

Economic Overview of the Nevada Mining Industry, 2008 – 2009



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Executive Summary

2008 and the first half of 2009 have been tumultuous times for the world and national economies and for Nevada and its mining industry. In the mining industry worldwide and in Nevada, news in the first half of 2008 was dominated by rising energy prices and continuing shortages of equipment and material supplies.

Around mid year, when signs of world wide recession began to appear, energy prices eased, but, at the same time, most mineral commodity prices slumped. Copper prices, which had hovered in the \$3 per pound range from mid – 2006 to late 2008, plunged to around \$1.30 per pound when the recession hit. Molybdenum (Moly) prices reached \$30 per pound during the mid-decade boom, fell below \$10 per pound. The outlook for the world mining industry, which is primarily focused on base metals, was fairly bleak in the last half of 2008, but is currently showing signs of recovery. In Nevada, net proceeds at the Robinson copper project near Ely declined over 30 percent and the Ashdown Moly mine north of Winnemucca closed.

The gold sector fared much better. Gold prices held up and even improved during the financial turmoil in the second half of 2008 and the first half of 2009. Gold prices briefly reached \$1,000 an ounce in March 2008 and averaged \$872 for the year, 25 percent over \$695 in 2007 and 45 percent higher than the \$603 per ounce average in 2006. Since Nevada's gold industry represents 81.5 percent of the State's gross proceeds of mineral production, these price increases have buoyed the industry and generally supported the local economies in northern and northeast Nevada.

Because of this increase in gold prices the total value added to the state economy from mineral production in 2008 was \$2.5 billion, according to the U. S. Department of Commerce. This increase came in spite of the fact that gold production declined from 6.04 million ounces in 2007 to 5.7 million ounces. In spite of this decline in gold production, according to the U.S. Geological Survey reports, Nevada gold production remained at just over 7 percent of total world production because world production declined at about the same pace as Nevada's. **The State also remained the fourth largest producer in the world in 2008 behind China, South Africa and Australia.**¹ With a few exceptions, such as China, world wide gold production decreased for the same basic reason it declined in Nevada – lower ore grades used in production.

Nevada gold reserves at year end 2008 were an estimated 70.4 million ounces, almost identical to reserves at the end of 2007. Reserves are estimated by companies at year end and represent the amount of gold that can be legally mined at a profit. Under financial reporting regulations this means that to claim to have reserves a company has to have an operating permit, an approved reclamation plan, etc. So, reserve estimates are, by design, very conservative. Nonetheless, Nevada continues to have enough reserves to maintain production at current levels for an additional 12 years.

The future of the industry obviously lies in exploration and after six years of increasing exploration activity, exploration spending reported to the Nevada Division of

¹ U.S. Geological Survey, *Mineral Commodity Summaries, 2009*.

Minerals declined in 2008, although modestly. Exploration spending in 2008 was reported at \$158 million compared to \$168 in 2007.

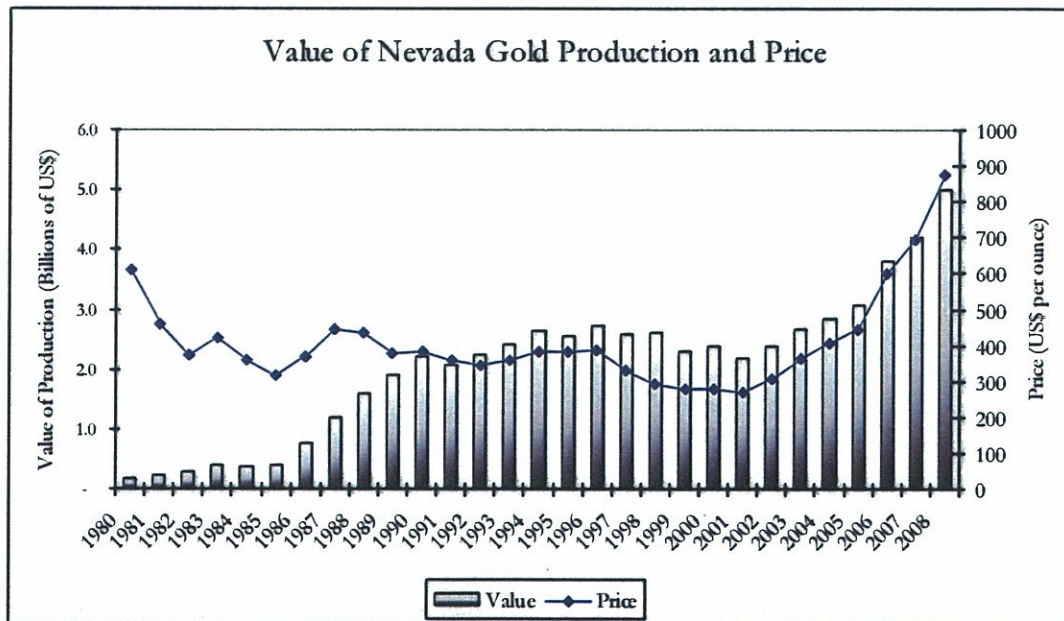
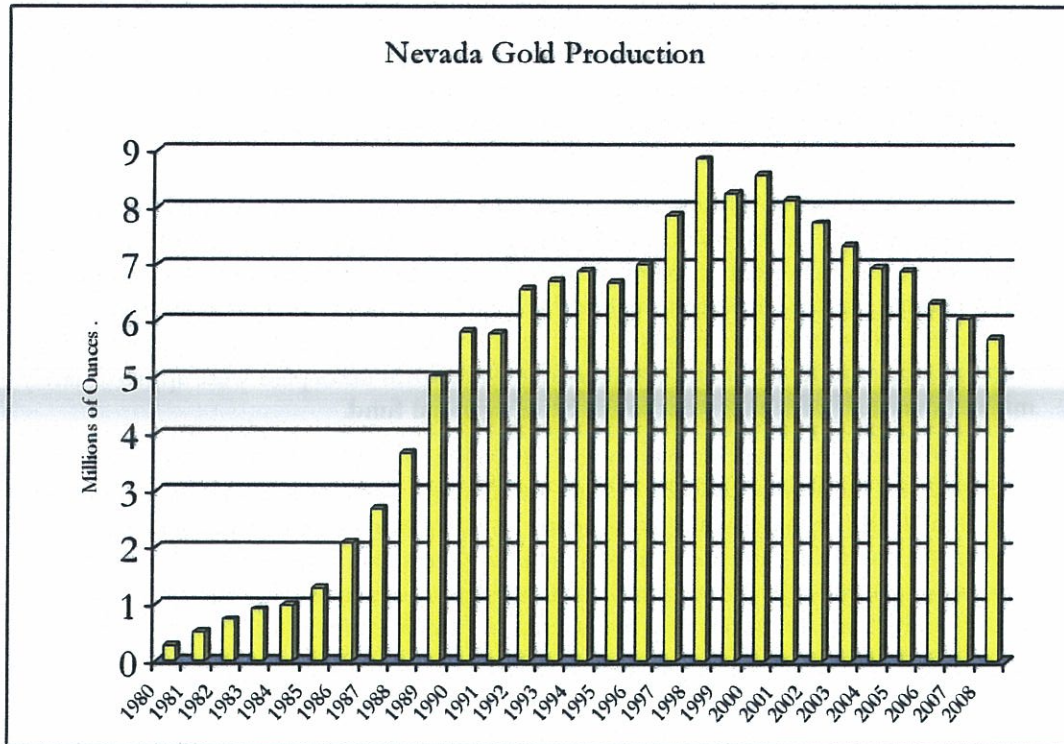
As in previous years, production costs at Nevada operations continued to increase in 2008. Weighted average cash costs, which do not include non – cash items such as depreciation and debt service increased from \$408 in 2007 to \$525 in 2008. This 29 percent increase would undoubtedly have been greater if fuel prices had not began receding in mid 2008, but it still represents a substantial increase over previous years. The primary cause of the increases in 2008 was that higher prices have allowed operators to reduce the ore grade of materials processed. This results in the lower output noted above and a higher cost per ounce.

Another factor pushing costs up in 2008 were significantly higher State and local taxes paid in 2008. Total taxes, which include Net Proceeds, Property, and Sales and Use taxes, increased just under 15 percent in 2008. Net Proceeds Tax revenues were a record \$91.8 million, almost 21 percent higher than 2007, which was also a record year for Net Proceeds. Property taxes and Sales and Use taxes, which generally lag behind Net Proceeds, were up more modestly. Total estimated State and local taxes paid were approximately \$225 million, over half of which went to the State's general fund.

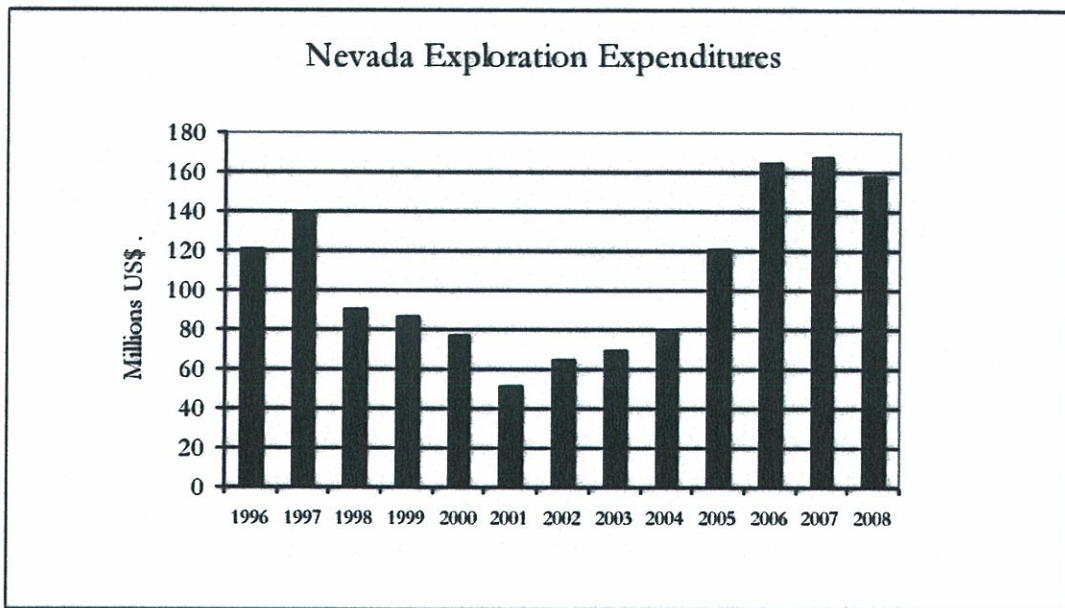
Employment trends also showed relatively modest increases in 2008. Total annual average direct employment in the Mining and Natural Resources sector was 14,613, up from 14,470 in 2007. Employment growth tends to be constrained by delays in bringing new projects on line for a variety of reasons including the permitting process that new mines and expansions go through. Mining and metal mining in particular were still the highest paid sectors in the State economy with average pay of \$69,300 and \$78,600, respectively. This compares with statewide average earnings of just under \$43,000.

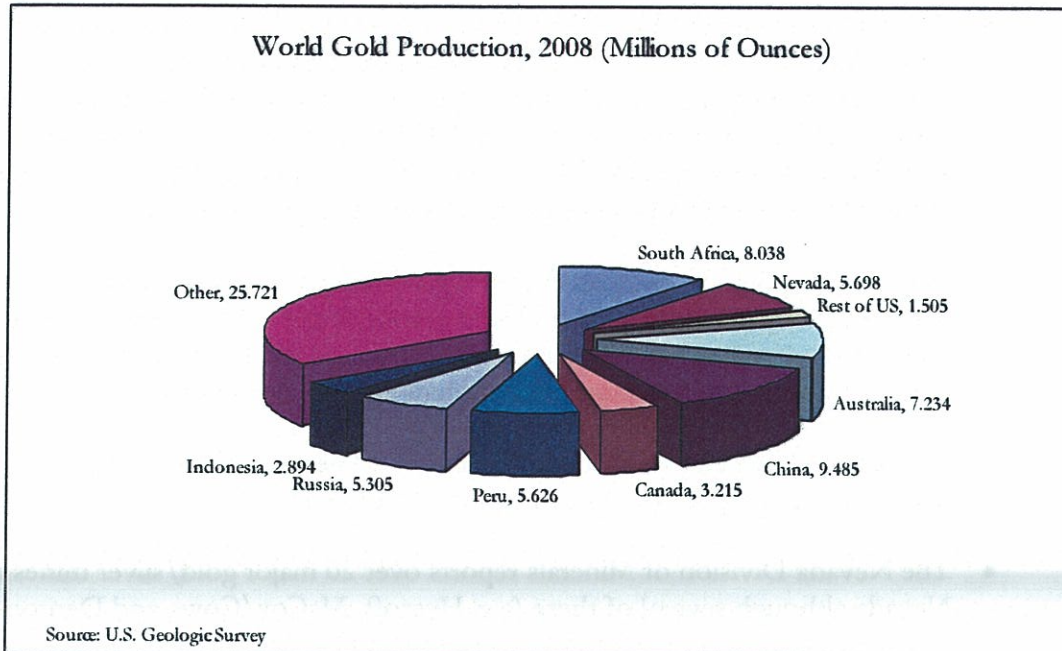
HIGHLIGHTS OF NEVADA MINERAL PRODUCTION

GOLD



- Nevada operators produced 5.7 million ounces of gold in 2008, down from 6.04 million in 2007. In spite of the decrease in output for the eighth consecutive year, as the graph above indicates, the value of output increased because of higher prices. The average 2008 price of \$872 per ounce was significantly higher than the 2007 average of \$695, and 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 7.3 percent of world production.
- The Nevada Division of Minerals reports over 20 major gold/silver mines in Nevada although several of these (e.g. Hycroft, 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".
- Gold exploration expenditures fell modestly in 2008 to \$158 million from \$168 in 2007. Even with this decrease in reported exploration expenditures, it is still the third highest figure reported since the Nevada Division of Minerals survey began in 1995.





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.
- 2008 copper production was 175.5 million pounds compared to 2007 copper production of 142.8 million pounds. The calculated value of 2008 production was \$555 million compared to 2007 production of \$461 million in spite of the fact that the price fell in the latter half of 2008.

SILVER

- Nevada silver production fell slightly again in 2008 to 7.96 million ounces from 8.41 million ounces in 2007 and 8.45 million ounces in 2006. 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.

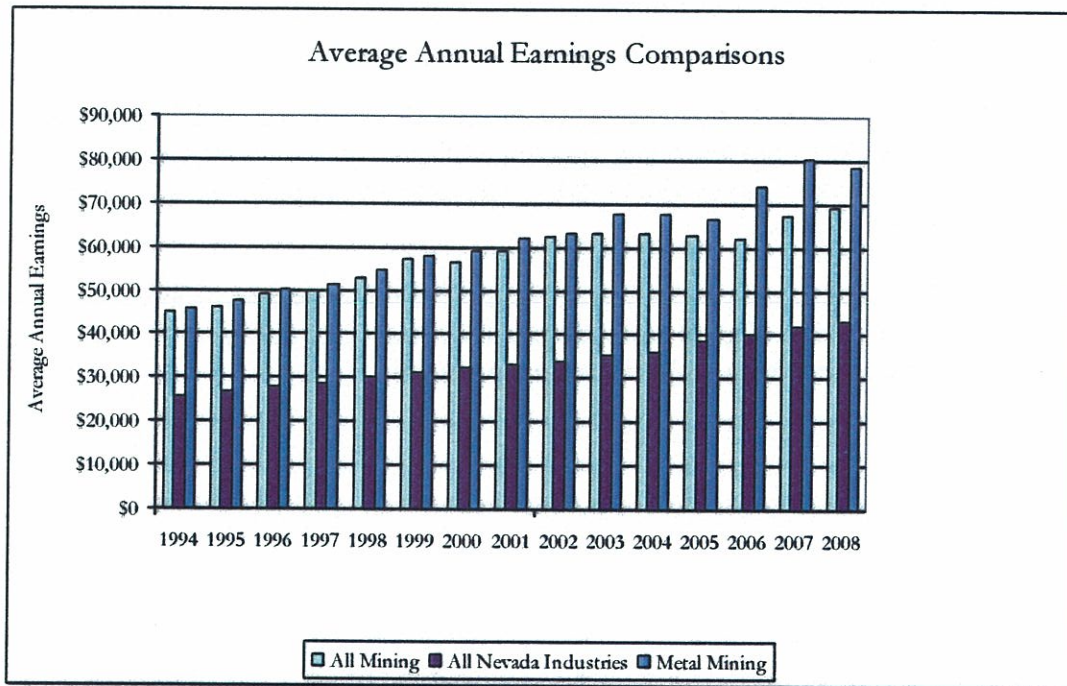
- Silver prices have risen significantly in the past several years and averaged \$14.99 per ounce in 2008, up from \$13.38 in 2007. Current prices (mid-2009) are around \$14 per ounce.
- Because of higher prices the calculated value of 2008 silver production rose slightly to \$119 million compared to \$113 million in 2007.

OTHER MINERALS

- According to the Nevada Division of Minerals, Nevada geothermal wells produced 1.38 million megawatt hours of electricity in 2008, up from 1.2 million megawatt hours in 2007. 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 \$95 million in gross proceeds in 2008, making it the fifth largest mineral category in the state.
- Because geothermal energy is a renewable and non carbon dioxide 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 value of the production of these other minerals is an estimated \$456 million, down slightly from the previous year. The decline is likely due to the national recession and a decrease in demand.

MINING EMPLOYMENT AND PAYROLLS²

2008 Average Direct Employment	14,600 jobs
2007	14,470
2006	13,800
2008 Payrolls	\$1.01 Billion
2007	\$974 Million
2006	\$859 Million
2008 Average earnings for Metal Mining	\$78,567/year
2007	\$80,236
2006	\$73,888
2008 Average earnings for All Mining	\$69,313/year
2007	\$67,392
2006	\$62,192
2008 Average earnings in All Industries Statewide	\$42,172



² Nevada Department of Employment, Training and Rehabilitation.

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 \$10 billion in 2008 compared to \$9.6 billion in 2007 including both direct and indirect impacts.
- Generated more than 51,850 total jobs in Nevada and states supplying goods and services to the industry.
- Contributed \$2.4 billion to Nevadans' personal incomes in 2008.
- 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	\$3,088	17,199	4,582.3	961.6
Mining Services	<u>\$3,028</u>	<u>34,649</u>	<u>5,430.1</u>	<u>1,534.7</u>
Totals	\$6,116	51,848	10,012.4	2,396.3
Implied jobs multiplier ³		3.55		

³ 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)⁴

	2005	2006	2007	2008
Net Proceeds of Mines Tax				
County Portion	\$ 22,425	\$ 32,177	\$ 37,442	\$ 42,335
State General Fund	\$ 19,381	\$ 29,74	\$ 38,252	\$ 49,491
Total NPOM Tax	\$ 41,806	\$ 61,881	\$ 75,694	\$ 91,856
Sales & Use Tax	\$ 68,973	\$ 101,087	\$ 93,124	\$ 95,783
Property Tax	\$ 20,016	\$ 25,000	\$ 27,000	\$ 32,000
Modified Business Tax	\$ 2,889	\$ 2,662	\$ 2,870	\$ 4,000
Total	\$ 133,684	\$ 192,439	\$ 199,488	\$ 223,609

(Source: Nevada Department of Taxation and industry surveys)

⁴ Nevada Department of Taxation and industry surveys.

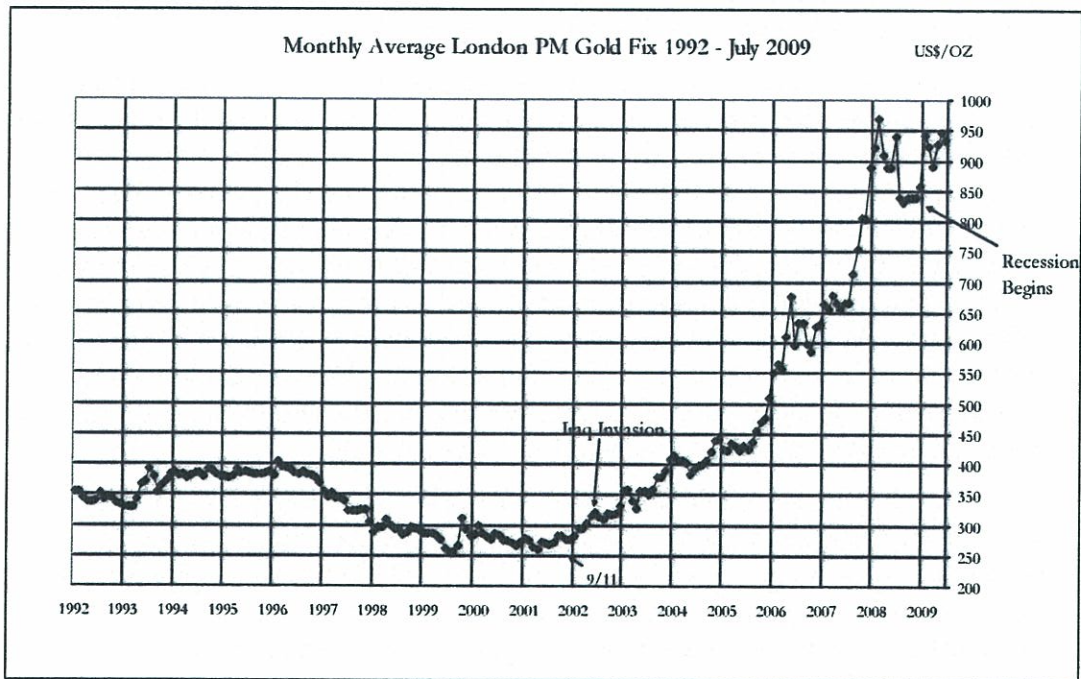
NEVADA MINING: A REVIEW

2008 INDUSTRY DEVELOPMENTS

GOLD PRICES

Since gold production accounts for almost 82 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 22 hours a day. As the graph below illustrates, gold has had quite a ride over the past few years.

The major change in 2008 and the first half of 2009 compared to the previous five years came in mid 2008 when the dramatic climb in the price of oil and a slight strengthening of the U.S. dollar. 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.



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 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 world wide 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.

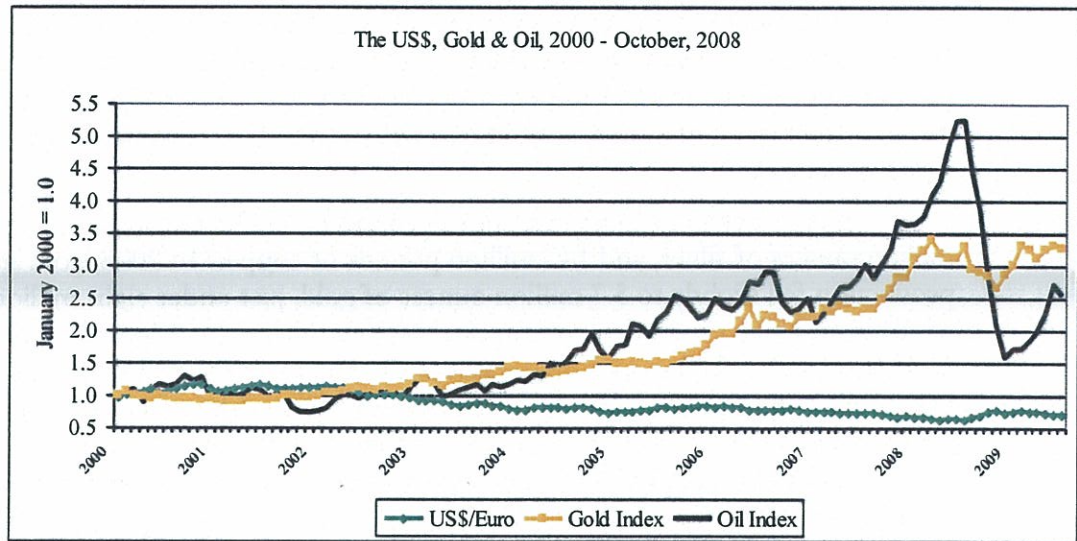
In late 2008 and early 2009 increasing U.S. dollar weakness has led to a number of countries to call for a new currency that could be used in international trade. Currently, the vast majority of international transactions – even those not involving U.S. companies or banks – are denominated in U.S. dollars 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 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 gold prices were weak, it is no coincidence** that world stock markets were booming. Indeed, some investors were borrowing gold to sell and buy stocks and bonds instruments, putting 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. In addition, recent 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.



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 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.

Currently, there are approximately 18 active gold and silver operations listed by the Nevada Division of Minerals. 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 Nevada Department of Taxation lists 25 gold/silver operations. Needless to say, **the definition of a “mine” is a bit fluid.** 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 2007 active Nevada operations produced 6.037 million ounces of gold, 8.4 million ounces of silver, and 143 million pounds of copper. In 2008, gold and silver production fell slightly to 5.7 million ounces of gold, just under eight million ounces of silver, respectively, but copper production grew slightly to 176 million pounds. Gold production fell because higher prices allowed operator 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.

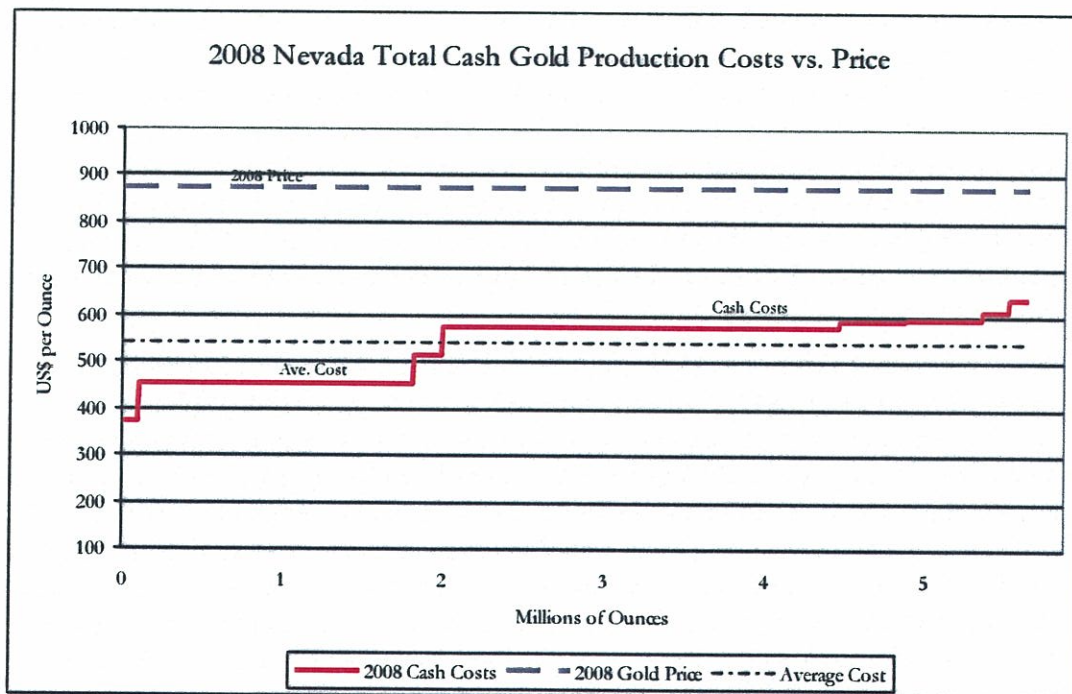
A consequence of low gold and silver prices during the late 1990's and early 2000's was that operators made concerted efforts to reduce their production costs. As prices have risen over the last five years operators have been able to expand their reserves and process lower grade materials. In many cases 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. With the exception of energy prices, these cost increases have recently moderated somewhat. 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.

In the case of equipment and supplies, operators have been plagued with shortages and delays from suppliers in recent years. As a result of the economic slowdown in late 2008 and 2009, these problems 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.

The graph below has been constructed to show 2008 total cash costs for each Nevada gold producer that reports them in public disclosures, primarily their annual corporate reports. The graph also shows the 2008 annual average price of gold of \$872 per ounce and the weighted average operating costs for Nevada operations at \$525 per ounce.

To construct this graph mines are ordered, from left to right, from the lowest to the highest cost producers. The cost of production is measured on the vertical axis. The length of each horizontal segment of the “curve” represents the output of



one mine or group of mines operated as a unit, and the height of the segment represents its cash costs. Also shown on the graph is a dashed horizontal line at \$525 to show the relationship between production costs and the 2008 average gold price.

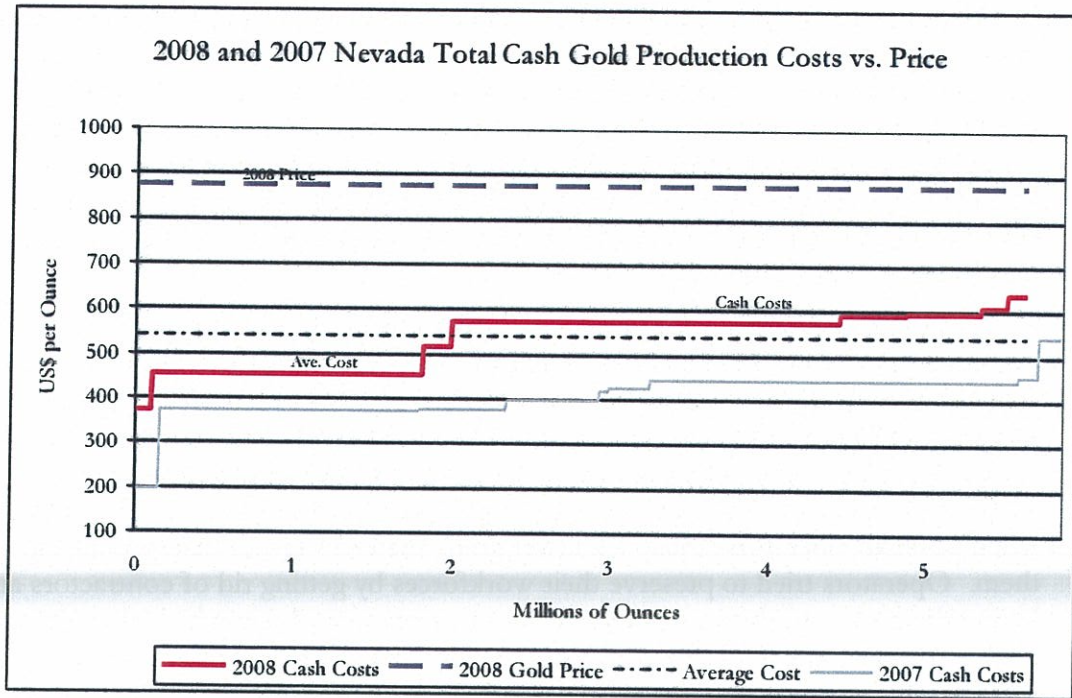
The area between the cost “curve” and the price line roughly approximates the mine’s cash flow from operations. Total cash production costs for existing mining operations reported do not include non-cash items such as depreciation. Also excluded are exploration and development costs that are not in the area of operations because these costs are not attributable to current production or sustaining production at the site. In the current high price environment, these costs may be quite substantial, and are in many cases.

So, for example, the total cash cost curve shows that the state’s lowest cost mine produced approximately 100,000 ounces of gold at a total cash cost around \$373 per ounce. The mine with the second lowest production costs was a much larger mine with total cash costs of \$452 per ounce.

One of the long horizontal segments of the curve representing over two and one half million ounces of production is **Newmont’s operations on the Carlin Trend** northeast of Carlin and Valmy Trend near Battle Mountain. This production comes from numerous points of extraction, or mines, but because they are operated as a unit, using common processing facilities by trucking ore between sites, they all have the same average costs.

Among other things, the cost curves indicate that all of the state’s mining operations showed an operating cash flow in 2007. That is, the entire total cash cost curve is below the horizontal line representing the average 2008 price of \$872 per ounce. Emphasis is placed on operating cash flow because production costs do not include costs such as corporate overhead items, off – site exploration necessary to sustain operations in the future, development expenditures, depreciation and other items. A positive cash flow does not mean that the operation is profitable by an accounting or economic definition, but at current prices almost all operations are profitable by either definition. This is an improvement over the years in the earlier part of the current decade.

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 was \$525 in 2008, up 28 percent from \$408 per ounce in 2007. This increase was considerably larger than the 11 percent increase in 2007. A major factor in cost increases in 2008 has been energy costs, both for electricity and diesel fuel in the first half of the year. Easing energy prices in the second half of the year as well as a variety of cost containment measures have limited what might have been a much larger increase in production costs.

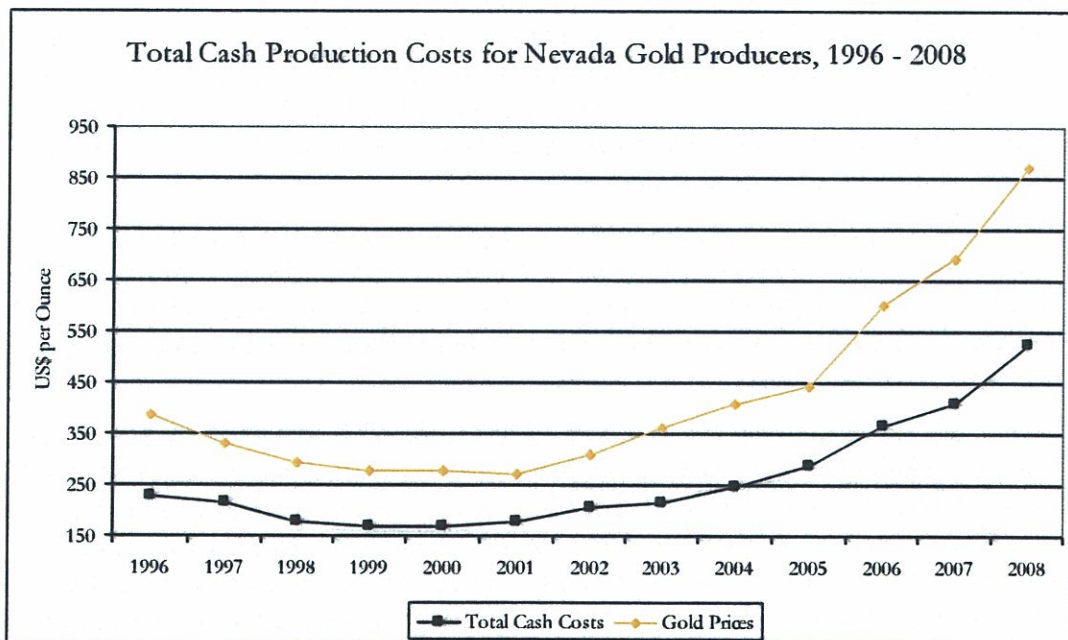
As an indication of longer term changes in operating costs in the industry, since 2001 the weighted average total cash costs increased 188 percent from \$182 to \$525 per ounce. However, over the same period the average price increased by 322 percent, so on average at least, the industry is in far better shape from an operations standpoint than in 2001.

The 2006 *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. These increases have abated somewhat and may calm even more if the U.S. economy continues its slow growth and as global growth in Asia slows, but for now, these increases appear to be permanently imbedded into the industry cost structure. This clearly makes the industry more vulnerable to price declines but as long as the price holds, the outlook is good.

Another notable feature of the 2007 and 2008 comparison graph is the length of each respective cost curve. The 2007 curve shows the cost of producing just over

6 million ounces of gold. In 2008 gold production was just under 6 million ounces so the curve is shorter. This decline in production has been the result of several factors, the most important of which has been processing lower grade ores. At higher gold prices, operators can process lower grade materials at a profit so they have taken materials that may have been classified as “waste”, or uneconomic to process in previous years and processed it. In doing this, output falls and costs rise. On the other hand, this practice extends the life of orebodies and enhances the sustainability of mineral development.

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.

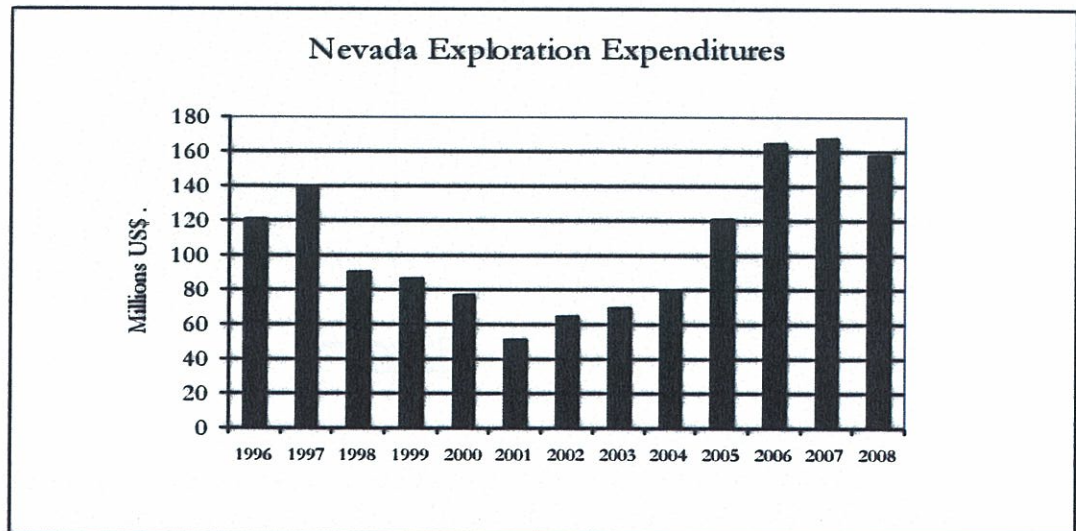


The practice of adjusting grade and other cost factors for price changes is clearly apparent from the graph above. From 1996 to 2001, the price of gold fell from the high \$300 range to around \$270. In response operators cut back on non-essential spending and raised the grade of the materials processed. At the same time, although it is not shown on this graph (see production chart on page 3), production increased. When prices began to turn up in 2002, so did costs and, as lower grade ores were processed, production went down. The important thing, however, is that operators have been able to roughly maintain the same cash flow margin during periods of low and high prices. In the past few years, prices have risen faster than producers have been able to adjust and the margin has widened somewhat, but the pattern still holds.

EXPLORATION ACTIVITIES IN 2008

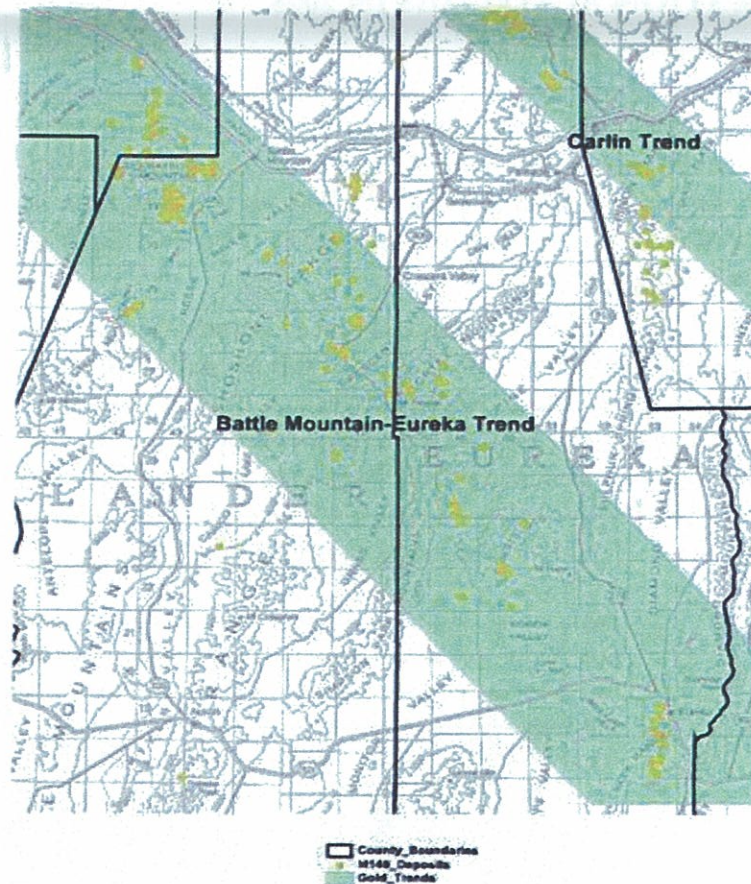
In 2002 exploration activity in Nevada reversed a 5-year downward trend and increased from \$51.2 million spent on exploration in 2001 to \$64.6 million. 2007 marked the sixth year of this upward trend with expenditures estimated by the Nevada Division of Minerals at \$167.9 million, up modestly over 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 Division of Minerals 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.



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.

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.



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, about the same as at the end of every year for the past decade in spite of producing over 70 million ounces in the period. 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.

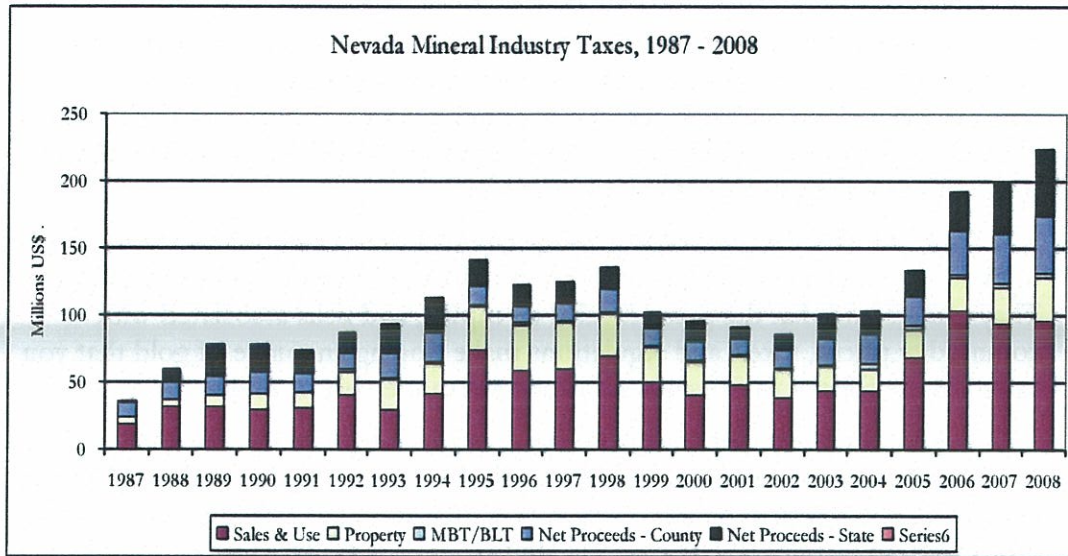
Another important consideration is financial regulation. In order to claim that a company has a “reserve” it needs to conduct extensive studies and to go through a permitting process that includes exploration, development, mining, and reclamation. Most informed persons will acknowledge that there is far more than 70 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 2008

Estimated total state and local taxes paid by the mining industry in 2008 increased over 12 percent over 2007 based on information from the Nevada Department of Taxation and industry surveys. 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 Department of Taxation.

The 12 percent increase in overall estimated taxes in 2008 follows a substantial increase over the previous years, and represents the highest estimate ever. Total

estimated taxes in 2008 were almost \$224 million. Revenues in 2007 were \$199.5 million, up from \$194.2 million in 2006. This was the largest single year percentage increase seen since the late 1980's. 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.



Much of the increase in taxes paid in 2008 was the result of very strong Net Proceeds of Minerals taxes because of the increase in the price of gold. Sales and use tax payments in 2008 which, again, are an estimate, were relatively flat. In 2008, sales and use taxes were up slightly, but this was more than made up for by 21 percent surge in Net Proceeds of Minerals taxes, an increase of approximately \$16 million. Other taxes increased as well, although less dramatically. Property taxes were up slightly, as new equipment was purchased and new construction was added to the property tax rolls.

As the graph above illustrates, 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.

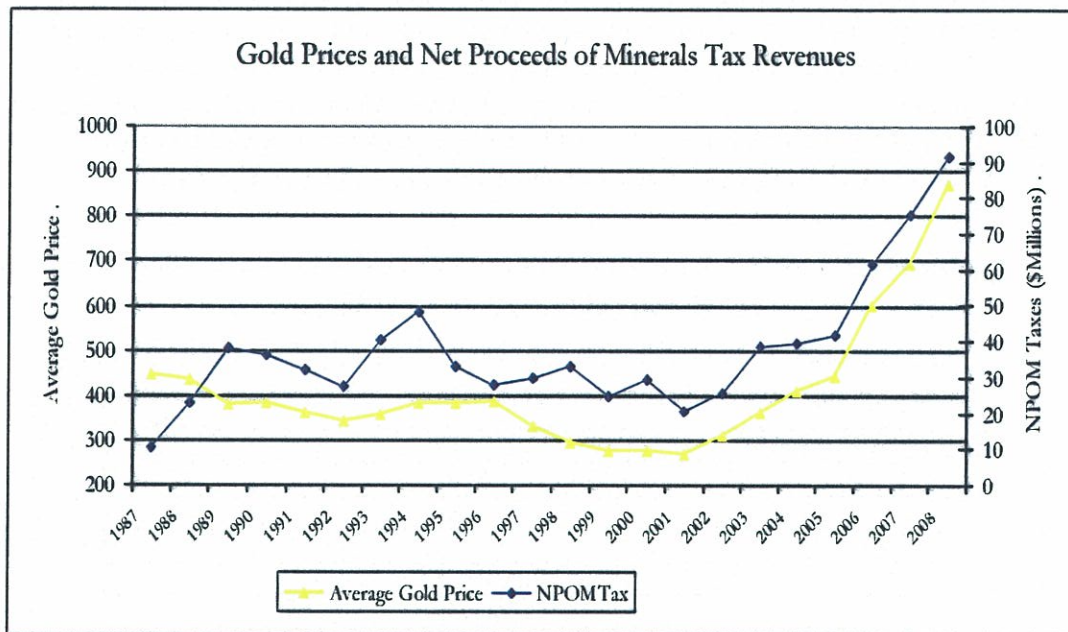
A key point about taxes paid by the mining industry that is often overlooked is the issue of where these revenues go. The general assumption is that they support the communities where the mining occurs. This is, in fact, the way the tax was originally designed but when the state constitution was amended 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 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 majority of these funds go to Clark County with just under 72 percent of the state's population.

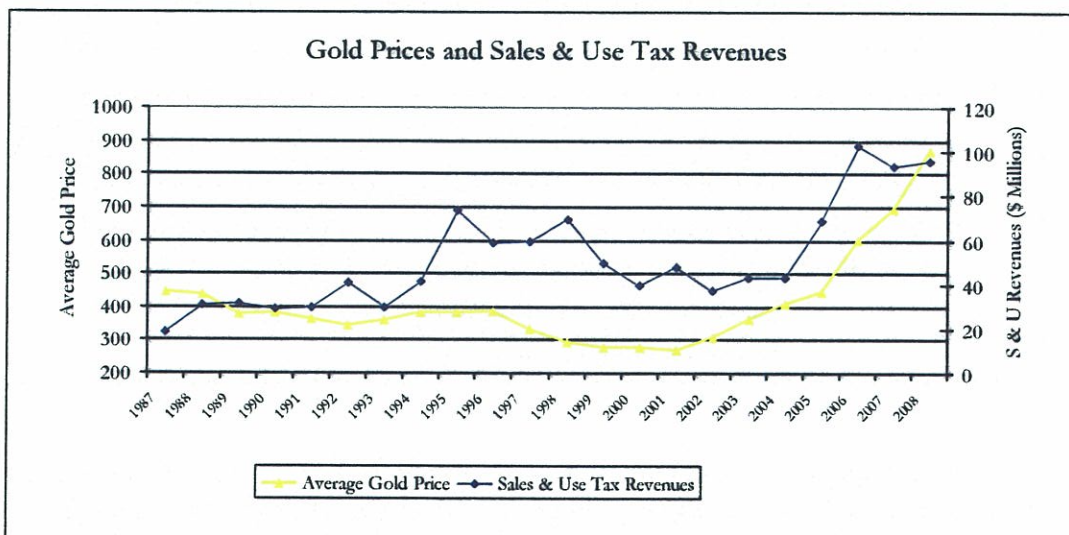
Another important point to make about taxes paid by the minerals industry is that each of these major taxes paid by the industry responds to the price and industry growth cycle in slightly different ways. In 2008 Net Proceeds of Minerals Tax revenues continued their rapid growth, but sales and use tax revenues were relatively flat as in 2007 after strong growth in 2006.



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

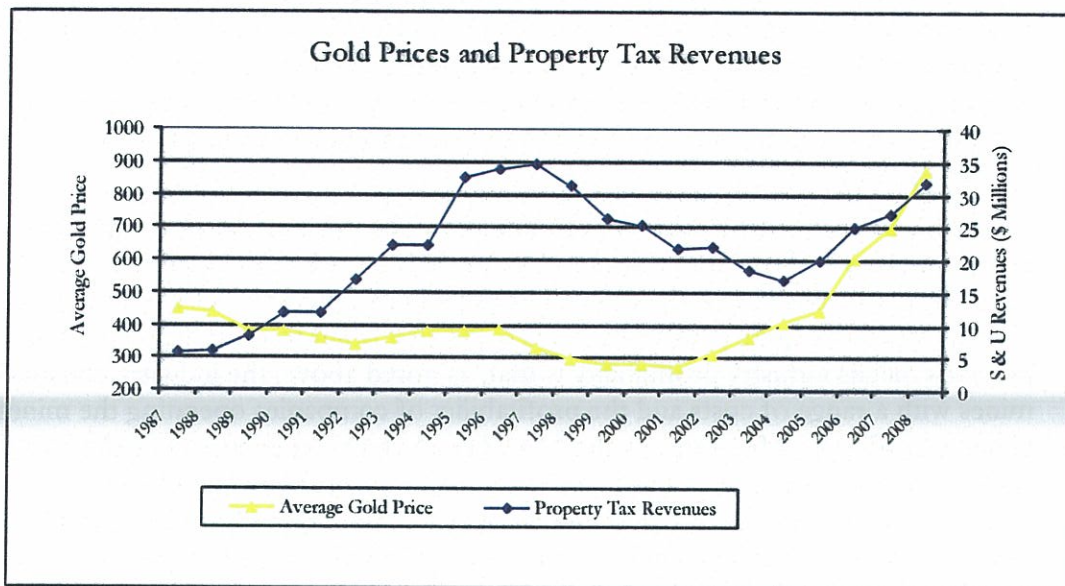
Proceeds. In 2004 and 2005, although gold prices increased over 2003 levels, Net Proceeds taxes increased very little because of the significant increases in production costs noted above. In the past three years Net Proceeds taxes increased substantially because prices have increased fairly rapidly, 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.



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.

PRECIOUS METALS INDUSTRY PROFITABILITY

Another 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.

One reason that the misconception about the profitability of the precious metals industry is difficult to dispel is that, indeed, most Nevada gold mines are currently profitable and, as the discussion of production costs above indicates, some Nevada mines are quite profitable. Hence, the first point to be made with respect to precious metals industry profitability is that, as noted above, the industry consists of mines with a range of costs and the profitability of companies operating the mines **varies accordingly.** Moreover, as the Nevada industry’s experience over the past few years indicates, profitability is influenced by highly cyclical factors. However, 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 are primarily related 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.** In recent years shortages of equipment and labor have also restricted industry growth and profitability.

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.

In reference to the production cost curves shown in a previous section it was noted that the area below the price line and above the cost “curve” represented *operating profits*, or cash flow. What those graphs do not show is the increase in *non-operating* costs such as exploration and development expenditures that are not in area of current operations. These *non-operating* costs are not generally reported by corporations in their annual reports for a variety of reasons including the difficulty of allocating these costs to particular mines.

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 16.

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 2008 of 6.5 percent, up slightly from 5.3 percent in 2007. The graph below

provides a comparison of ROE in selected industries from the Value Line Survey for 2008.

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.

2008 was an unusual year for the industry and the entire world economy for a number of reasons. The first half of the year saw strong economic performance in raw materials – oil, diversified metals (copper, iron, aluminum, molybdenum, etc.) and other goods and services. The second half of the year marked the beginning of the current recession and a sharp decline in commodity prices, and the demand for manufactured goods, housing, services, and saw the bailouts of financial and insurance firms. So, when looking at the Value Line graph below it is important to keep in mind that the industries showing high returns primarily earned those returns in the first half of the year. The exception would be Tobacco/cigarette producers which are likely to earn high returns in any market based on experience.

