

Economic Overview of Nevada's Minerals Industry, 2009



Cover Photo: Exploration drilling at Allied Nevada Gold Corp.'s Hycroft Mine west of Winnemucca.
Courtesy of Adella Harding and The Elko Daily Free Press/Mining Quarterly.

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Executive Summary

Nevada's minerals industries have always been heavily influenced by regional, national, and international trends and events whether they have been favorable or unfavorable. The financial and economic upheavals of the "great recession" over the past two years have been no exception. However, unlike other areas of the national and state economies where the economic news has been mostly bad, economic developments in Nevada's minerals industry in 2009 and the first half of 2010 have been mixed. While gross proceeds in the precious metals sector held up fairly well, other minerals were definitely hit by the recession.

On the positive side gold prices have remained strong and sustained the largest sector of the state's mining industry. Gold prices averaged \$972 per ounce in 2009, almost \$100 higher than in 2008.

In addition, base metal prices, primarily copper, have partially rebounded after a steep slide in the early part of the recession. The average realized price of copper at Nevada mines was just over \$3 per pound in 2009 after plunging to around \$1.30 in late 2008. Molybdenum prices also slid in the early part of the recession from around \$30 per pound to around \$10, but have also partially rebounded.

Gold production accounted for almost 88 percent of gross proceeds of mines in 2009 according to the Nevada Department of Taxation (NDT) so the significance of gold prices for the state's industry is clear. Copper production is currently located primarily at the Robinson Mine in White Pine County and the Phoenix Mine in Lander County, but sustained copper prices make other new developments more feasible. The same is true of molybdenum prices. A major molybdenum mine development is in the permitting process at Mt. Hope in Eureka County and sustained demand and prices are crucial.

On the production side, Nevada gold mines produced 5.64 million ounces in 2009 according to the Nevada Division of Minerals (NDOM), down slightly from 5.7 million ounces in 2008. Silver production, which is mostly a byproduct of gold production, was 7.2 million ounces, also down slightly compared to 2008. The NDT reports to gross proceeds of gold and silver at \$5.1 billion out of total state gross proceeds of \$5.8 billion.

2009 copper production totaled 145.7 million pounds from two mines, with a value of \$441.8 million or 7.6 percent of gross proceeds of mines.

Exploration spending to discover new orebodies and expand existing orebodies as reported in the NDOM's annual survey was down almost 30 percent in 2009 compared to the previous year, and was at its lowest level since 2004. Exploration expenditures for 2010 are forecasted to rebound to levels comparable to the past several years.

Proven and probable reserves of gold, which represents gold in orebodies that can be profitably mined at current prices in the future, increased to 2009 to over 75 million ounces from slightly over 70 million ounces at year end 2008. This means that exploration efforts, although reduced, expanded reserves to replace the 5.64 million ounces that were

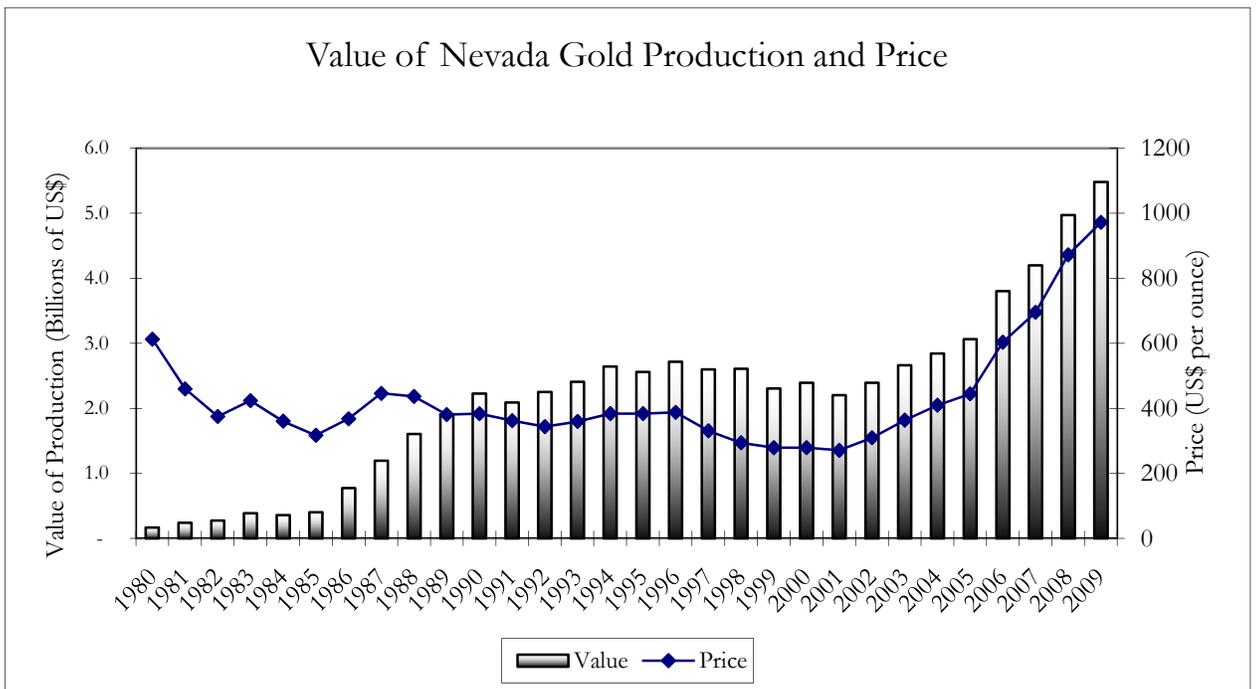
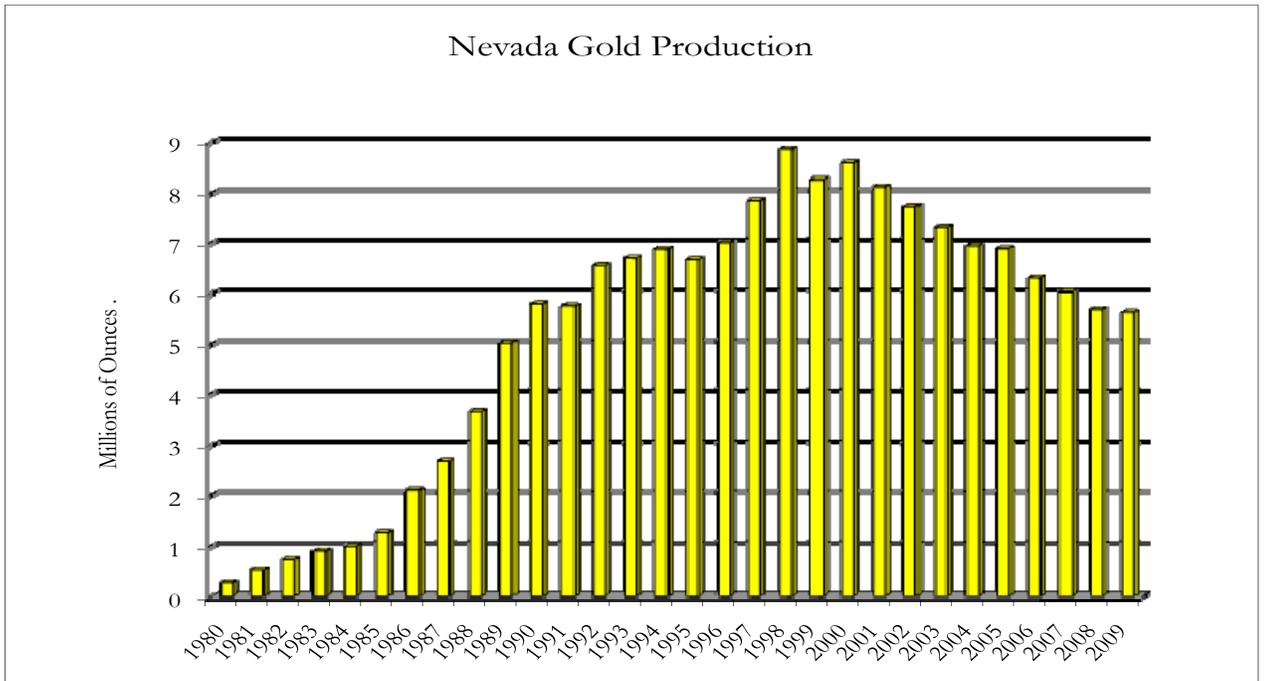
mined in 2009 and found an additional five million ounces. This level of reserves implies that current levels of production could be maintained for over 13 years at current prices even if no new orebodies were discovered. There are enough promising development projects across the state, however, to suggest that it is highly likely that new reserves will be added in the future.

Other positive news from 2009 is that corporate reports from gold producers operating in the state showed that for the first time since 2000, total cash costs of production fell. Weighted average total cash costs, which do not include non-cash items such as depreciation, fell in 2009 to \$508 per ounce from \$525 in 2008. The primary reasons for the decrease are because startups of new lower cost operations such as Barrick's Cortez Hills mine in Lander County, and improved efficiencies at Barrick's Goldstrike mine on the Carline Trend and Newmont's Carlin Trend operations and the Phoenix mine in Lander County.

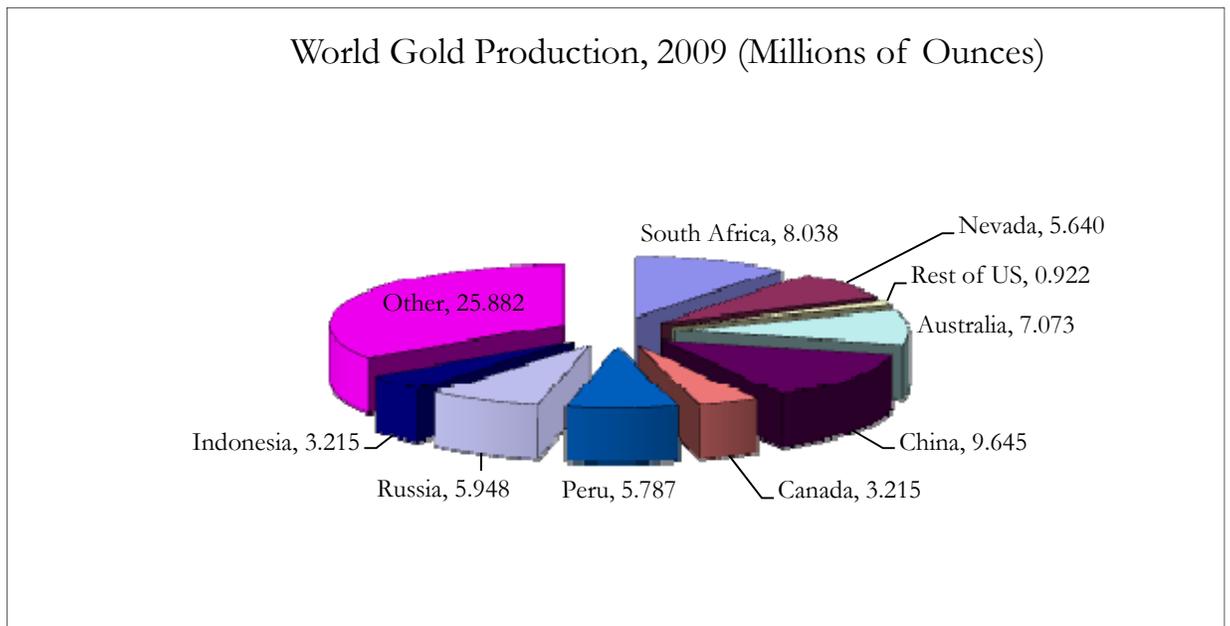
The outlook for the industry in the balance of 2010 and going forward have to be viewed favorably in light of gold prices, lower costs and promising developments across the state. These developing projects are in various stages from exploration to permitting to development to expansions, and stretch from near the Utah to the California borders. Some of the more well publicized projects include the Long Valley project southeast of Wells, the Newmont's Genesis project on the Carlin Trend, the Cortez Hills project mentioned above, the Marigold Mine expansion west of Battle Mountain, the reopening of the Coeur-Rochester mine in Pershing County, the reopening of the Hycroft mine west of Winnemucca, and the permitting process of the Nevada Copper project near Yerington. The success of these and other projects would suggest a bright outlook for the industry and this portion of Nevada's economy. On the other hand, economic recovery will be needed to revive other sectors of the minerals industry.

HIGHLIGHTS OF NEVADA MINERAL PRODUCTION

GOLD

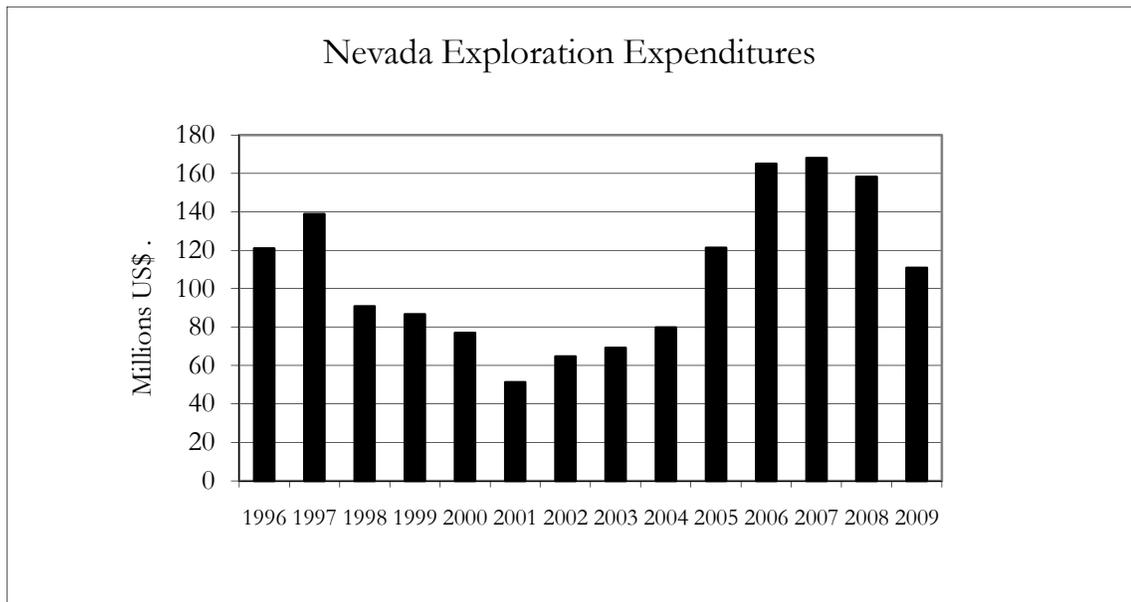


- Nevada operators produced 5.64 million ounces of gold in 2009, down slightly from 5.7 million in 2008. In spite of the decrease in output for the ninth consecutive year, as the graph above indicates, the value of output increased because of higher prices. The average price in 2009 was \$972 per ounce, \$100 per ounce higher than the 2008 price of \$872 per ounce. Through the first half of 2010 the price even broke the \$1,000 level which had been a bit of a psychological barrier.
- Nevada’s production declined for the eighth straight year because higher prices allow operators to process lower grades of ore. While lower production levels may seem like bad news in the short term, in the long run it extends the life of ore bodies and enhances the sustainability of the industry.
- Nevada gold production accounted for over 79 percent of total US production and approximately 7.2 percent of world production.
- As a result of this decline in production and increases in production in other countries, Nevada’s rank in world production fell from fifth to sixth behind China, South Africa, Australia, Russia, and Peru.



Source: U.S. Geological Survey (USGS)

- The NDOM reports over 20 major gold/silver mines in Nevada although several of these (e.g. McCoy/Cove, and Denton-Rawhide) are closed or operating at reduced levels (e.g. the Rain Mine, Trenton Canyon Mine). In addition, a number of these “operations” have multiple points of extraction, that is, actually consist of several “mines”. Consequently, citing the actual number of mines is somewhat misleading.
- The NDOM annual exploration survey showed that exploration expenditures by operators reporting declined significantly in 2009 to \$110 million from \$158 million in 2008. In spite of this decline in reported expenditures, press reports and company press releases suggest that exploration activity remains quite strong.



Source: Nevada Division of Minerals

- Also in spite of the decline in exploration expenditures, reported proven and probable gold reserves, which is ore that can be produced profitably with a high degree of likelihood, increased to 75 million ounces in 2009 compared to 70 million ounces in 2008. This means that producers replaced the 5.6 million ounces mined in 2009 and found an additional 5 million ounces. 75 million ounces is sufficient to maintain production at current levels for an additional 13 years.

OTHER 2008 MINERAL PRODUCTION

COPPER

- Because of renewed production at Quadra Mining's Robinson mine near Ely and Newmont Mining's Phoenix Mine near Battle Mountain, copper production is once again a significant contributor to minerals industry output. Copper is the second most important mineral produced in terms of the value of output, although only a little more than one tenth the value of gold production.
- 2009 copper production was 146 million pounds compared to 175.5 million pounds in 2008. The gross proceeds from copper production reported by the Nevada Department of Taxation was \$442 million. This was down from 2008 because of lower copper prices.

SILVER

- Nevada silver production fell slightly again in 2009 to 7.2 million ounces from 7.96 million ounces in 2008. These levels, however, are down significantly from the levels seen in the late 1990's due to the closure of several large silver producing mines. The planned restart of the Coeur-Rochester mine near Lovelock in 2010 is likely to reverse this trend.
- Silver prices have risen significantly in the past several years and averaged \$14.67 per ounce in 2009, down slightly from \$14.99 per ounce in 2008.
- Because of lower production and slightly lower prices in 2009, the calculated value of 2009 silver production fell from \$119 million in 2008 to \$105.6 million.

OTHER MINERALS

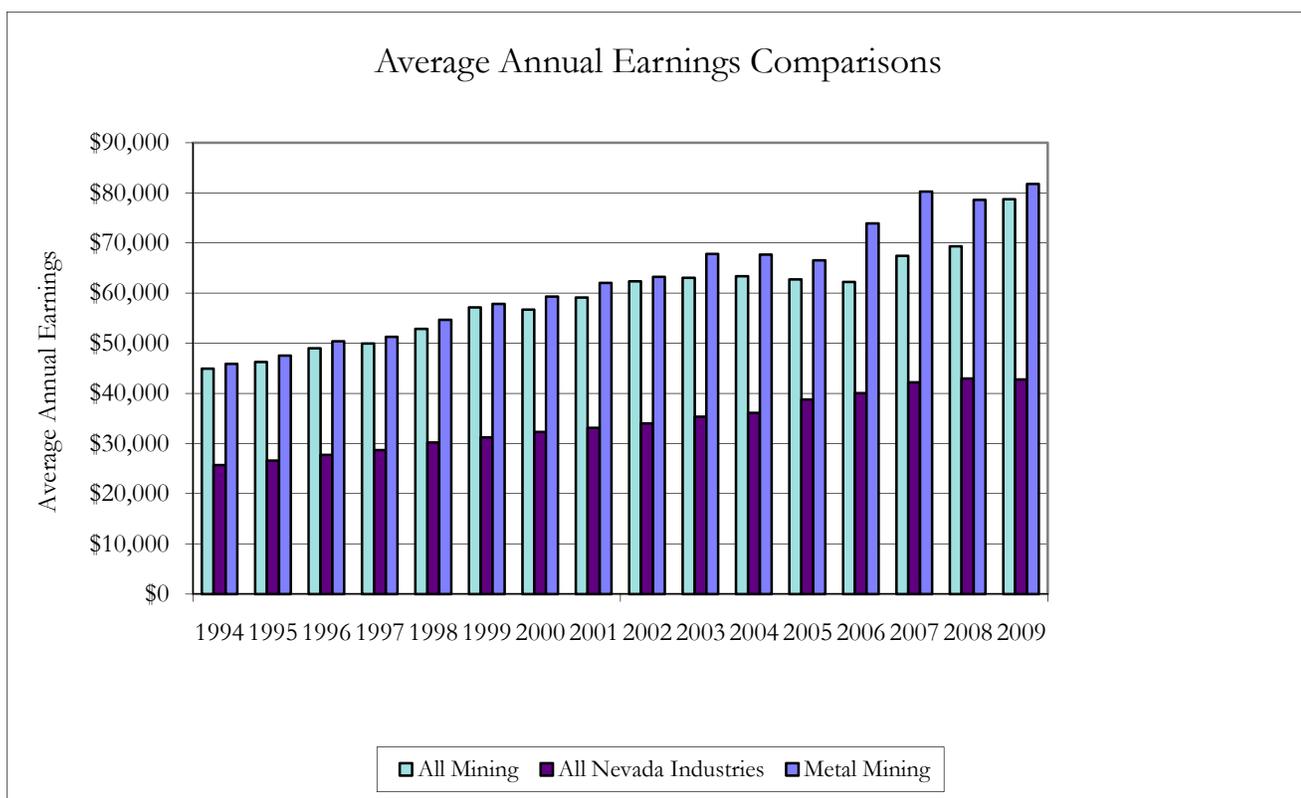
- Geothermal energy also provided domestic, public and commercial heating in several parts of the state. Geothermal electric production came from 15 plants at 12 different sites, and is sufficient to provide electrical energy for approximately 75,000 typical homes.
- The Nevada Department of Taxation reports that geothermal producers generated over \$110.8 million in gross proceeds in 2009, compared to \$95 million in 2008, making it the fourth largest mineral category in the state.

- Because geothermal energy is a renewable and non carbon dioxide producing energy source it is receiving favorable treatment and encouragement from federal and state regulators, this portion of the industry appears to have significant growth potential.
- Nevada mines also produced numerous other minerals including aggregates, barite, diatomite, dolomite, gypsum, limestone, lithium carbonate, molybdenum, magnesium oxide, perlite, precious opals, salt, silica sand, and specialty clays.
- The gross proceeds from the production of these other minerals is an estimated \$156 million, which is down significantly from the previous year. A decline that is likely due to the national recession and a decrease in demand.

MINING EMPLOYMENT AND PAYROLLS¹

2009 Average Direct Employment	11,609 jobs
2008	14,600
2007	14,470
2009 Payrolls	\$913 Million
2008	\$1.01 Billion
2007	\$974 Million
2009 Average earnings for Metal Mining	\$81,755/year
2008	\$78,567
2007	\$80,236
2009 Average earnings for All Mining	\$78,727/year
2008	\$69,313
2007	\$67,392
2009 Average earnings in All Industries Statewide	\$42,746/year

¹ Nevada Department of Employment, Training and Rehabilitation website.



ECONOMIC IMPACTS OF MINING

For the purpose of estimating Gross State Product (GSP) and impact multipliers, i.e., the total number of jobs, total state output, and state household income, the U.S. Department of Commerce breaks down the industry into two components: value added from mining, and the value of mining services. The summaries of employment, output and household income impacts below combine these two categories, while the table below separates the two sectors.

- Between mining and mining services, mining increased state output by approximately \$9.5 billion in 2009 compared to \$10 billion in 2008 including both direct and indirect impacts. The decline was primarily due to a decline in industrial minerals and mining services.
- Generated more than 49,260 total jobs in Nevada in mining and industries supplying goods and services to the industry.
- Contributed \$2.3 billion to Nevadans’ personal incomes in 2009.

- Economic impacts derive both from mining and, to an almost equal extent, support services of contractors and suppliers. Below is a breakdown of impacts from these sources from the U.S. Department of Commerce:

		Employment (jobs)	Output (\$Millions)	Household Income (\$Millions)
Value Added to GSP				
Mining	\$2,934	16,340	4,353	913.6
Mining Services	<u>\$2,877</u>	<u>32,920</u>	<u>5,159</u>	<u>1,363.1</u>
Totals	\$5,811	49,260	9,512	2,276.6
Implied jobs multiplier ²		4.24		

² The ratio of total jobs created to direct mining jobs.

TAXES PAID BY NEVADA MINING

Estimated Direct Taxes Paid by the Mining Industry 2004 - 2007 (\$1,000)³

	2006	2007	2008	2009
Net Proceeds of Mines Tax				
County Portion	\$ 32,177	\$ 37,442	\$ 42,335	\$ 46,415
State General Fund	<u>\$ 29,740</u>	<u>\$ 38,252</u>	<u>\$ 49,491</u>	<u>\$ 51,162</u>
Total NPOM Tax	\$ 61,881	\$ 75,694	\$ 91,856	\$ 97,578
Sales & Use Tax	\$ 101,087	\$ 93,124	\$ 95,783	\$ 69,389
Property Tax	\$ 25,000	\$ 27,000	\$ 32,000	\$ 33,000
Modified Business Tax	<u>\$ 2,662</u>	<u>\$ 2,870</u>	<u>\$ 4,000</u>	<u>\$ 3,700</u>
Total	<u>\$ 192,439</u>	<u>\$ 199,488</u>	<u>\$ 223,609</u>	<u>\$ 203,967</u>

(Source: Nevada Department of Taxation and industry surveys)

³ Nevada Department of Taxation and industry surveys.

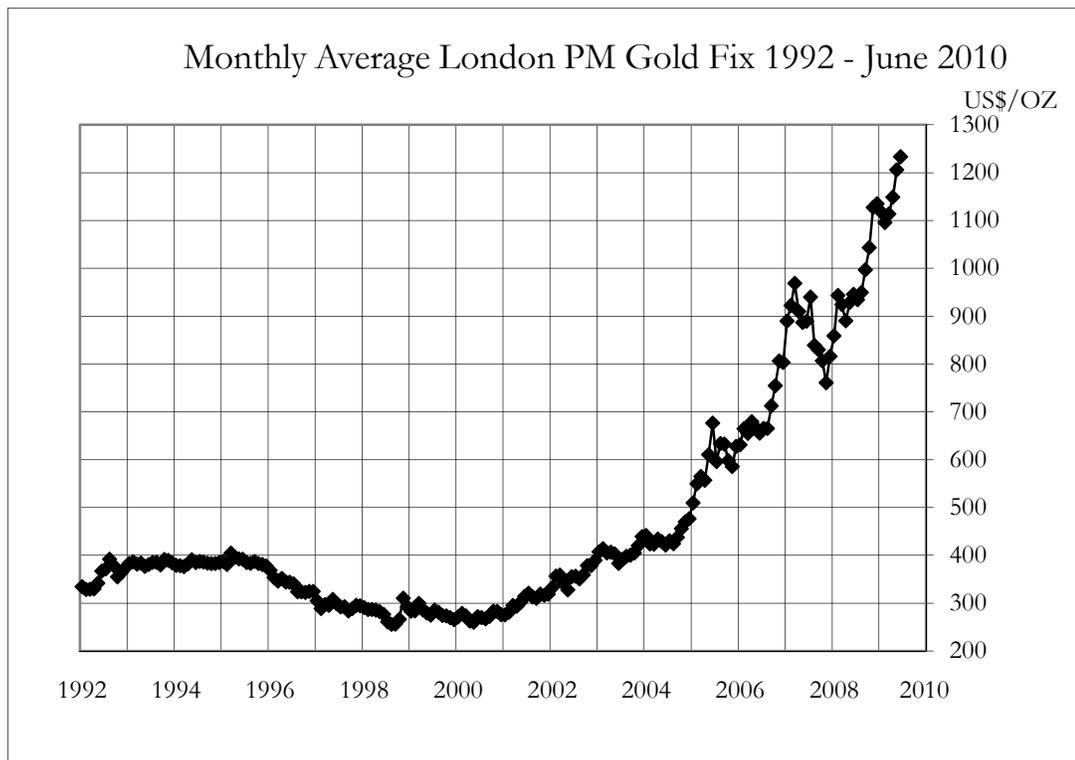
NEVADA MINING: A REVIEW AND OUTLOOK

2009 INDUSTRY DEVELOPMENTS

GOLD PRICES

Since gold production accounts for almost 88 percent of the value of state mineral production, the most salient issue for the industry is the price of gold. Gold is sold in a global, highly efficient market that is open and accessible to investors and traders 24 hours a day. As the graph below illustrates, gold has had quite a ride over the past few years. After languishing in the \$250 to \$400 per ounce range throughout the 1990's, prices broke out of that range in 2002.

Conventional wisdom holds that gold prices increase because of catastrophes, political uncertainties and wars. While these kinds of events do have some short term impact, a look at the graph above and more extensive analysis does not bear this out. For example, the terror attacks of September 11, 2001 barely caused a bump in the gold price and the price quickly came back down. This left market observers asking "If this can't push gold over \$300, what can?" The price of gold also rose prior to the invasion of Kuwait in 1991 and Iraq in 2003, but quickly retreated.



A far more powerful explanation of gold price trends can be found in fundamental market factors. For example, gold prices clearly move inversely to the value of the U.S. dollar because gold is priced worldwide in dollars. Hence, as long as other things are equal, a rise in the purchasing power of the dollar relative to other currencies will cause a proportional fall in the price of gold. There is no real mystery to this relationship but, of course other things never remain equal.

The major change in 2009 and the first half of 2010 compared to the previous five years came in mid 2008 when the dramatic climb in the price of oil collapsed because the worldwide financial crisis and the onset of the deepest recession since the early 1980's. The other factor was a slight strengthening of the U.S. dollar, reversing the trend of most of the post 2000 period. From 2002 until mid 2008 the price of gold was closely linked to oil and the dollar. Gold prices rose with higher oil prices and fell with higher dollar values. Then, in mid 2008, oil prices fell from \$140 per barrel to the mid \$40 range and the dollar strengthened. Past trends would have suggested these events would weaken gold prices, but the price held in the mid \$900 per ounce range. Gold had come to be viewed as a "safe haven".

In late 2008 and early 2009 increasing U.S. dollar weakness has led to a number of countries to call for a new currency that could be used in international trade. Currently, the vast majority of international transactions – even those not involving U.S. companies or banks – are denominated in U.S. dollars and dollar weakness has caused unease among the world's largest trading countries. The main proponents of an alternative currency have been China, Russia, and several Middle Eastern countries. The outlines of such a system have not been worked out but the rumors in financial circles generally involve some kind of gold backed financial instrument. Whatever may or may not happen, this dissatisfaction with the dollar has further spurred speculative and investment demand for gold.

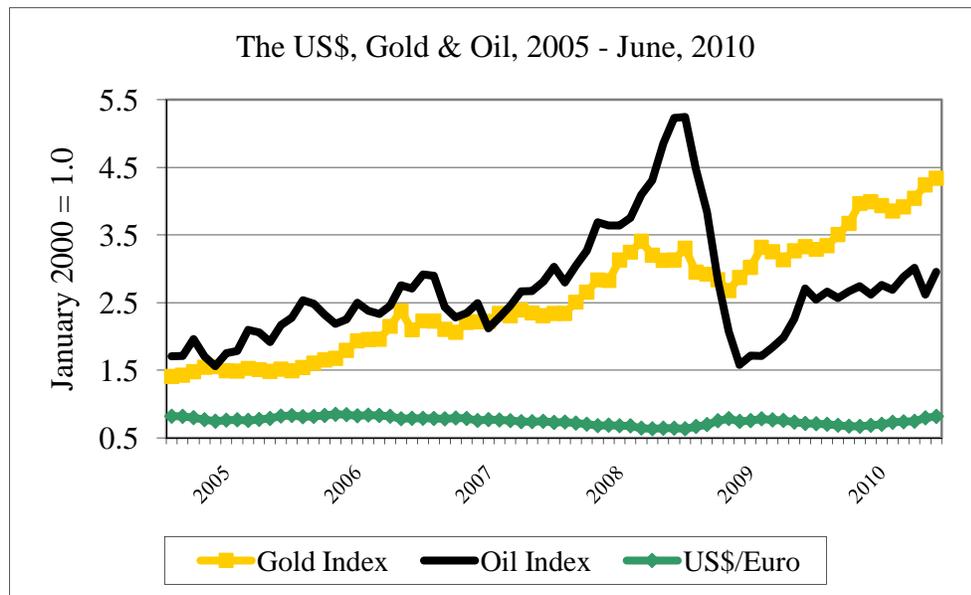
The relationship between oil prices and gold is also fairly clear. Middle Eastern countries that produce oil are also major consumers of gold for investment and other purposes. The reasons for this are cultural, historical and financial. Culturally, gold plays a role in Muslim and Hindu traditions. Historically, the region has an unfortunate record of political instability, weak currencies, and weak financial institutions. In this environment gold serves its traditional role as a store of value. Similarly, gold is used in the Middle East (as well as other parts of the world) as a hedge against the dollar. The upshot of this combination of factors is that rising oil prices tends to increase the demand for physical gold. The world's other major consumer of gold, India, views gold in a very similar way, and rising prosperity on the subcontinent also increases the demand for physical gold.

Another significant factor in gold demand recently has been increased investment demand in the west. This investment has been facilitated by the innovation of Exchange Traded Funds, or ETFs. These funds buy physical gold,

hold it, and sell shares in the fund to individual and institutional investors. These ETFs make it much easier for investors to participate in gold markets.

Finally, during the late 1990's when world stock markets were booming, it is no coincidence that gold prices were weak. European central banks were selling off their gold reserves and lending gold at near zero interest rates. Many investors were engaged in the "gold carry trade": borrowing gold to sell and buying stocks and bonds aided by the liquidity provided to the world's gold markets by European central banks. This put additional downward pressure on gold prices. Clearly, during this period, gold was not a good investment.

Since fall 2008, the situation has reversed and gold has become a much more attractive investment vehicle. World stock markets have lost significant percentages of their value. Recent U.S. and other government stimulus packages and Federal Reserve increases in the money supply have raised market fears of inflation which has also increased investment demand for gold. In addition, the Federal Reserve, the European Central Bank, and other central banks have held interest rates at historically low levels. The liquidity provided by central banks' monetary policies has stirred inflation fears and made gold a more attractive investment.



OPERATIONS

Mining operations consist of five distinct activities: exploration, permitting, development, extraction or mining, and reclamation. In a simplistic view, these activities occur in the order listed above, however, in reality they generally occur simultaneously.

Permits from state and federal regulatory agencies are required for each stage of the process although initially, permits are generally only sought for exploration. Part of this permitting process involves providing financial assurance that land disturbances caused by exploration and operations will be reclaimed.

While the permitting process is essential for protecting public lands and the environment in general, and the industry is generally in compliance with all regulations, the process has become increasingly lengthy over time. During the 1980's it was possible, although not common, to get operating permits in under two years. Recent experience has been much different. Newmont's Phoenix project in Lander County took eight years, and Barrick's Cortez Hills project is in a similar situation. The problem is exacerbated by the fact that even after permits are obtained, operators frequently face law suits over various aspects of the permitting process that can cause further delays. This lengthy permitting process is one reason that employment in the industry has increased so little during a period of rising prices when it should be increasing robustly.

The definition of a "mine" is also a bit fluid. Currently, there are approximately 18 active gold and silver operations listed by the NDOM. However, since some of these operations involve multiple points of extraction, or "mines", where multiple mines feed common processing facilities, it is more accurate to talk about operations than mines. The NDOT lists 24 gold/silver operations. There are a number of mines that are currently closed but where prospective operators are in some stage of feasibility study or permitting to reopen them and there are also a number of mines in the development phase.

In 2009 active Nevada operations produced 5.64 million ounces of gold, 8.4 million ounces of silver, and 143 million pounds of copper. This compares with 2008, gold and silver production of 5.7 million ounces of gold, just less than eight million ounces of silver, and copper production of 176 million pounds. Gold production fell because higher prices allowed operators to process lower grade ores. The cost of production for operations is determined by factors such as the grade of the ore processed, the amount of waste rock that has to be moved to get at the ore commonly referred to as the "stripping ratio", the processing methods used, whether the mines are surface or underground, etc. All of these factors will generally be unique to each operation and, consequently, different operations will have different costs of production.

A consequence of low gold and silver prices during the late 1990's and early 2000's was that operators made concerted efforts to reduce their production costs. As prices have risen in the past 8 years, operators have been able to expand their reserves and process lower grade materials. In many cases this has involved processing materials, i.e., ore that was previously considered "waste" rock, i.e., materials that are uneconomic to mine and process. Mining and processing these lower grade materials, however, have caused costs to rise. Other factors contributing to rising production costs at Nevada mines during the first half of 2008 in particular, has been significant increases in fuel and energy costs, as well as the cost of steel, labor, and equipment. In 2009 energy and other costs declined for the first time in the past decade, reducing total cash costs. In the case of electricity costs, Barrick and Newmont have mitigated rising costs by building their own power plants. And, it should be noted, the worldwide slowdown in the world economy, and particularly the base metal mining industry, shortages of equipment and supplies that plagued the industry in recent years have eased.

Mining costs are generally referred to as "*total cash costs*" and "*total costs.*" *Total cash costs* refer to costs that vary with production and include payrolls, electric power, fuel, chemicals, production taxes, etc. They are costs that producers must pay to stay in operation. They are referred to as "total" cash costs because they include taxes and royalties which are not really costs of production but nonetheless have to be paid to operate legally. Prices above a producer's total cash costs, but below total production costs, merely allow the producer to maintain a positive cash flow, however, a price equal to a producer's cash cost does not allow it to recover any of its investment or earn a profit. *Total costs* include total cash costs but also include non-cash costs such as depreciation of capital plant, equipment, and debt service. Some producers do not report total costs so they are not included in this report because of the lack of data.

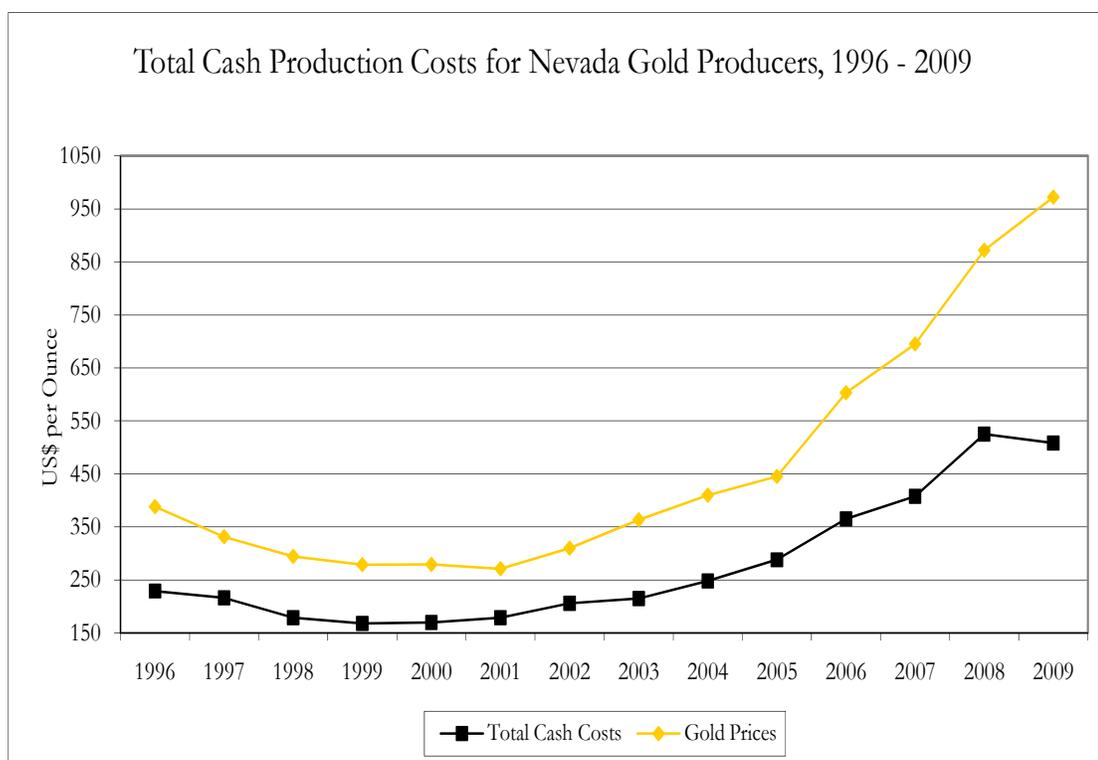
It should also be noted that the profitability of operations illustrated on the graph does not necessarily bear any relationship to the profitability of the corporations that own these operations that can be found in annual financial reports. The costs on the graph only represent the cost of producing gold at these operations and do not include funds spent in exploration to find new reserves or, for example as noted above, the cost to Newmont and Barrick to construct power plants which will lower their costs in the future. Also not included in the costs above are the costs for in house experts, research and development, consultants and lawyers that are needed for the permitting process. The issue of industry profitability will be addressed below.

Overall, the weighted average total cash cost of operations at Nevada gold mines fell from \$525 in 2008 to \$508 per ounce in 2009. As an indication of longer term changes in operating costs in the industry, since 2001 the weighted average total cash costs increased 188 percent from \$182 to \$525 per ounce. However, over the

same period the average price increased by 322 percent, so on average at least, the industry is in far better shape from an operations standpoint than in 2001.

In previous years the *Economic Overview* highlighted some of details of the cost increases hitting the industry. The increases in fuel and energy have been noted but are only a small part of the picture. Costs for steel, equipment, tires, chemicals, transportation, etc. all were up 30 to 60 percent. The economic downturn in late 2008 and 2009 has reversed this trend creating cost savings.

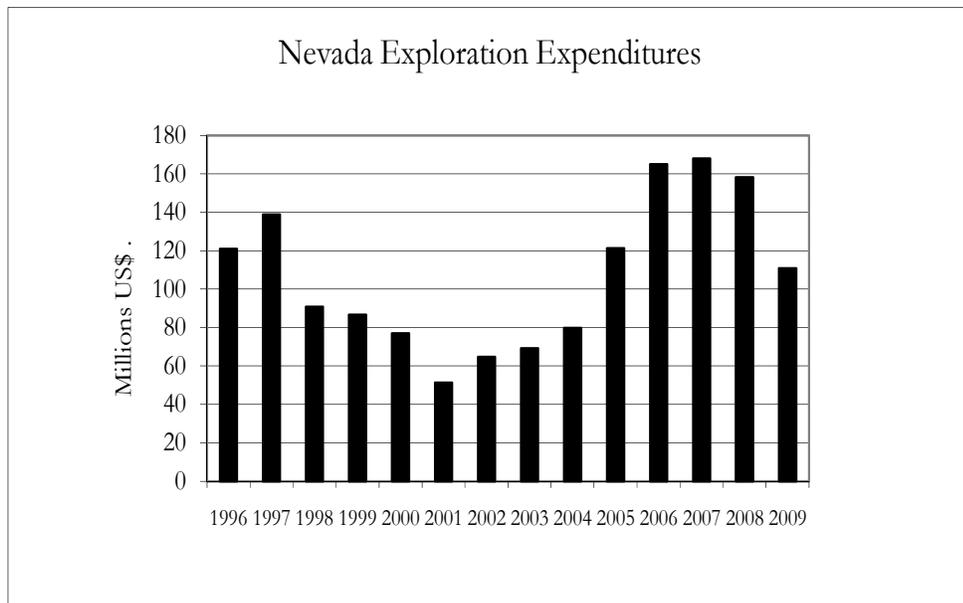
Mining is notorious for being a cyclical business. During the years of declining prices from 1996 to 2001 operators made many efforts to cut their costs to stay in business. From 1996 to 1999 weighted average total cash production costs went from \$229 to \$168 per ounce, a decrease of 27 percent. These cost reductions were achieved by various means such as delaying or reducing development, exploration projects, and when possible, purchases of new equipment. In addition, when possible, operators stockpiled lower grade materials rather than processing them. Operators tried to preserve their workforces by getting rid of contractors and letting their own employees do what the contractors were doing which also cut costs. Even with these kinds of efforts mining employment still fell by thousands of workers. What we have experienced since 2002 has been a reversal of this process.



EXPLORATION ACTIVITIES IN 2009

In 2002 exploration activity in Nevada reversed a 5-year downward trend and increased from \$51.2 million spent on exploration in 2001 to \$64.6 million. 2007 marked the sixth year of this upward trend with expenditures estimated by the Nevada Division of Minerals at \$167.9 million, up modestly over the same survey for 2006, but well above the levels in the late 1990's. The 2007 figure is the highest found by the survey since it began in 1995.

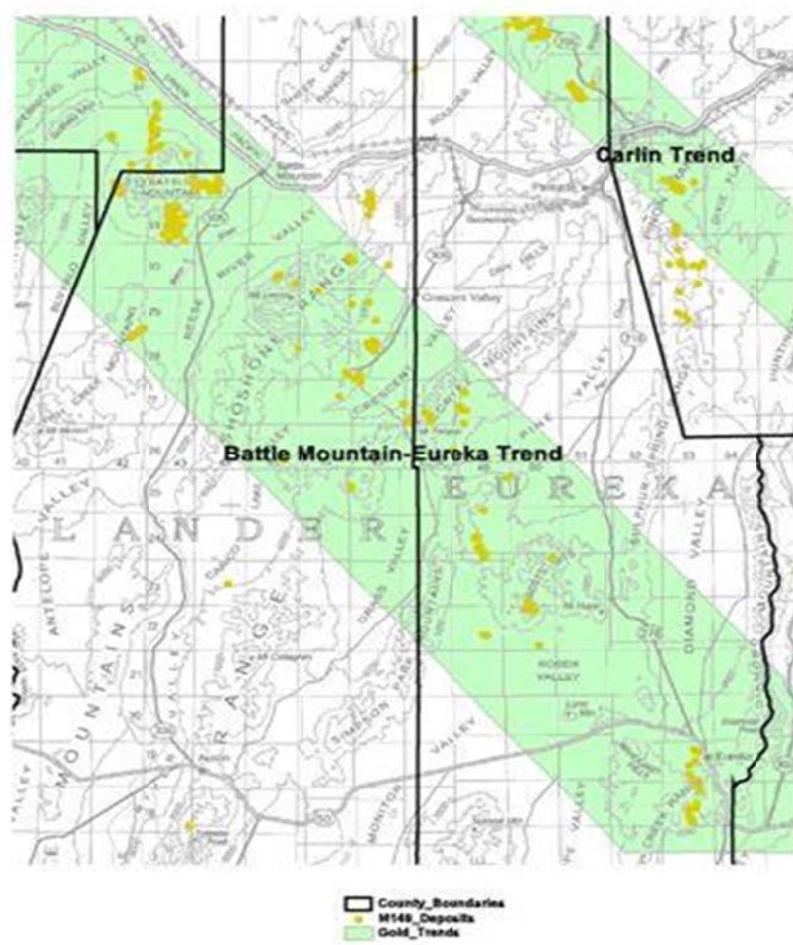
In 2008 the NDOM survey showed its first decline since 2001. However, it should be noted that in spite of this decrease, the figure probably underestimates exploration expenditures because the Division must rely on voluntary reporting and tends to get most of its responses from larger companies and mineral exploration tends to attract a relatively large number of smaller companies. In 2009 the NDOM reported another decline.



During the period of low prices at the end of the 1990's mining claims held in Nevada recorded with the Bureau of Land Management had fallen to under 100,000 from levels in the several hundreds of thousands in the previous decade. Part of this decline was no doubt the result of a claim holding fee instituted in 1993 that resulted in many unpatented claims being dropped. More recently, however, the number of unpatented claims has rebounded strongly.

In 2009 the Nevada Legislature instituted significant onetime fee on mining claims. This is probably a major factor in the 14 percent decline in mining claims held compared to 2008.

Most exploration activity is occurring in the general areas of the Carlin and Battle Mountain Trends since these are proven areas of gold mineralization. The Carlin Trend basically extends from Carlin on Interstate 80 northwest to Midas and south into White Pine County, although most mining activity is at the southern end of that extension. The Battle Mountain Trend, also sometimes called the Cortez Trend, extends from north of Valmy on Interstate 80 southeast to Eureka. These trends are shown on the map below.



However, in 2009 and 2010 there has been considerable exploration activity outside of these trends. Well funded exploration programs are underway from near the Utah border to the California border. The Pequop mountain area between Wells and Wendover is getting serious attention from several companies. Exploration is

underway at the Hycroft mine west of Winnemucca in an effort to restart the mine. And there is serious exploration activity near Yerington in the western part of the state in an effort to start a new copper mine.

The record shows that this exploration has paid off for companies pursuing gold in Nevada. At year-end 2008 Nevada estimated gold reserves were approximately 70 million ounces. At year end 2009 statewide proven and probable reserves were 75 million ounces – enough reserves to maintain current levels of production for over 13 years. Part of this increase was no doubt the result of reclassifying known “resources” because of higher prices, that is, material that was known to exist but could not be profitably mined at lower prices, as “reserves” because they can be mined at today’s higher prices. The extent to which reserves increased because of reclassification versus discovery is not known.

Some question these reserve estimates because it seems that they never change. There are actually a number of reasonable explanations for this phenomenon. Undoubtedly, geologists would probably like to find all the gold in Nevada, and equally undoubtedly mining engineers would like to build a mine to get it all. But in reality, it does not work that way.

Before they authorize the geologists to look for more gold and the engineers to build new mines, the people who run the financial side of the business step in. They understand that the present value of capital, and risks associated with commodity prices, taxes, and regulations make finding an ounce of gold that you cannot mine for ten to fifteen years is not worth the cost of finding it.

Another important consideration is financial regulation. In order to claim that a company has a “reserve” it needs to conduct extensive studies and to go through a permitting process that includes exploration, development, mining, and reclamation. Most informed persons will acknowledge that there is far more than 75 million ounces of gold in Nevada to be mined, but financial and regulatory realities stand in the way of formally announcing it.

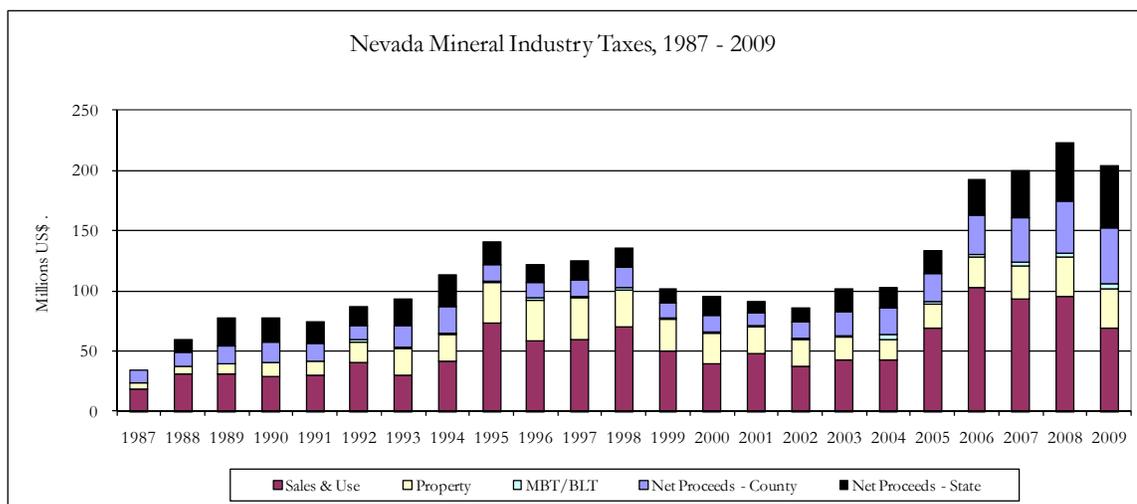
STATE AND LOCAL TAXES PAID IN 2009

Estimated total state and local taxes paid by the mining industry in 2009 decreased slightly compared to 2008, based on information from the Nevada Department of Taxation and industry surveys. This downturn is primarily the result of the general downturn in the economy because the major source of the decline is a reduction in sales and use taxes reported. It should also be noted that these figures do not include pre-payments of 2010 Net Proceeds taxes made in 2009 and early 2010. Prepayments of 2010 net proceeds of mines by the four largest companies during this period were about \$123 million.

It is important to stress that most of the figures presented below are “estimates.” The State Department of Taxation provides an accurate accounting of Net Proceeds of Minerals taxes in the state but estimates for Sales and Use taxes and property taxes are based on surveys of companies that are willing to disclose the information, so the estimate is clearly an underestimate. The major drawback of this method is that it does not pick up sales and use taxes paid by other producers such as most industrial minerals and geothermal operators who also pay these taxes. However, these segments of the industry are smaller than the gold industry and do not purchase the quantity of equipment and supplies on which the taxes are paid. In the case of property taxes we use an estimate based on both surveys and a base figure established several years ago by the NDOT.

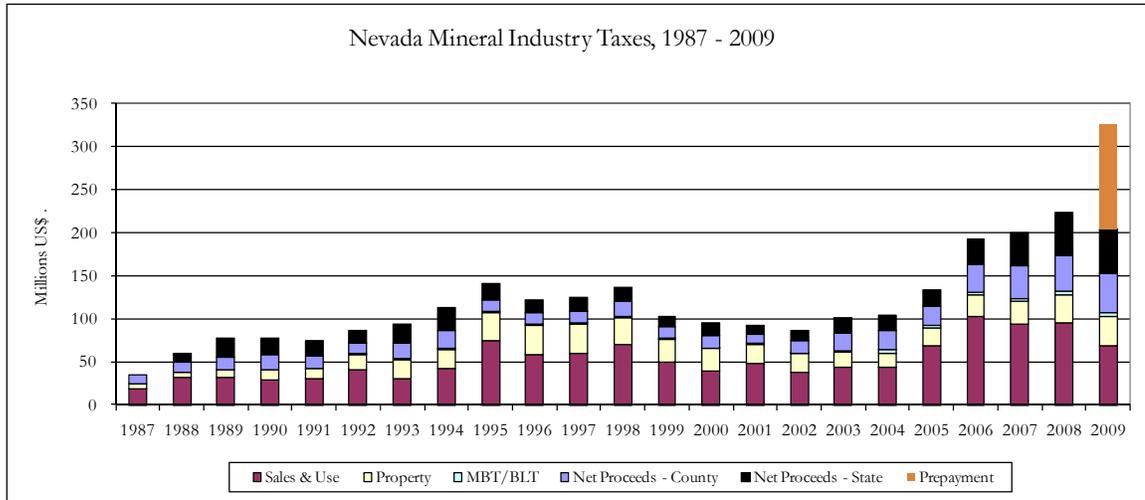
The 8.8 percent decrease in overall estimated taxes in 2009 follows substantial increases during the previous years. Total estimated taxes in 2008 were almost \$204 compared to \$224 million in 2008. Note that this figure includes taxes paid by operators and does not include taxes paid by industry employee or suppliers. The figure below shows taxes paid by the industry in Nevada since 1987.

The primary cause of the decrease was a decline in Sales and Use taxes, the lower part of the stacked bar chart below. In the three previous years higher Sales and Use taxes were the result of several major mine development projects, that result in capital expenditures that are subject to these taxes. These projects were completed in 2009, and capital expenditures were lower.



Even with a decrease in total taxes in 2009, there was a significant increase in Net Proceeds of Minerals taxes because of the increase in the price of gold. Aside

from Sales and Uses, other taxes increased slightly. When the prepayment of 2010 NPOM taxes are included the graph above can be modified to the graph below:⁴



As the graphs above illustrate, total taxes paid by the Nevada mining industry in recent years had been in a downward trend from 1999 to 2002. This trend was primarily due to low gold prices affecting Net Proceeds of Minerals Tax (NPOM) receipts and lower levels of investment in equipment and development which drive Sales and Use tax payments. Low gold prices also led several mines to close during this period and others to seek lower assessments for property tax purposes.

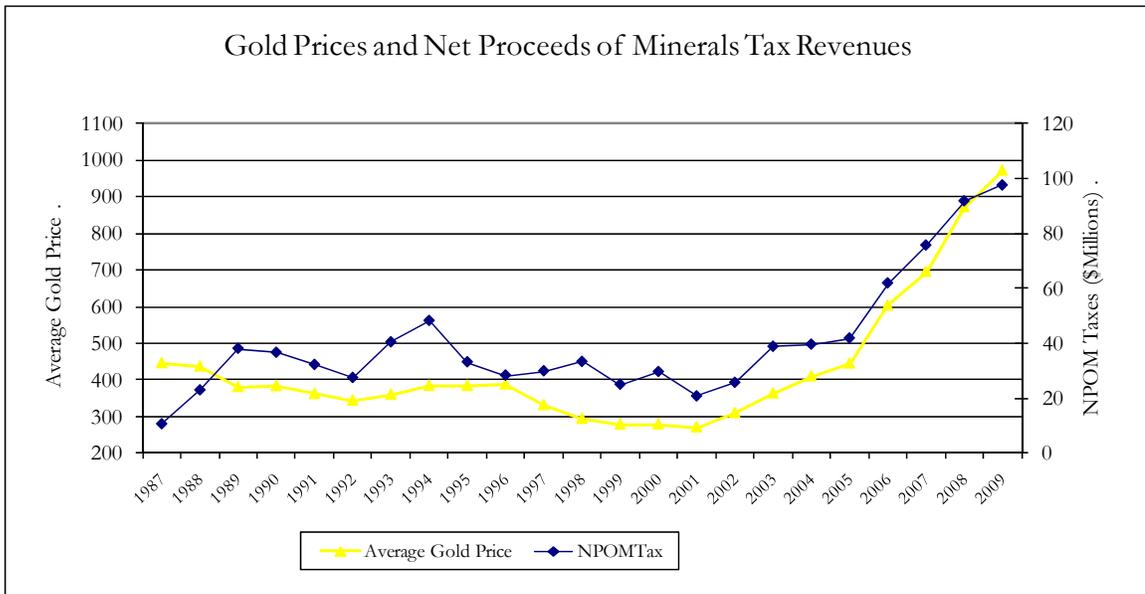
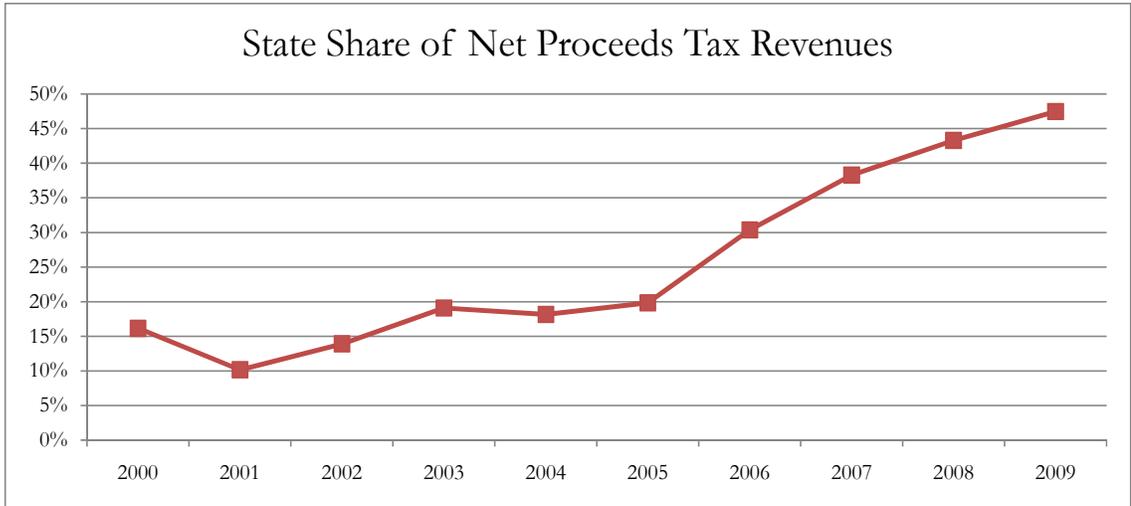
A key point about taxes paid by the mining industry that is often overlooked is the issue of where these revenues go. The general assumption is that they support the communities where the mining occurs. This is, in fact, the way the tax was originally designed but when the state constitution was amended in 1989 to raise the rate to 5 percent and give a portion of the revenue to the state general fund, that changed. Over half of Net Proceeds tax payments go to the state General Fund and are distributed essentially on a per capita basis throughout the state.

Property taxes paid on property, plant and equipment do stay almost exclusively in the counties and special tax districts where the mines are located. Although a small portion of property taxes is dedicated toward state debt repayment.

In the case of sales and use taxes, the various components of the tax are distributed differently. A portion (two percent) goes to the State General Fund, another goes to school districts statewide on a per pupil basis, but the bulk of it is distributed more or less on a per capita basis. This, of course, means that the vast

⁴ The final portion of the prepayment of NPOM taxes was made in February, 2010.

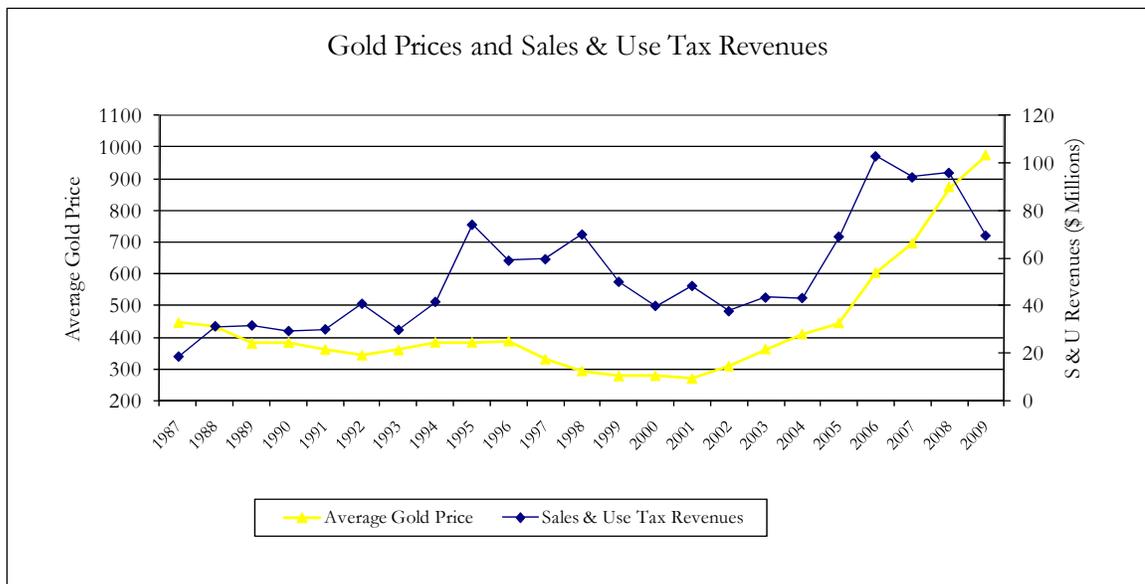
majority of these funds go to Clark County with just under 72 percent of the state's population.



As the graph above illustrates, the increase in NPOM taxes starting in 2003 primarily reflected the increase in gold prices. With the relatively stable margin between production costs and prices as noted above, short term commodity price increases directly increase Net Proceeds, which are Gross Proceeds less deductible production costs (not all production costs described above are deductible).

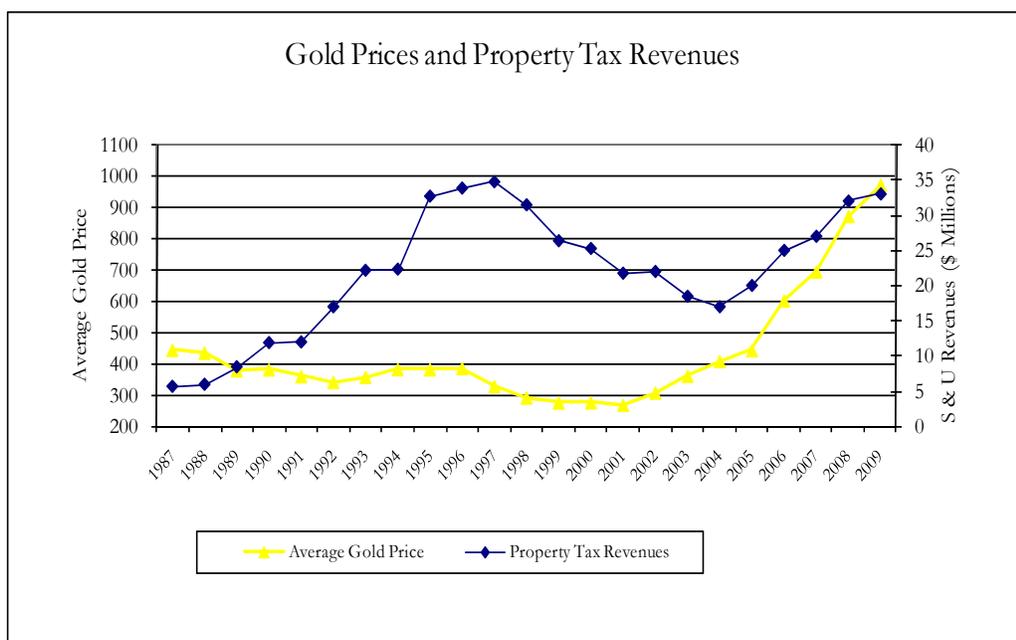
Operators with over \$4 million in Net Proceeds pay five percent tax on their Net Proceeds. In 2004 and 2005, although gold prices increased over 2003 levels, Net Proceeds taxes increased very little because of the significant increases in production costs noted above. In the past three years Net Proceeds taxes increased substantially because prices have increased fairly rapidly, faster than operators could adjust their operating plans. Other deductible costs such as near mine exploration also increased as noted above. In the future, as newly discovered near mine reserves are developed and brought into production, these development costs will be deductible if the mines have Gross Proceeds. Hence, when commodity prices rise significantly, as they have over the past five years, the initial effect on taxes is felt in higher Net Proceeds revenues. However, as operators adjust to higher prices by processing lower grade ores and investing in exploration and new development, these tend to reduce increases in Net Proceeds tax revenues.

Sales and Use taxes, which are primarily paid on purchases of capital items and equipment, have historically been the largest taxes paid by the industry. These taxes primarily depend on the rate of investment in the industry which typically lags behind price changes. That is, when prices increase as they did in the mid 1990's and in the past several years, it takes time to get construction plans and permits in order to proceed. On the other side of the price cycle, if prices fall after construction is underway, projects tend to be pursued anyway, so there is a lag before tax receipts fall. As indicated by the graph below, relatively high rates of investment in new plant and equipment in the mid – 1990's led to relatively high sales and use tax payments. These payments declined in the late 1990's as the industry reduced its rate of investment and limited equipment purchases to replacing existing capital.



The levels of sales and use taxes reported in past industry surveys suggest that after a bit of lag after prices began increasing in 2002, industry purchases have increased tremendously in the last two years. We would expect these levels to continue and possibly increase further if gold and other commodity prices hold their current levels and they were relatively flat comparing 2007 and 2008 after several years of strong increases and declined in 2009.

Ad valorem property taxes are also generated by industry investment, but tend to lag even farther behind the commodity price cycle than sales and use taxes as illustrated by the graph above. After a large construction boom in the mid-1990's property taxes paid reached their highest levels at over \$35 million. As prices faded in the late 1990's property taxes declined as a result of mine closures. These closures led to reassessment of both real and personal property reflecting the reduced value of the site after mining stops and reclamation begins, and the liquidation of capital equipment. Even in some cases where operations continued the value of mining assets were sometimes reduced to reflect their lower value because of lower prices. The small increases beginning in 2004 are a result of the resumption of capital investment because of higher prices.



Because of the way the three major taxes paid by mining are allocated, historically approximately 40 percent of the total tax payments stay with local government as opposed to state funds spent on a statewide basis. While ad valorem property taxes largely remain in the counties where the minerals are mined (a small portion of the ad valorem tax and the net proceeds tax are allocated to state debt

reduction) These tax dollars are available for city and county operations, and local education expenditures.

State Mining Tax Comparisons

Because of federal efforts to enact a production royalty on hardrock mining and interest in taxation of mines in Nevada created by a failed initiative petition to substantially increase mining taxes, we have attempted to put together a meaningful comparison of state mining taxes for metal mining in the U.S. This task is not as simple as proponents of royalties and taxes have claimed.

Earthworks, in cooperation with the Mineral Policy Center and the Sierra Club, all environmental lobbying groups, put together a “white paper” which claimed that all western states producing hardrock minerals employ a gross proceeds tax except Nevada and Alaska. On closer inspection of state statutes regarding taxation of mines, we found this claim to be untrue. All but one western state employs some version of a Net Proceeds Tax, that is, they allow deduction of certain costs of production, although they may call it a gross tax.

Comparing state taxation of metal mining has difficulties that go beyond the use of terminology like “net” and “gross”. Each state produces a different mix of minerals which, in some cases, they tax differently. For example, in Colorado, molybdenum is taxed differently than other metals. In Utah, beryllium is taxed differently than copper. Each state tends to adapt the tax laws to the economics of the particular mineral produced and the size of the operations in their states.

Nevada, on the other hand, takes a “one size fits all” approach to mineral taxation. Gold miners are subject to the same set of statutes and regulations as copper miners, moly miners, geothermal producers, etc. Small producers are given a reduction in tax rates⁵, but other than that, all mineral producers are treated alike.

Another factor that makes comparison of different state’s treatment of mineral producers is the role of other, non-mineral related taxes, in determining the overall tax burden of a mining operation. All states have property taxes on property, plant and equipment, but rates vary. Most states have sales and use taxes and corporate income taxes, and the rates vary.

In an effort to address these difficulties, we have taken a hypothetical medium sized gold mine that would be fairly typical of an operation found in Nevada and calculated its tax liabilities if that mine were in various other states. The hypothetical mine produces 250,000 ounces of gold per year which it sells for \$1,100 per ounce for gross revenue of \$275 million. It employs 350 workers with labor costs including benefits and taxes of \$36.4 million. Net operating profits are assumed to be \$50

⁵ NRS 362.140 provides for a reduced tax rate for operations with net proceeds less than \$4 million.

million per year. The table below shows mining specific taxes and total taxes (including mining taxes) in 10 western states.

Estimated Taxes for a Hypothetical Gold Mine in Western States

	Total Taxes	Mining Taxes
Alaska	\$ 9,993,040	\$ 3,497,000
Arizona	\$ 10,433,503	\$ 1,250,000
California	\$ 13,773,897	\$ 534,209
Colorado	\$ 15,540,430	\$ 2,880,000
Idaho	\$ 6,930,850	\$ 802,500
Montana	\$ 13,075,450	\$ 7,460,750
Nevada	\$ 11,687,500	\$ 3,187,500
New Mexico	\$ 11,070,250	\$ 275,000
Utah	\$ 12,579,807	\$ 2,145,000
Wyoming	\$ 8,507,000	\$ 6,307,000

The table above shows that with a few exceptions, the total tax burden does not vary much between states even though mining specific taxes vary significantly. Some states like California and New Mexico have relatively low mining specific taxes but are still comparable to other states because of other taxes such as general property, sales and use, and corporate income taxes.

The tables below show rankings by total tax and mining tax burdens:

Rankings by Total Taxes

Colorado	\$ 15,540,430
California	\$ 13,773,897
Montana	\$ 13,075,450
Utah	\$ 12,579,807
Nevada	\$ 11,687,500
New Mexico	\$ 11,070,250
Arizona	\$ 10,433,503
Alaska	\$ 9,993,040
Wyoming	\$ 8,507,000
Idaho	\$ 6,930,850

Rankings by Mining Taxes

Montana	\$	7,460,750
Wyoming	\$	6,307,000
Alaska	\$	3,497,000
Nevada	\$	3,187,500
Colorado	\$	2,880,000
Utah	\$	2,145,000
Arizona	\$	1,250,000
Idaho	\$	802,500
California	\$	534,209
New Mexico	\$	275,000

One thing to note about the ranking by mining taxes is that the results for the top two states, Montana and Wyoming, are somewhat misleading. In the case of Montana, the state has adopted a relatively negative attitude toward mining in the past decades. Part of this is due to the legacy of mining in the state and its negative perception. In fact, the hypothetical mine used for this example could not be built in Montana because it bans the use of cyanide, heap leach processing. Consequently, it is doubtful that any Montana mine would exist to actually pay the amount shown.

The case of Wyoming is slightly different. The major mining products in Wyoming are coal, uranium, and trona. These products are typically sold at the mouth of the mine without significant processing and, hence, without the operator incurring significant costs. The hypothetical mine model used for this exercise anticipates significant processing and costs after the mined material leaves the mine mouth. If the hypothetical mine actually existed in Wyoming the operators would no doubt adapt to the tax regime by selling the ore at the mine mouth without processing to avoid being taxed on the value added to the product from processing.

Consequently, if we discount the results for Montana and Wyoming for the reasons above, this leaves Alaska and Nevada as the states with the highest mining specific taxes. States with the lowest mining specific tax burdens, California and New Mexico, nonetheless rank in the upper half of the states considered in terms of total taxes paid because of their reliance on general business taxes and other taxes like corporate income taxes, general property taxes on property, plant and equipment, sales taxes, and other levies.

PRECIOUS METALS INDUSTRY PROFITABILITY

2009 and the first half of 2010 were relatively profitable for the precious metals industry in Nevada and around the world. Other metals sectors such as base metals and industrial minerals have had less successful operations because of the

international economic slowdown. Since Nevada's mineral industry is dominated by precious metals, this section will primarily focus on precious metals.

It was noted above that 2009 and the first half of 2010 were *relatively profitable* for the precious industry in Nevada and worldwide. That profitability is relative to both the past performance of the industry and relative to other industries that have been hit hard by the national and international recession.

A common misconception about the mining industry, and precious metals mining in particular, is that it is an enormously profitable venture. If this were true, according to conventional wisdom and common sense, we would all become gold miners. Nonetheless, the misconception is difficult to dispel. Indeed, the term "gold mine" is commonly applied to anything highly profitable. Precious metals mining can be very profitable and producers invest in production capacity in hopes of earning profits, but industry profits are highly leveraged by metals prices and operating costs.

It is also important to distinguish between the profitability of a mine based on its operating costs and net proceeds, and profitability of a *mining company*. The mining company may own numerous mines all over the world and uses the operating profits from more profitable operations to sustain less profitable operations. In addition, the corporate entity finances exploration, development, and permitting that are not part of ongoing expenses at an existing operation. The corporation provides legal services, tax services for federal and international taxes, and business development services, which usually involve merger and acquisition negotiations. All of these activities are necessary to sustain a mining company beyond the life of a single operation.

When one looks at industry average profitability over the long run rather than focus on an individual mine or mining company in a short period of time, what they will find is that the precious metals mining industry is, in fact, not extraordinarily profitable. Over the long run, when price cycles are taken into consideration, the industry earns, on average, what economists call a "normal" profit.

While this observation sometimes seems counter intuitive, there are some very valid reasons why it is true and they primarily relate to the way operators act over the price cycle. In most other industries, for example, when the price of their product goes up, they try to produce more to increase their profits. In the gold mining industry, in contrast, when prices rise one of the first things that happens is that operators lower their cut-off grades which reduces the quality, in terms of ounces per ton, of ore that they put through their processing facilities.

Unless they can quickly expand the scale of their processing facilities, this reduces output and raises costs, cutting profitability. In the current regulatory environment, expanding the scale of operations is generally not an option because it would require a change in an operation's operating permit, and that can take a considerable amount of time.

While lowering cut-off grades raises costs, it frequently has the benefit of extending the mine life of their operations and makes more efficient use of the natural resource. It is also generally beneficial for the communities supported by mining operations, but its impacts on operating profits are clear.

Another thing that happens when prices rise is that operators invest more in a variety of activities such as more exploration spending, more capital construction, replace aging equipment, conduct deferred maintenance, etc. We have observed all of these actions in Nevada in the past few years and it occurs in every other gold mining district in the world. And, while these activities have benefits for the communities and operators like extending mine life, these activities clearly cut into profitability.

When prices fall, the reverse occurs. In most other industries, if prices fall they would cut output in an attempt to lower their costs. In the precious metals mining industry, operators will raise their cut-off grades to lower their costs with the result that their output typically goes up, at least initially. They will also attempt to lower costs by reducing exploration, deferring purchases of new equipment, new construction, and other actions. The result is that over the price cycle the relationship between price and costs is relatively constant as suggested by the graph below shown above on page 17.

The latter point illustrates why streamlining the permitting process is so critical to the long-term viability of the gold mining industry in Nevada. Long lead times to get approvals for expansions and new projects reduce operators' ability to respond to price increases by increasing capacity. Knowing this, if a company has an opportunity to develop a property offshore where it can get permits and have the mine constructed in 18 months or it can develop an identical property in Nevada where the permitting process and construction will take over five years, the offshore mine is a much more profitable investment. Political risk operating offshore is clearly a factor in these decisions, but so is the time value of the money that has to be invested.

Another basis for comparing precious metals industry profitability to other industries comes from Value Line's Investment Survey, which reports on the profitability of over 90 industry groups using companies selected by Value Line. Value Line's precious metals group in the current report includes nine companies including the three largest companies with operations in Nevada – Newmont, Barrick, and Goldcorp. It also includes a mutual fund with primarily South African gold mining stock holdings, two mid-sized Canadian producers, South African producer AngloGold Ashanti, and a U.S. platinum group metals mining company, Stillwater Mining, which has operations in Montana. Value Line's group of precious metals producers had a weighted average rate of return on equity before write-downs in 2009 of 7.5 percent, up from 6.5 percent in 2008, and 5.3 percent in 2007. The

graph below provides a comparison of ROE in selected industries from the Value Line Survey for 2009.

Return on equity is arguably the best method of comparing different industries as opposed to profit margin or return on assets because it measures earnings as a percent of the assets the company actually owns. This approach has the advantage of accounting for company debt which can vary widely between different industries.

The profitability of the precious metals industry seems counterintuitive to many because it can remain low in years when prices have increased significantly. But the operational factors mentioned above play a significant role in the industry cost structure. Another important factor is corporate activities such as mergers and acquisitions. These kinds of activities tend to involve prospects and development properties and add little to current earnings. At the same time they tend not to add much to shareholder equity in the short term and may add to long term debt.

2009 and the first half 2010 have been unusual years for the precious metals industry and the entire world economy for a number of reasons. First, the worldwide recession reduced demand for consumer products across almost all sectors. However, one consequence of the meltdown in the financial sector has been a renewed interest in gold as an investment. The exception would be Tobacco/cigarette producers which are likely to earn high returns in any market based on experience. Diversified Metals, which includes aluminum and other fabricated metals also typically show higher returns on Equity.

