minor fields in Pine Valley (Eureka County). Production came from the Mississippian Chainman Shale (LaPointe et al., 2007) between about 6,290 and 6470 feet (1,917 to 1,972 m). This field is located midway between the Three Bar and Blackburn fields to the south and Tomera Ranch field to the north. The discovery well was the N Willow Creek 1-27 well (permit 503) drilled in 1988 that produced 31,946 barrels until 1998. It is currently classified as "voided" and has had no further reported production. Two other wells drilled in this minor field were N Willow Creek 5-27 (permit 646) that only produced 268 barrels in 1995 and the N Willow Creek 6-27 (permit 648) drilled in 1993 that has produced 19,774 barrels through 2013 when it was plugged.

The NOST I 1 well was drilled in 1996 in Eureka County, and it was plugged in 1998 after producing 24,038 barrels of oil. It is near the Three Bar and Blackburn fields. No other data are available for this field.

Minor discoveries extended to the northeast into Elko County where five single well field were recorded. The largest minor field is the Huntington field discovered in 2014 with the K1L-1V well (permit 960). It produced 3,840 barrels of oil between 2014 and 2015, and it is now plugged. The next minor field is the Humboldt field, discovered in 2014 with well M2C-M2-21B (permit 942), which produced 2,756 barrels of oil in 2013 only. The Toano Draw field, discovered in 2007, produced 1,964 barrels of oil from the Humboldt Formation between 8,250 and 8,950 feet (2,515 and 2,729 m) and was plugged in 2008. The Deadman Creek 44-13 well (permit 342) discovered in 1996, produced just 367 barrels of oil produced from the Humboldt Formation

between 8,165 and 8,850 feet (2,489 and 2,698 m) and was plugged in 1998. The Petan Trust well (permit 590) only produced 840 barrels of oil in 1997 and has been plugged.

Most of Nevada's oil is used to make such products as No. 1 and No. 2 diesel fuel, kerosene, stove oil, and asphalt. Nevada crude oil was transported in batches by trucks to the 8,000-barrel-per-day capacity refinery near Currant in Railroad Valley, which is now owned by Sky Quarry Inc., who acquired it from Foreland Refining Corporation in 2022.

Production from Nevada's oil fields (barrels of oil)

Compiled from producers' reports filed with the Nevada Division of Minerals

Field (year discovered)	1954–2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
Eagle Springs (1954) (Railroad Valley)	5,445,179	58,900	44,422	39,818	34,217	32,675	26,872	26,716	27,045	35,205	26,606	31,971	32,544	31,201	5,893,371
Trap Spring (1976) (Railroad Valley)	14,465,502	166,383	156,962	143,876	136,627	120,748	118,847	129,104	125,262	125,540	95,586	99,396	122,998	110,705	16,117,535
Currant (1979) (Railroad Valley)	1,932	119	159	194	143	25	0	0	0	0	0	0	0	0	2,572
Bacon Flat (1981) (Railroad Valley)	1,028,969	6,358	5,690	6,447	6,223	5,000	5,261	5,325	5,000	4,623	4,692	8,103	4,794	4,982	1,101,467
Blackburn (1982) (Pine Valley)	5,402,033	43,198	38,004	40,392	32,217	31,605	44,180	40,767	24,625	22,559	22,838	20,235	15,920	14,704	5,793,277
Grant Canyon (1983) (Railroad Valley)	21,186,236	77,683	58,897	50,517	46,263	42,810	41,631	38,861	32,126	33,495	34,345	35,089	32,966	31,508	21,742,427
Kate Spring (1986) (Railroad Valley)	2,404,019	32,719	30,833	29,402	28,934	26,672	26,486	27,861	26,102	25,428	17,241	14,304	14,388	1,355	2,705,743
Tomera Ranch (1987) (Pine Valley)	36,472	0	11,705	3,757	2,016	1,224	961	854	385	372	208	0	0	176	58,130
North Willow Creek (1988) (Pine Valley)	51,841	0	0	0	0	0	0	0	0	0	0	0	0	0	51,841
Three Bar (1990) (Pine Valley)	23,837	0	0	0	0	0	0	0	0	5,910	13,737	7,054	6,002	6,041	62,581
Duckwater Creek (1990) (Railroad Valley)	18,818	115	117	119	124	45	0	0	0	0	0	0	0	0	19,338
Sans Spring (1993) (Railroad Valley)	273,747	1,404	1,498	1,318	1,604	1,268	246	1,567	1,437	1,148	1,170	646	715	555	288,323
Ghost Ranch (1996) (Railroad Valley)	597,348	18,605	17,022	17,232	15,564	15,106	13,914	14,345	12,959	12,592	4,077	6,264	7,085	6,400	758,513
Sand Dune (1998) (Railroad Valley)	151,225	2,483	2,656	2,567	7,467	2,606	201	121	37	0	0	167	0	0	169,530
East Inselberg (2005) (Railroad Valley)	434	32	29	33	24	14	0	0	0	0	0	0	0	0	567
Toano Draw (2007) (Elko County)	1,964	0	0	0	0	0	0	0	0	0	0	0	0	0	1,964
Humboldt (2014) (Elko County)					2,756	0	0	0	0	0	0	0	0	0	2,756
Huntington (2014) (Elko County)					2,248	1,584	0	9	0	0	0	0	0	0	3,840
Total	51,089,556	407,999	367,994	335,671	316,426	281,382	278,599	285,530	254,978	266,872	220,500	223,229	237,412	207,627	54,773,775
Change from previous year		-4.0%	-9.8%	-8.8%	-5.7%	-11.1%	-1.0%	2.5%	-10.7%	4.7%	-17.4%	1.2%	6.4%	-12.5%	

Production of water from Nevada's oil fields (barrels of water)

Compiled from producers' reports filed with the Nevada Division of Minerals

Field (year discovered)	1954–2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
Eagle Springs (1954) (Railroad Valley)	8,097,846	644,703	361,101	375,711	429,749	557,326	377,316	474,199	611,335	465,346	242,519	302,062	291,557	254,074	13,484,844
Trap Spring (1976) (Railroad Valley)	39,125,155	2,450,044	2,460,099	2,429,108	2,382,353	2,325,601	2,394,821	2,386,266	2,299,045	2,320,594	1,346,868	1,965,462	2,463,496	2,366,604	68,715,516
Currant (1979) (Railroad Valley)	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Bacon Flat (1981) (Railroad Valley)	427,823	1,810	1,765	1,685	1,825	1,625	4,152	56,319	83,590	54,717	48,070	31,983	34,552	30,077	779,993
Blackburn (1982) (Pine Valley)	30,543,822	1,334,105	1,418,780	1,284,774	1,117,893	1,373,509	1,601,484	2,022,722	1,602,479	1,416,358	1,322,443	1,010,938	1,551,934	1,871,981	49,473,222
Grant Canyon (1983) (Railroad Valley)	7,166,873	644,303	640,311	637,840	621,172	547,166	572,710	534,650	803,463	687,952	648,672	571,057	537,349	538,230	15,151,748
Kate Spring (1986) (Railroad Valley)	8,042,980	450,155	426,896	337,981	368,722	398,138	343,883	449,919	496,998	400,474	250,438	85,712	36,993	2,675	12,091,964
Tomera Ranch (1987) (Pine Valley)	505,881	0	0	0	0	0	0	7	0	0	0	0	0	0	505,888
North Willow Creek (1988) (Pine Valley)	3,983	0	773	360	0	0	0	0	0	0	0	0	0	0	5,116
Three Bar (1990) (Pine Valley)	5,958	0	0	0	0	0	0	0	0	1,530	12,429	10,360	8,049	8,327	46,653
Duckwater Creek (1990) (Railroad Valley)	72,081	1,080	1,080	1,080	990	0	0	0	0	0	0	0	0	0	76,311
Sans Spring (1993) (Railroad Valley)	4,205,523	0	0	0	0	0	0	0	0	0	0	0	0	0	4,205,523
Ghost Ranch (1996) (Railroad Valley)	1,025,976	514,379	479,013	600,429	537,388	561,107	452,521	518,688	442,673	505,623	159,221	204,390	283,187	233,003	6,517,598
Sand Dune (1998) (Railroad Valley)	420,827	50,857	55,225	49,525	14,308	5,211	365	135	102	0	0	138	0	0	596,693
East Inselberg (2005) (Railroad Valley)	4,200	698	0	0	0	0	0	0	0	0	0	0	0	0	4,898
Toano Draw (2007) (Elko County)	29,121	0	0	0	0	0	0	0	0	0	0	0	0	0	29,121
Humboldt (2014) (Elko County)					0	0	0	0	0	0	0	0	0	0	0
Huntington (2014) (Elko County)					0	4,589	0	0	4,589	0	0	0	0	0	9,178
Total	99,678,051	6,092,134	5,845,043	5,718,493	5,474,400	5,774,272	5,747,252	6,442,905	6,344,274	5,852,594	4,030,660	4,182,102	5,207,117	5,304,971	171,694,268
Change from previous year		-4.0%	-4.1%	-2.2%	-4.3%	5.5%	-0.5%	12.1%	-1.5%	-7.7%	-31.1%	3.8%	24.5%	1.9%	

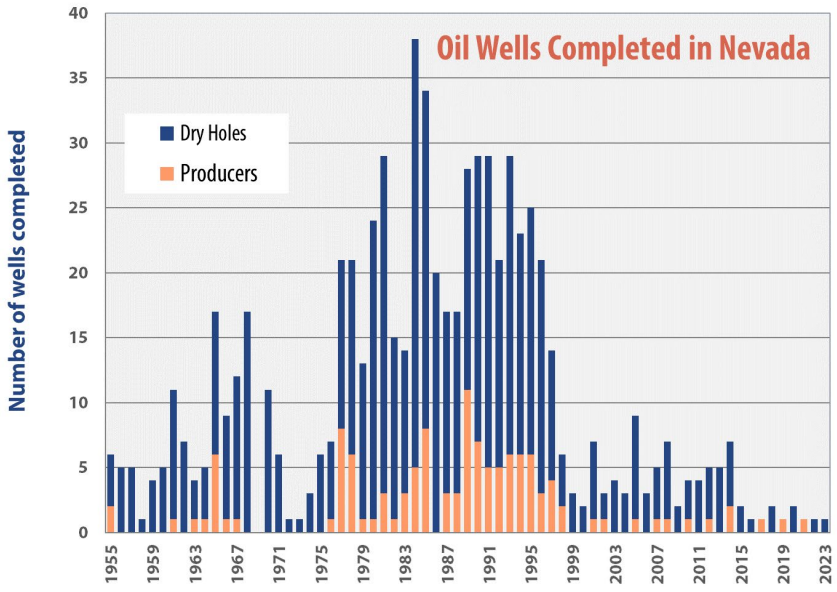

Figure 11. Chart showing number of wells completed and how many were producers in Nevada from 1955 to 2023.

NEW PRODUCERS

No new producers came online in 2023.

EXPLORATION

Over the past several years, exploration has been limited to only one or two wells per year. One well was permitted for oil and gas in 2023, which was the same number approved in 2022. West Grant Canyon Development, LLC drilled the Butterfield Federal 1 (permit 978) in May, 2023, which is now plugged and abandoned.

U.S. VS NEVADA OIL PRODUCTION

Crude oil production for the whole U.S. averaged 12,930,000 barrels per day in 2023, an 8.54% increase from 2022 average production. The ratio of Nevada to the rest of the Nation was 0.0044% in 2023. The average barrels produced per day was 651.7. Figure 14 shows the comparison of Nevada oil production contrasted with average oil price from 1954 (when oil production first began in Nevada) through 2023.

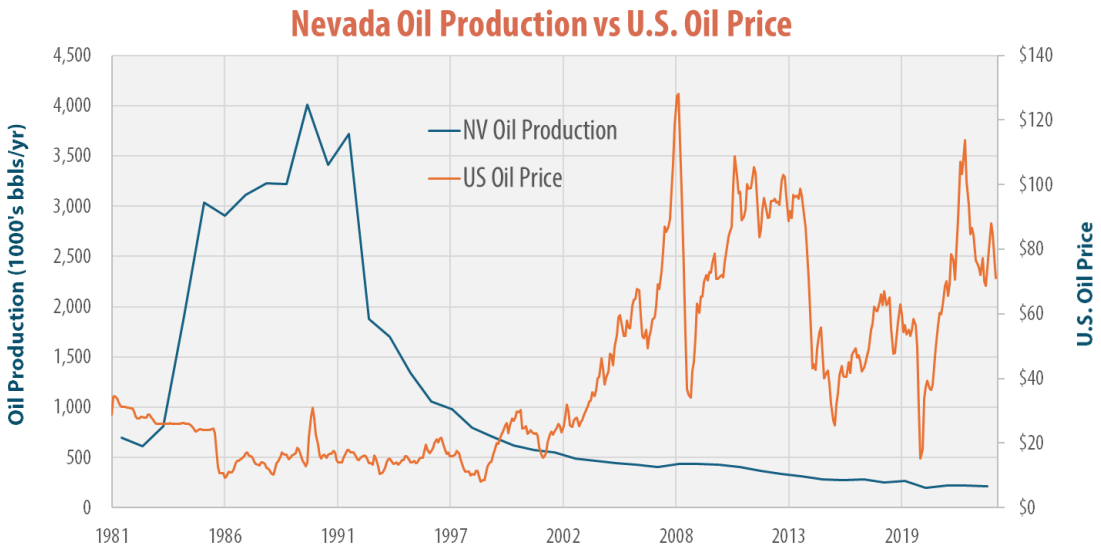

Figure 12. Comparison of Nevada oil production and U.S. oil price.

NEVADA OIL PRODUCERS AND REFINERY

(Nevada Oil Patch; unpublished well files)

Company	Field / Refinery	Contact	Address, Phone and FAX Numbers, and Websites
Grant Canyon Oil and Gas, LLC	Bacon Flat Blackburn Grant Canyon Sans Spring Three Bar	Michael O'Neal Rod Prosceno Steve Barnes	717 17th Street, No. 1400 Denver, CO 80202 Phone: 303-297-2777 FAX: 303-298-0049 E-mail: michael@onealrc.com E-mail: rod@4arocket.com E-mail: steve@breckenergy.com
Kirkwood Oil and Gas, LLC / Wesco Operating, Inc.	Eagle Springs Ghost Ranch North Willow Creek Sand Dune	Robert Kirkwood	120 South Durbin Street P. O. Box 2850 Casper, WY 82602 Phone: 307-265-5178 FAX: 307-265-1791 E-mail: bradl@kirkwoodcompanies.com E-mail: kog@kirkwoodcompanies.com Website: http://www.kirkwoodcompanies.com
Makoil, Inc.	Currant Duckwater Creek Ghost Ranch Kate Spring Trap Spring	Gregg Kozlowski	209 Avenida Fabricante #100 San Clemente, CA 92672 Phone: 949-462-9010 FAX: 949-462-9012 E-mail: makoil@msm.com Website: http://www.makoil.com
Tomera Oil Fields, LLC	Tomera Ranch	Patsy S Tomera Thomas Tomera	Rural Route 65 Box 11 Carlin, NV 89822 Phone: 775-754-2333 E-mail: nvladycat@live.com
Western General, Inc.	Kate Spring	Richard Taylor	HC 34 Box 34830 Ely, NV 89301 Phone: 775-863-0105 Duckwater, NV 89314 FAX: 702 228 9689 E-mail: richardtaylor@cox.net https://westerngeneralinc.com/
Sky Quarry Inc. acquired from Foreland Refining Corporation on Oct 3, 2022	Currant Refinery	 CEO David Sealock EVP Marcus Laun	707 W. 700 S, Suite 101 Woods Cross, UT 84087 Location: 60 miles southwest of Ely on US 6 Phone: 424-394-1090 https://skyquarry.com/ E-mail: dsealock@skyquarry.com E-mail: marcus@skyquarry.com

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www.nbmg.unr.edu

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