



NEVADA
Mining Association

2018

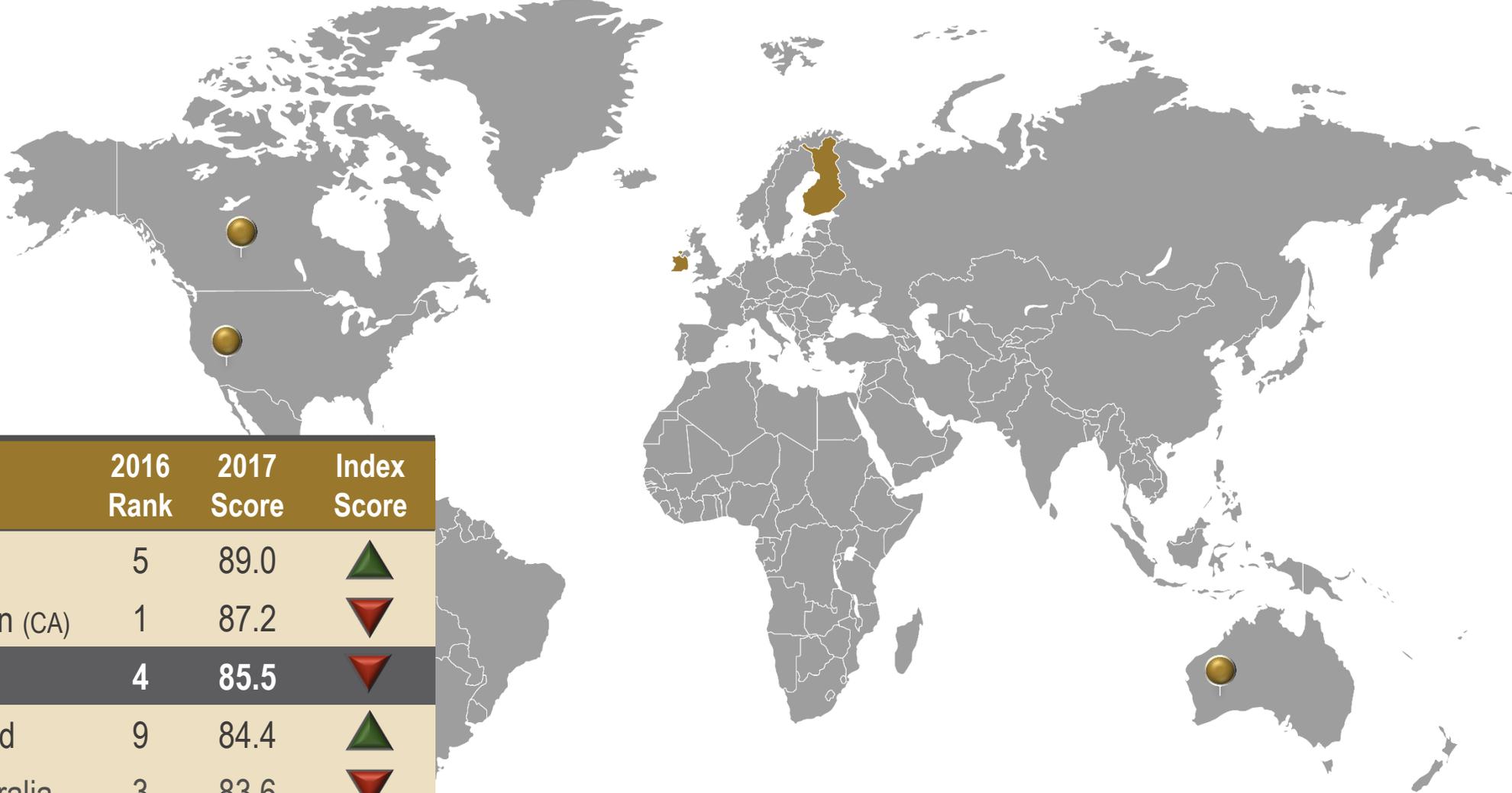
**MINING INDUSTRY
ISSUES AND OPPORTUNITIES**



WHAT IS THE OUTLOOK FOR THE MINING INDUSTRY INTERNATIONALLY?



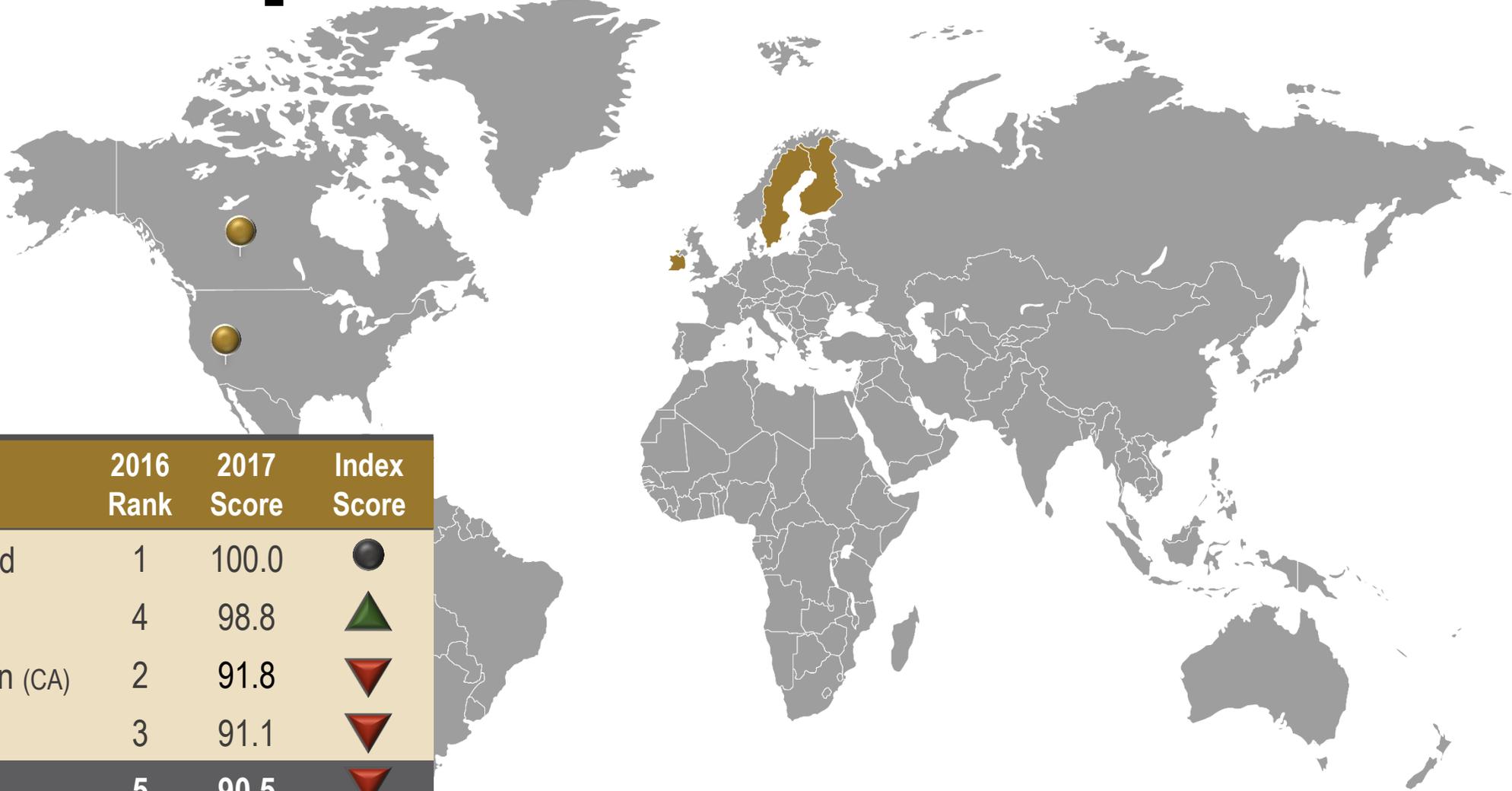
Investment Attractiveness Index



2017 Rank	Location	2016 Rank	2017 Score	Index Score
1	Finland	5	89.0	▲
2	Saskatchewan (CA)	1	87.2	▼
3	NEVADA (US)	4	85.5	▼
4	Rep. of Ireland	9	84.4	▲
5	Western Australia	3	83.6	▼

Source: Fraser Institute Survey of Mining Companies (2017) and Applied Analysis

Policy Perception Index



2017 Rank	Location	2016 Rank	2017 Score	Index Score
1	Rep. of Ireland	1	100.0	●
2	Finland	4	98.8	▲
3	Saskatchewan (CA)	2	91.8	▼
4	Sweden	3	91.1	▼
5	NEVADA (US)	5	90.5	▼

Source: Fraser Institute Survey of Mining Companies (2017) and Applied Analysis

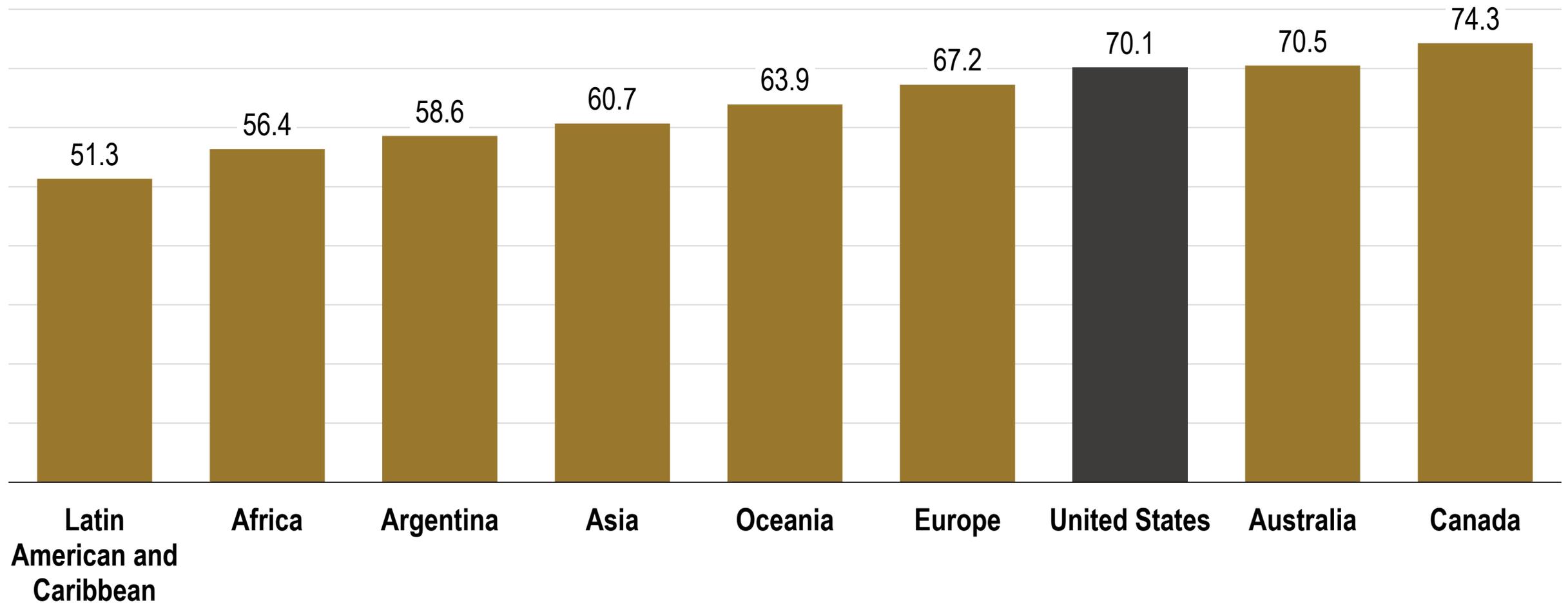
Best Practices Mineral Potential Index



2017 Rank	Location	2016 Rank	2017 Score	Index Score
1	Indonesia	48	84.8	▲
2	Saskatchewan (CA)	3	84.1	▲
3	Queensland (AU)	4	83.7	▲
4	Western Australia	1	83.6	▼
5	Alaska (US)	15	83.3	▲
8	NEVADA (US)	8	82.1	▲

Source: Fraser Institute Survey of Mining Companies (2017) and Applied Analysis

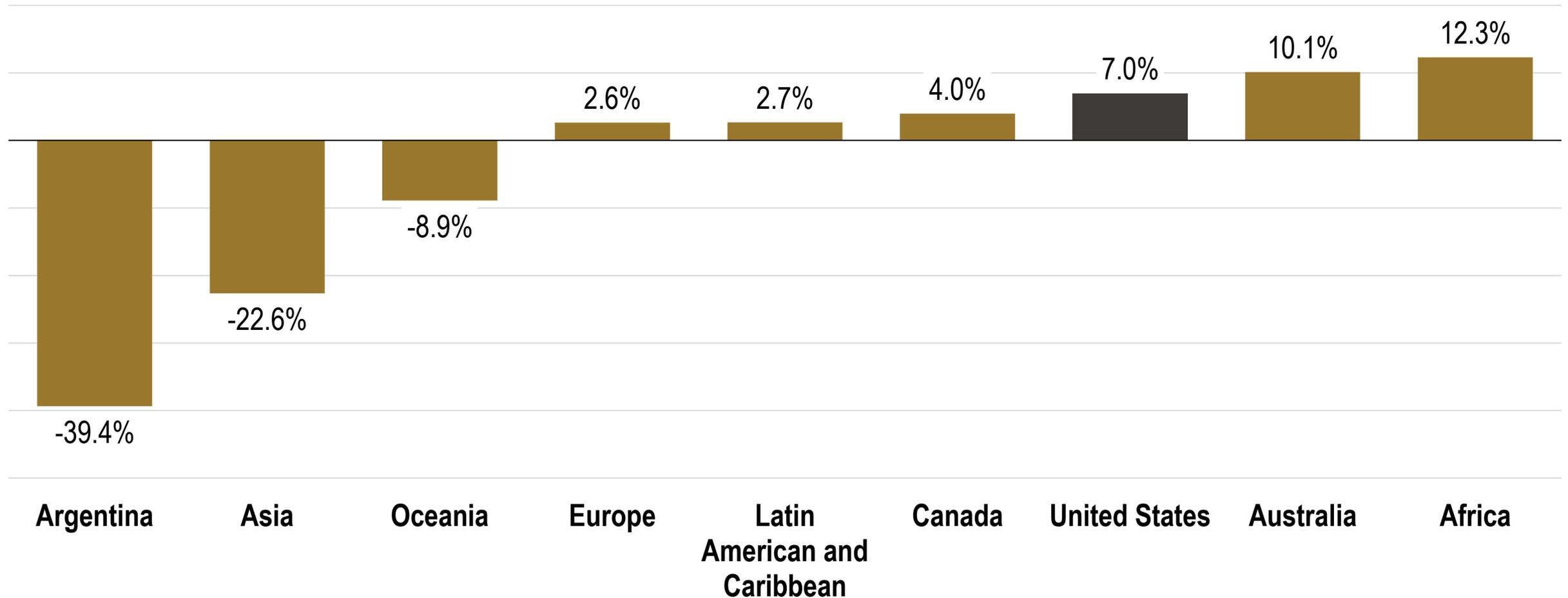
Regional Median Investment Attractiveness



Source: Fraser Institute Survey of Mining Companies (2017) and Applied Analysis



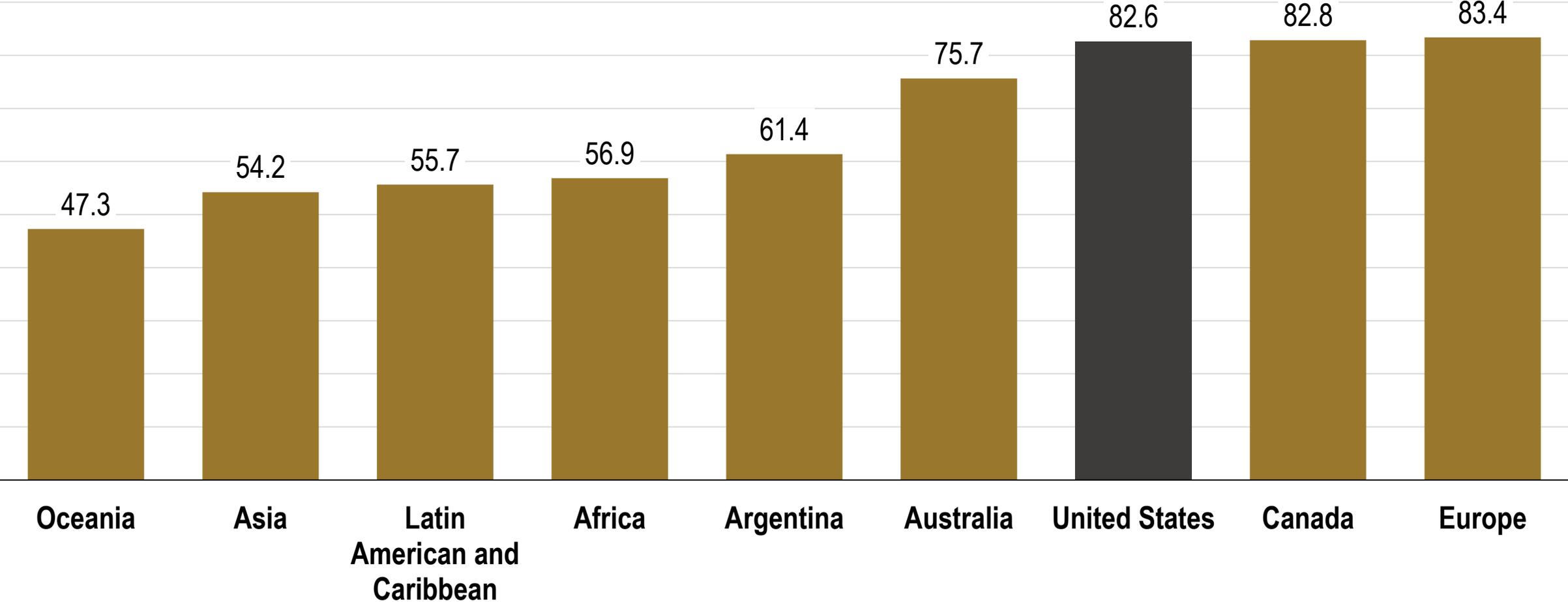
Regional Median Investment Attractiveness Growth



Source: Fraser Institute Survey of Mining Companies (2016 vs. 2017) and Applied Analysis



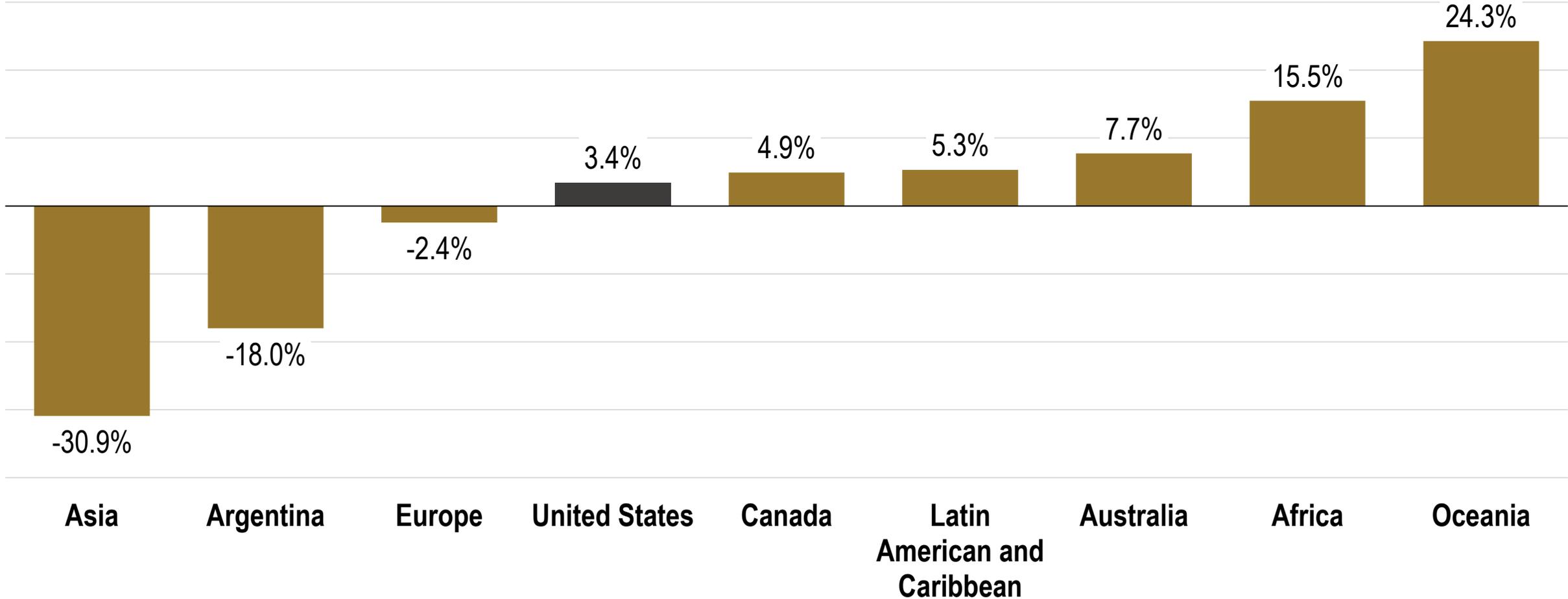
Regional Median Policy Perception Index



Source: Fraser Institute Survey of Mining Companies (2017) and Applied Analysis



Regional Median Policy Perception Index Growth



Source: Fraser Institute Survey of Mining Companies (2016 vs. 2017) and Applied Analysis

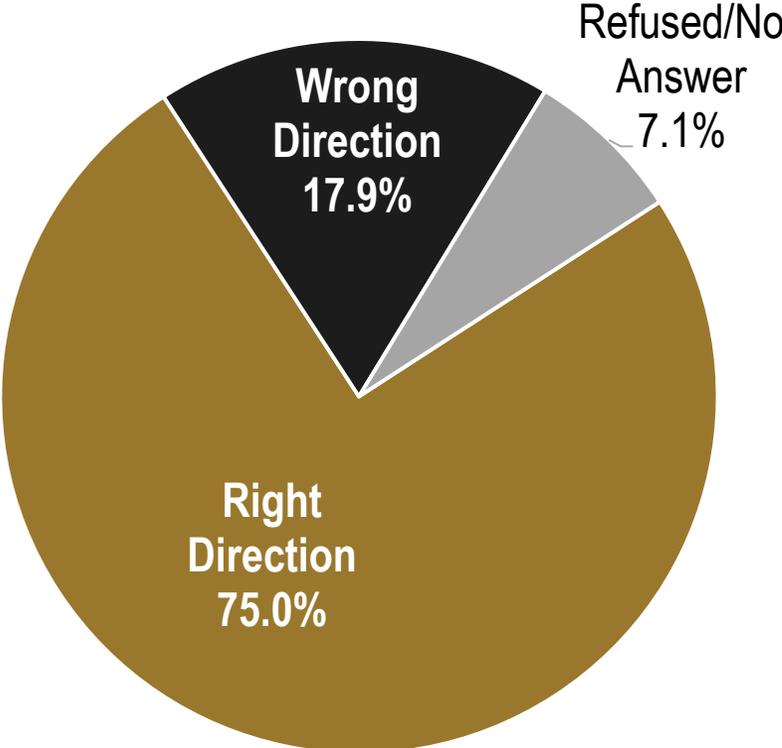
WHAT IS THE OUTLOOK FOR THE MINING INDUSTRY NATIONALLY?



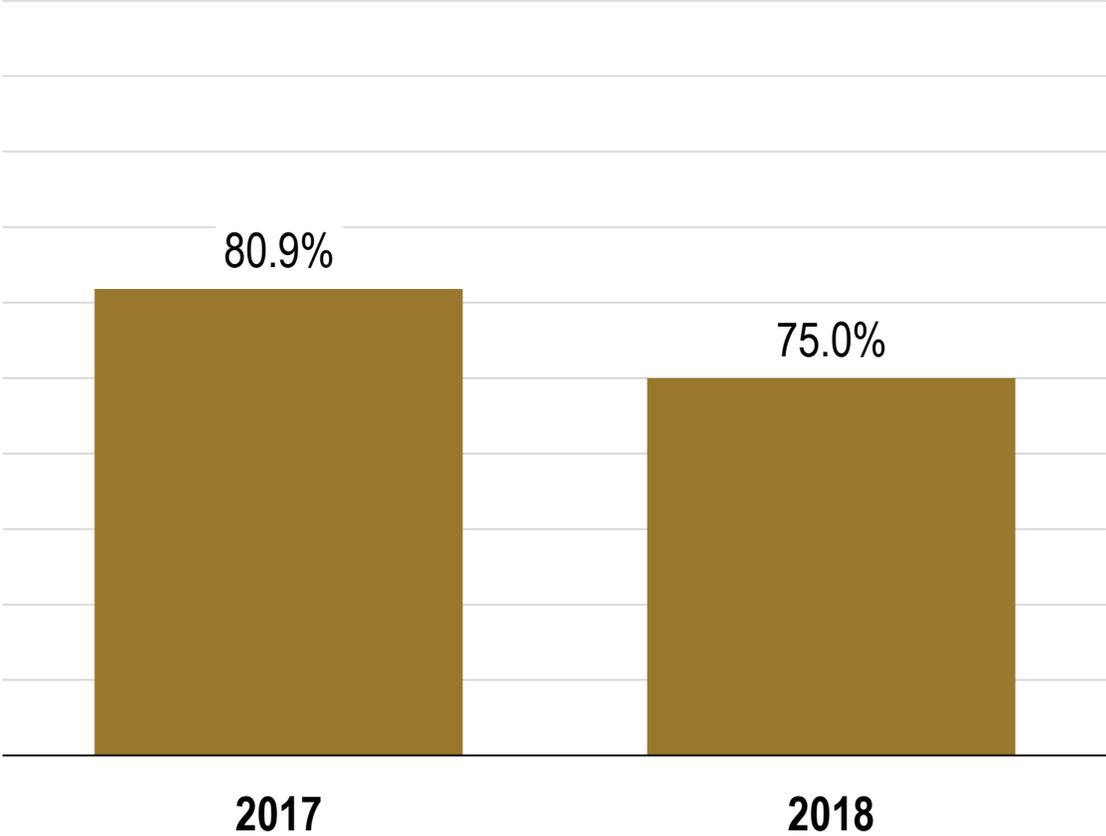
National Economy



2018 Annual Survey



“Right Direction” Prior Year Comparison

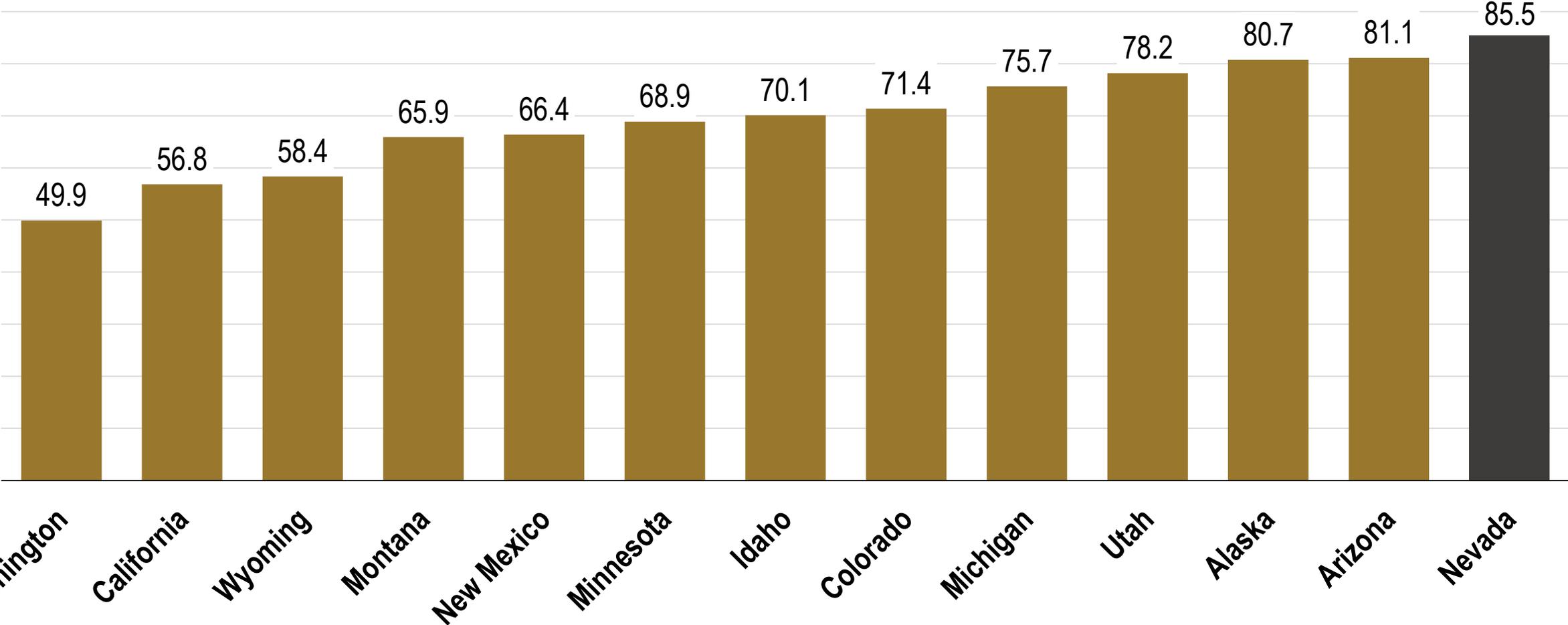


Source: NVMA 2018 Survey

Investment Attractiveness Index

Median: 70.1

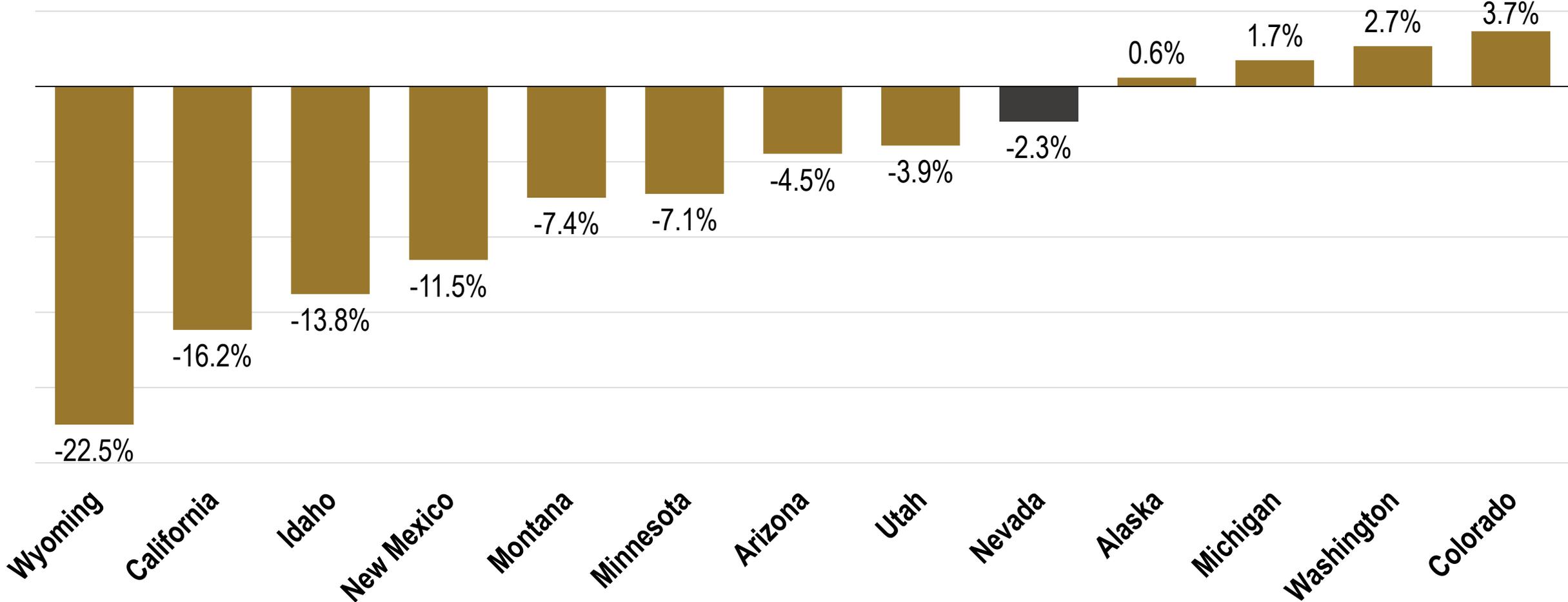
United States



Source: Fraser Institute Survey of Mining Companies (2017) and Applied Analysis

Investment Attractiveness Index Growth

United States

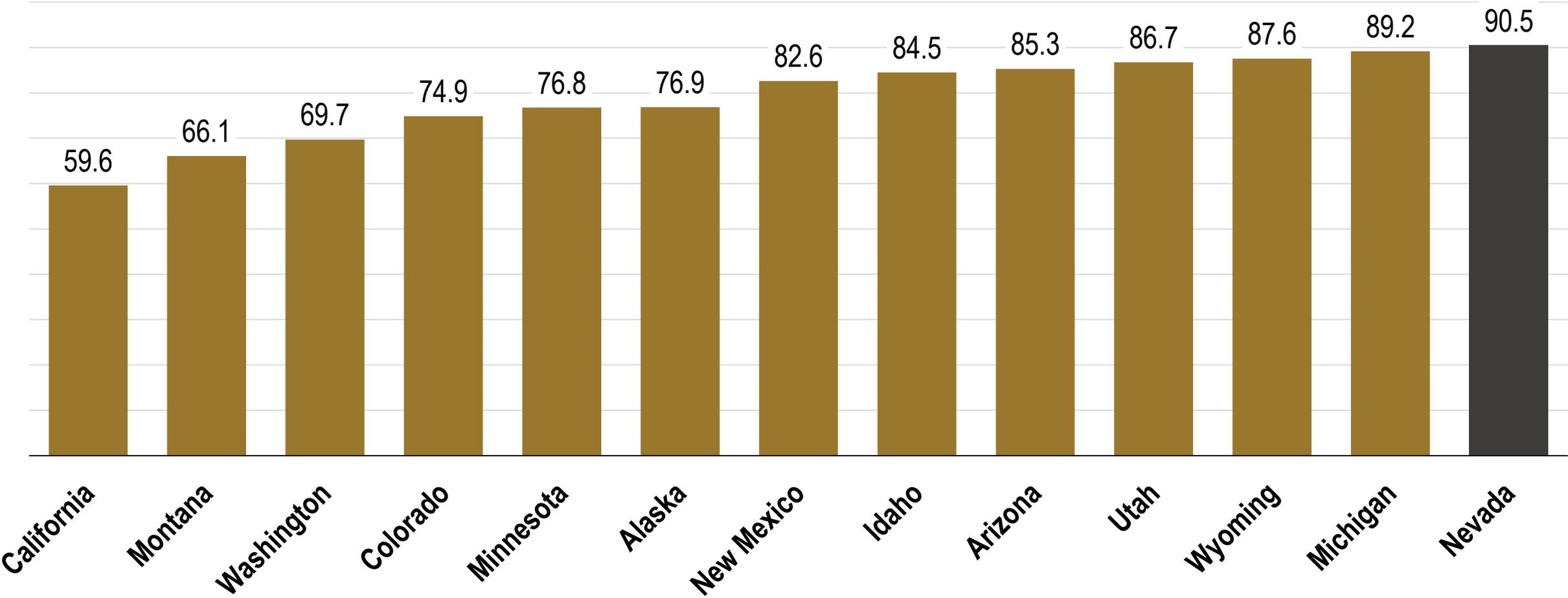


Source: Fraser Institute Survey of Mining Companies (2016 vs 2017) and Applied Analysis

Policy Perception Index

United States

Median: 82.6

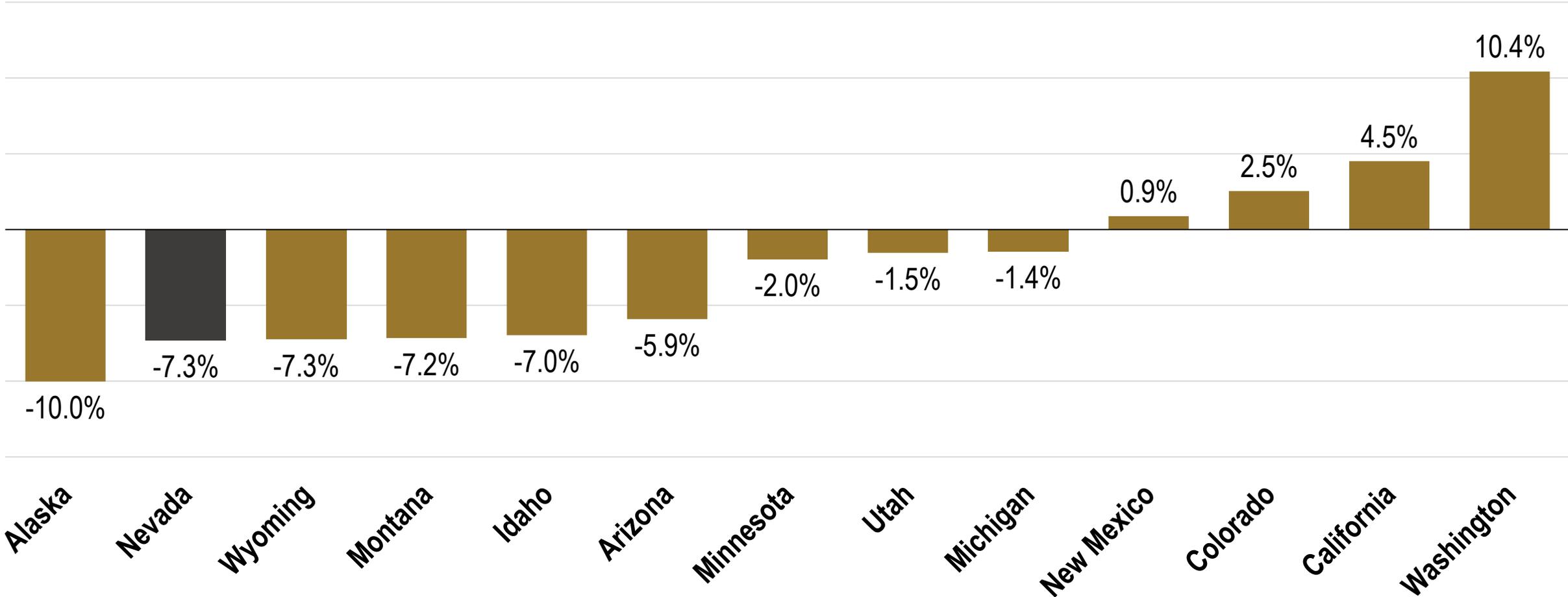


Source: Fraser Institute Survey of Mining Companies (2017) and Applied Analysis



Policy Perception Index Growth

United States

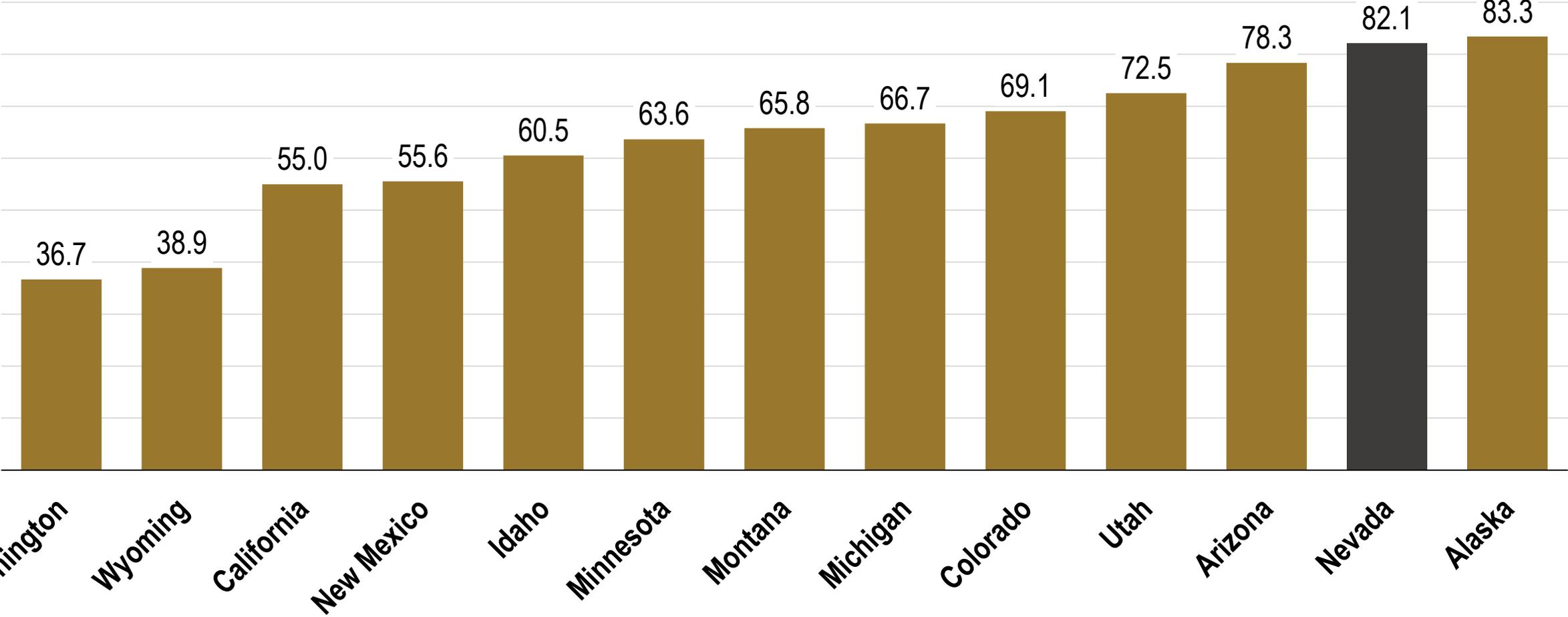


Source: Fraser Institute Survey of Mining Companies (2016 vs 2017) and Applied Analysis

Best Practices Mineral Potential Index

United States

Median: 65.8

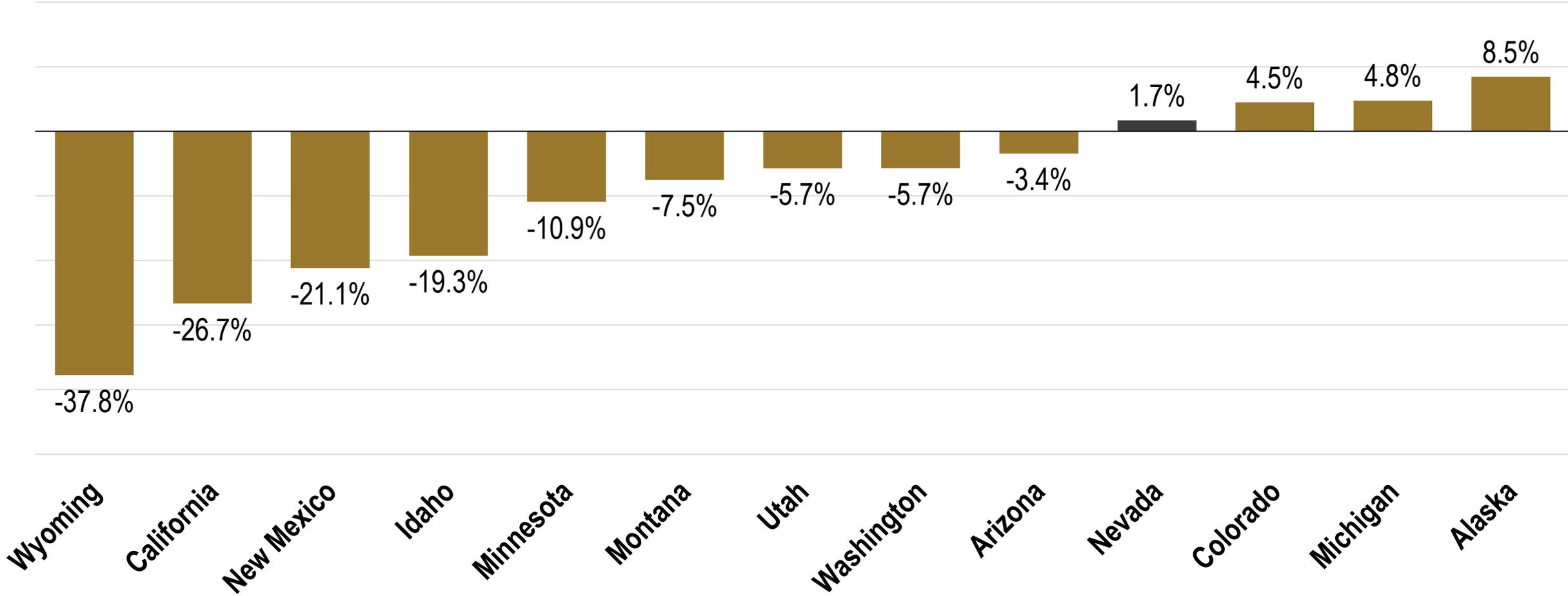


Source: Fraser Institute Survey of Mining Companies (2017) and Applied Analysis



Best Practices Mineral Potential Growth

United States



Source: Fraser Institute Survey of Mining Companies (2016 vs 2017) and Applied Analysis

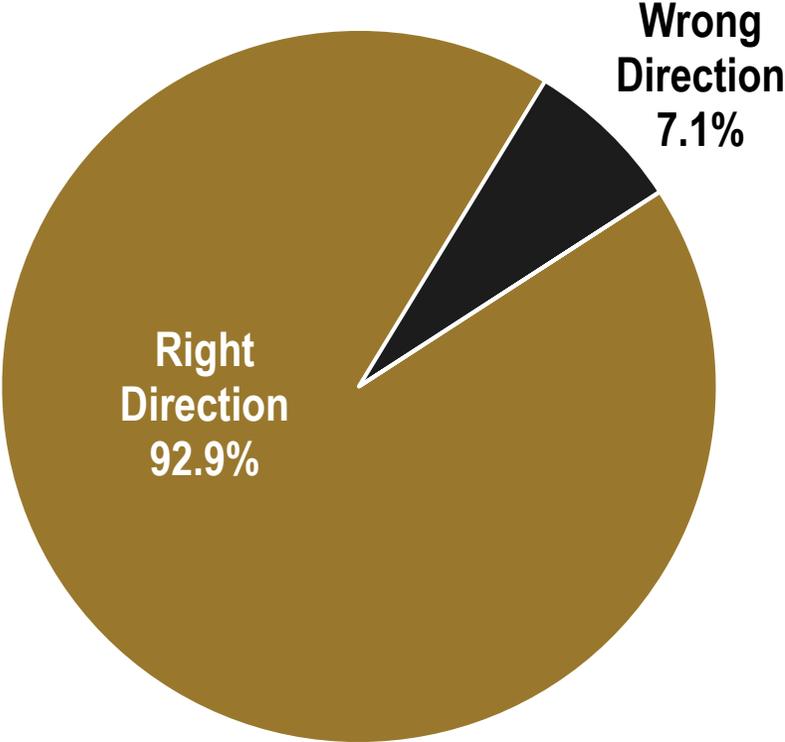


WHAT IS THE OUTLOOK FOR THE MINING INDUSTRY IN NEVADA?

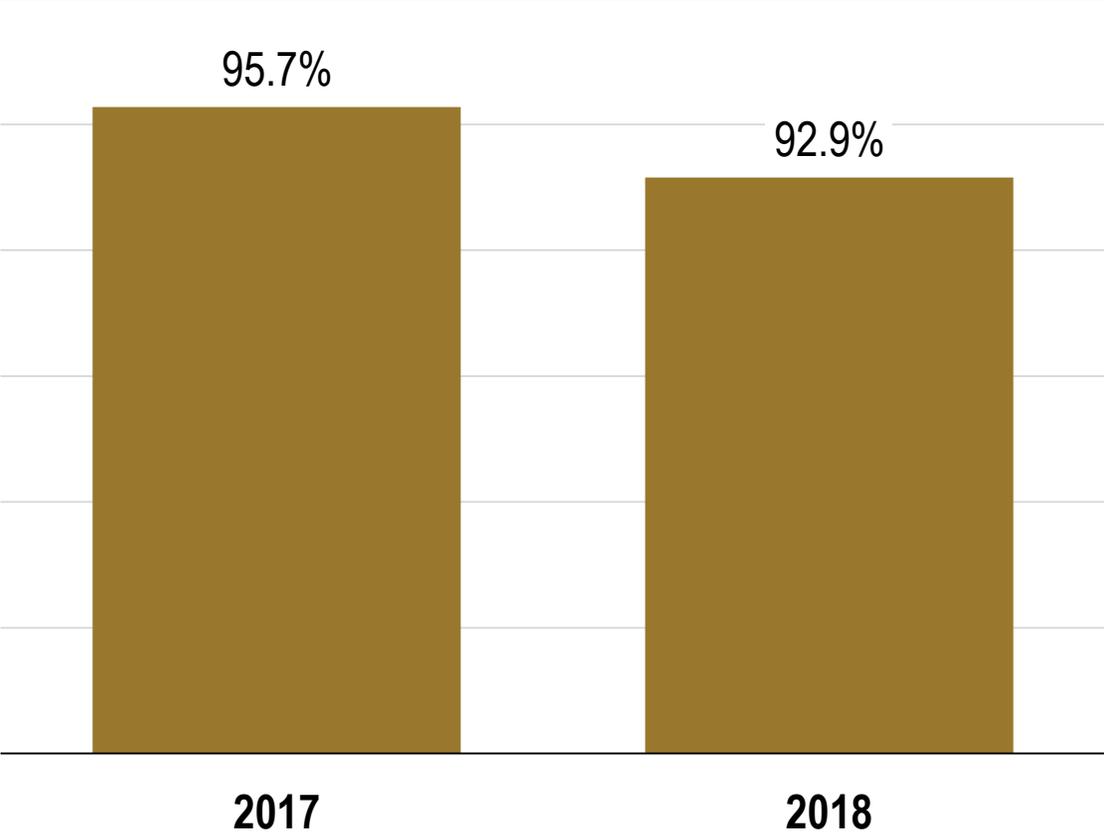
Nevada's Economy



2018 Annual Survey



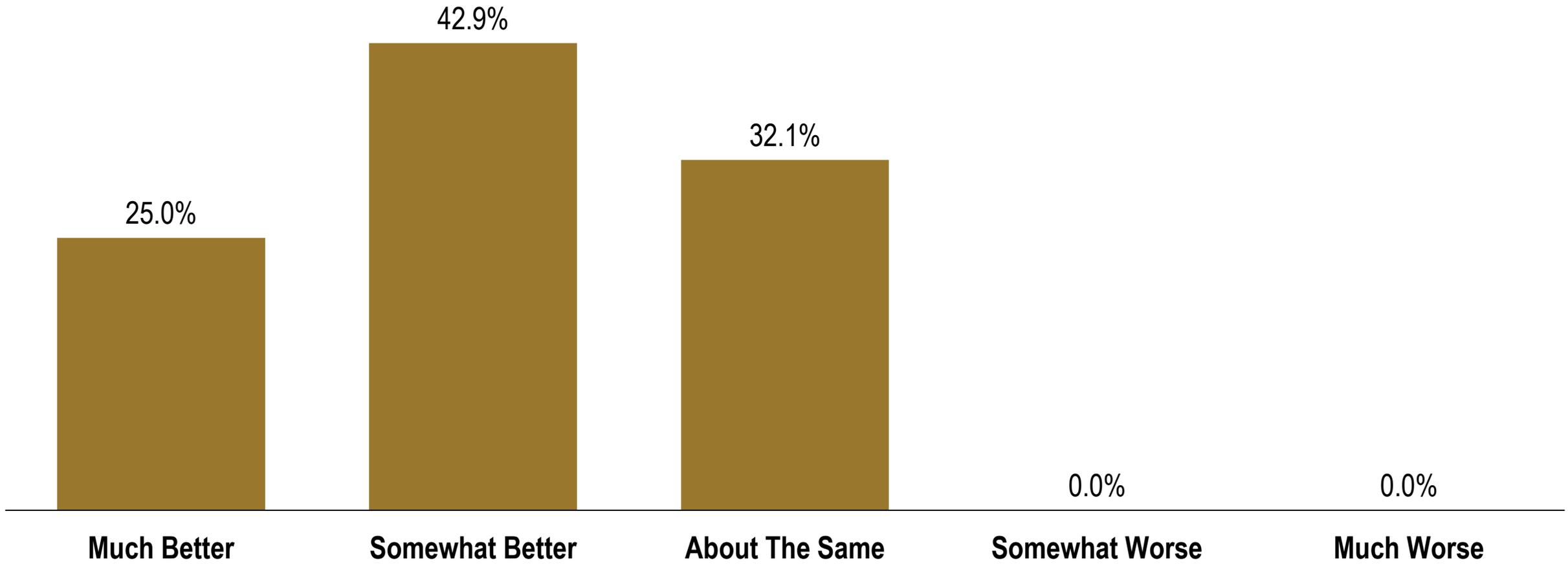
"Right Direction" Prior Year Comparison



Source: NvMA 2018 Survey

Business Environment in Nevada

Past 12 Months



Source: NvMA 2018 Survey

State Business Tax Climate

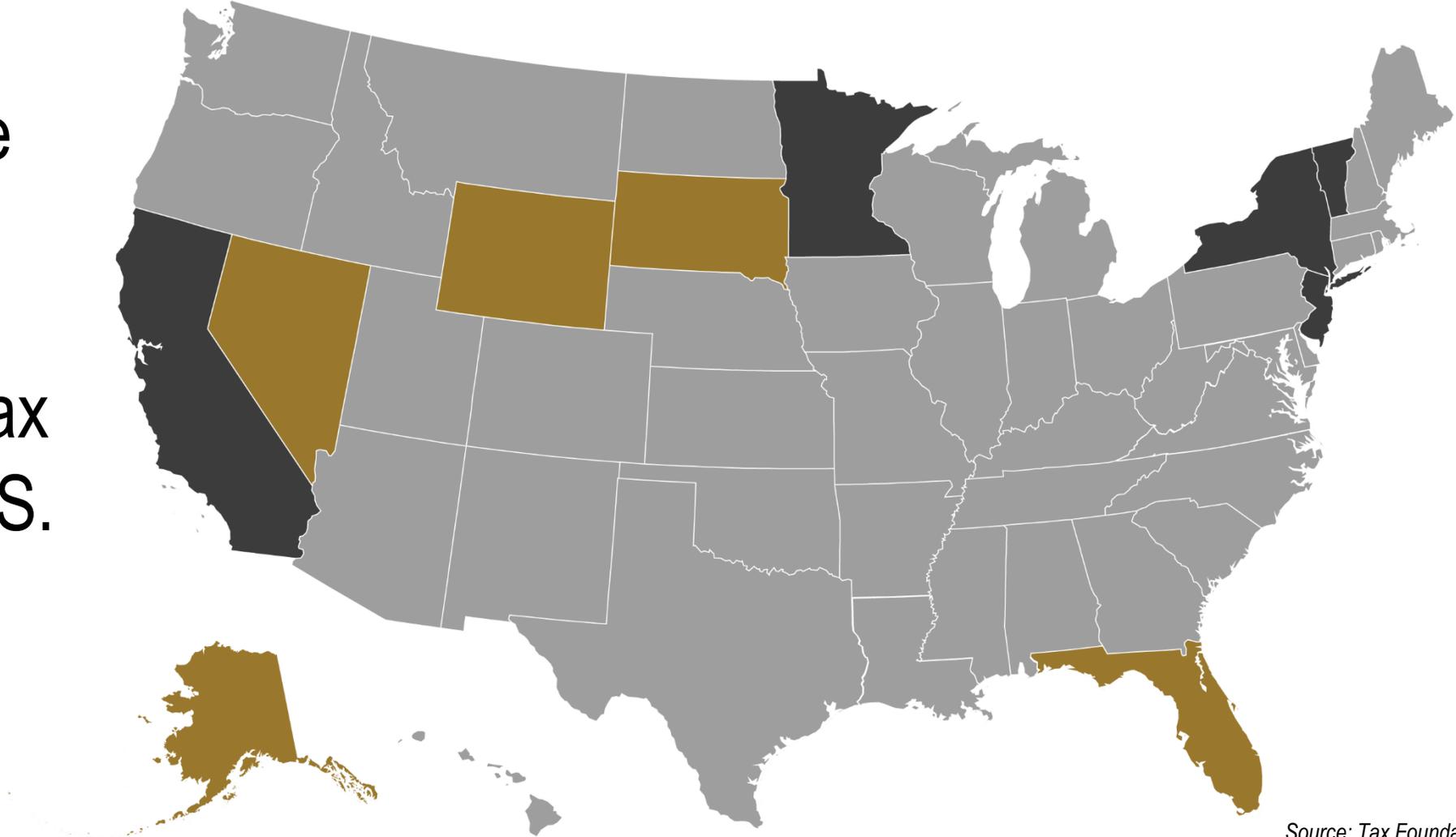
Nevada has the

5th

Best Business Tax Climate in the U.S.

Best Tax Climate

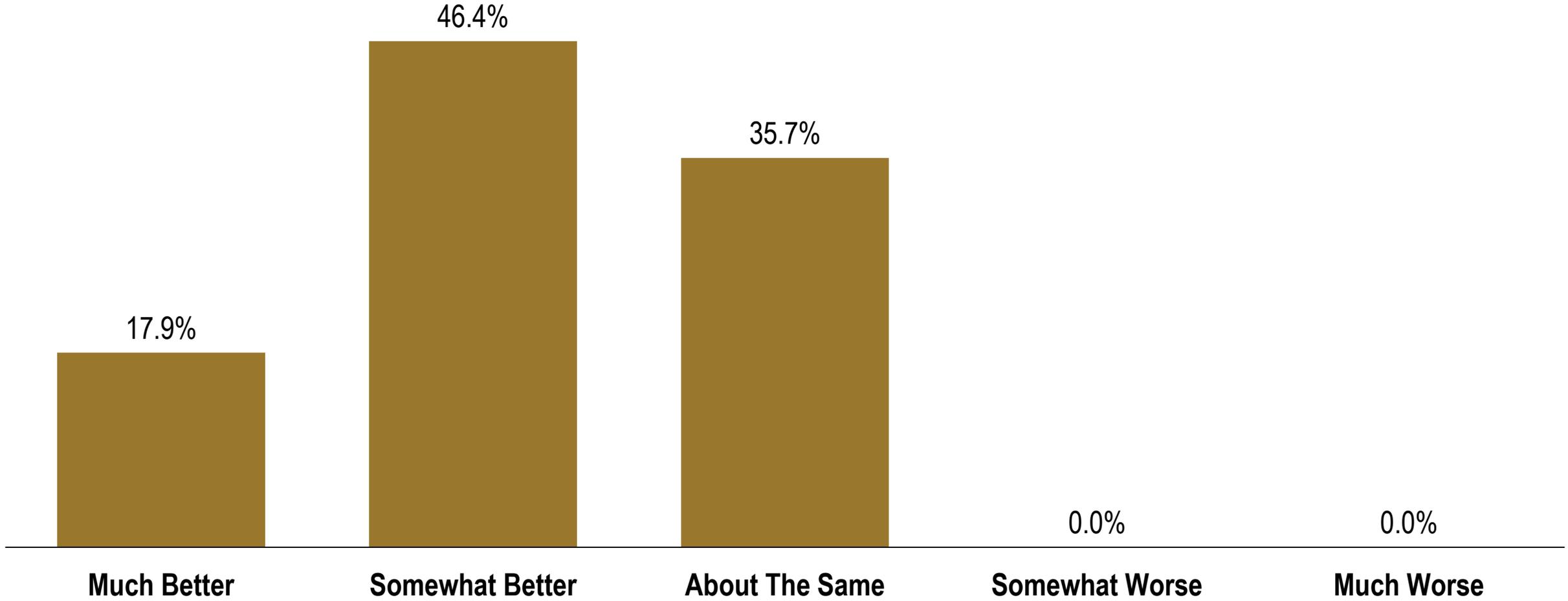
Worst Tax Climate



Source: Tax Foundation

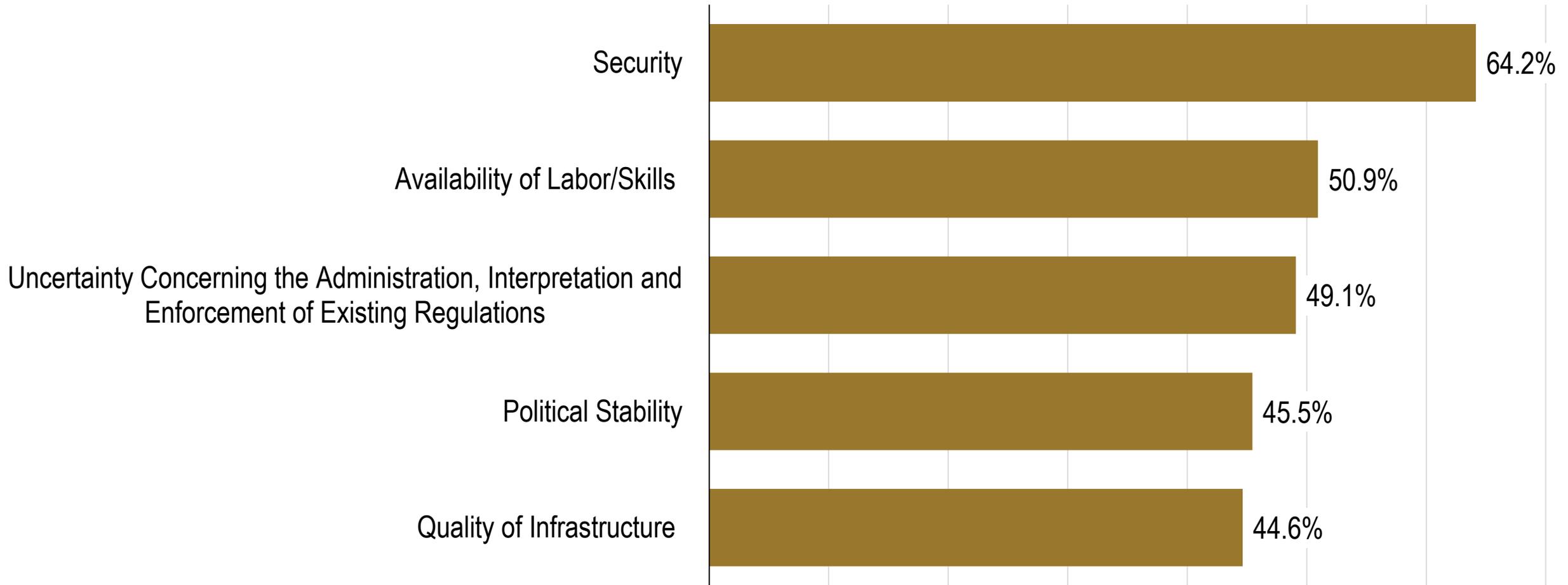
Business Environment in Nevada

Next 12 Months



Source: NVMA 2018 Survey

Areas in Nevada that Mining Companies Encourage the Most Investments



Source: Fraser Institute Survey of Mining Companies (2017) and Applied Analysis



ARE COMMODITY PRICES GOING TO INCREASE?

Commodity Price

Next 12 Months



COMMODITY	INCREASE	STAY ABOUT THE SAME	DECREASE
Copper	70%	25%	5%
Gold	45%	50%	5%
Silver	45%	50%	5%

Source: NVMA 2018 Survey





Price Change Over the Past Year

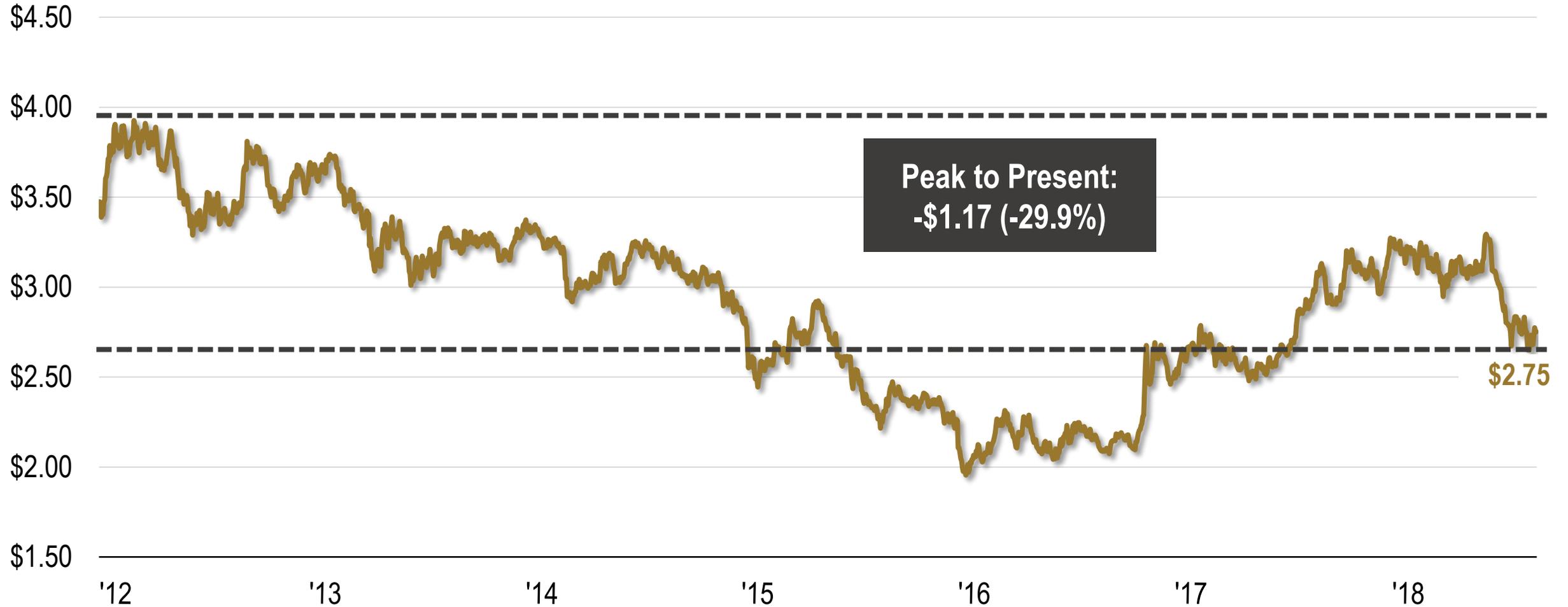
COMMODITY	OVER THE PAST YEAR		PROJECTED IN NEXT 12 MONTHS	
	AUGUST 2018	AUGUST 2017	INCREASE	DECREASE
Copper (per Pound)	\$2.75	▼ \$3.08	70%	5%
Gold (per Troy Oz.)	\$1,197	▼ \$1,312	45%	5%
Silver (per Troy Oz.)	\$14.67	▼ \$17.88	45%	5%

Source: London Metal Exchange; London Bullion Market Association; NvMA 2018 Survey



Price of Copper

USD per Pound



Source: London Metal Exchange



Price of Copper

Next 12 Months



Source: London Metal Exchange; NVMA 2018 Survey



Price of Gold

USD per Troy Ounce



Source: London Bullion Market Association



Price of Gold

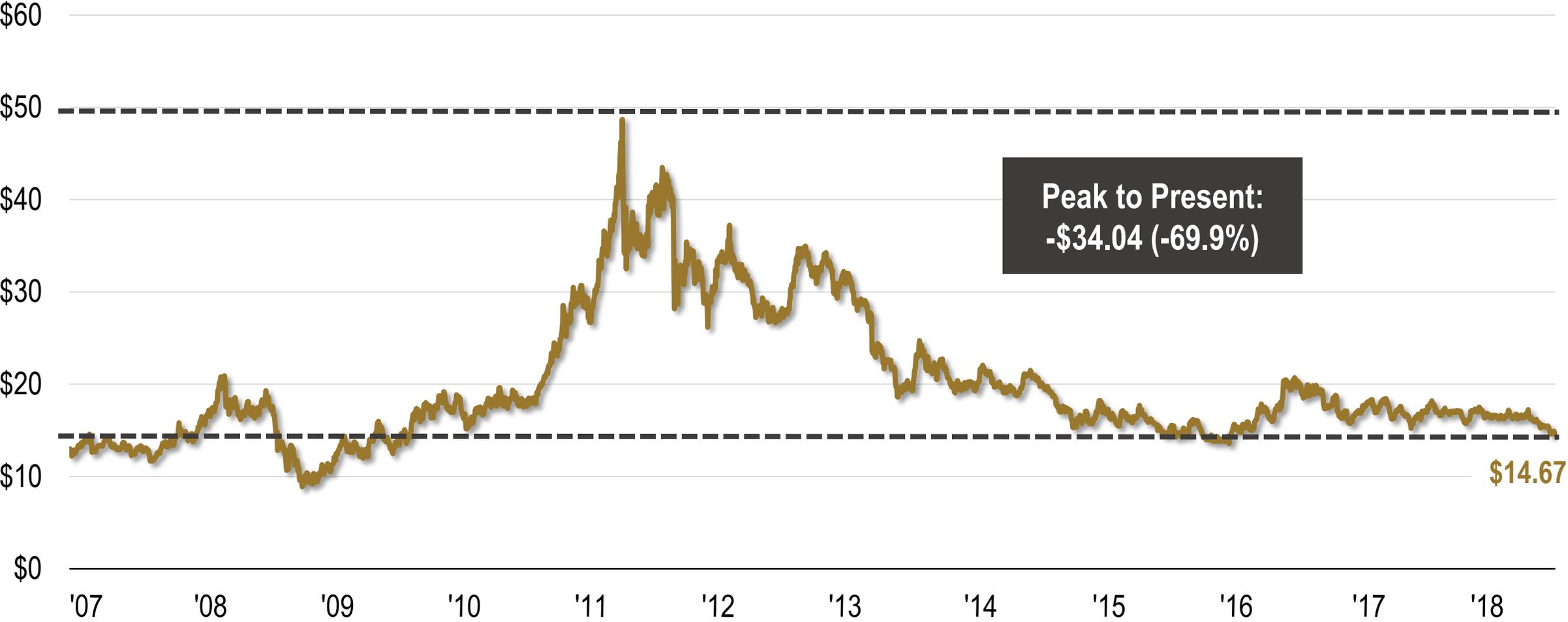
Next 12 Months



Source: London Bullion Market Association; NvMA 2018 Survey

Price of Silver

USD per Troy Ounce



Source: London Bullion Market Association



Price of Silver

Next 12 Months



Source: London Bullion Market Association; NvMA 2018 Survey

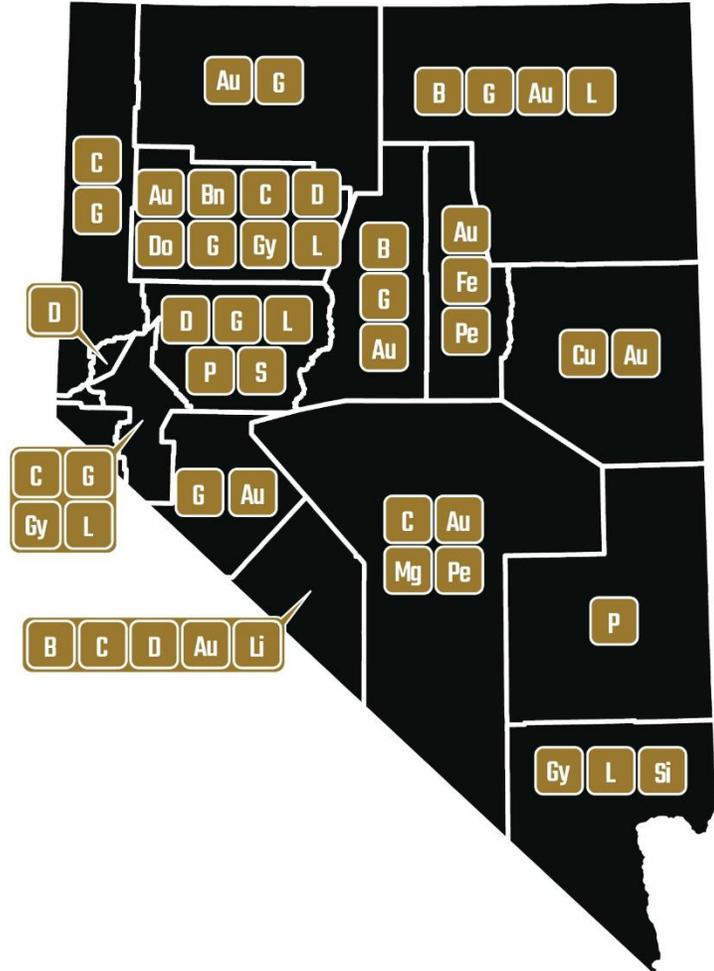


HOW STABLE IS MINING PRODUCTION IN NEVADA?

Nevada Mining Operations

104

**Active Operations
In 2017**



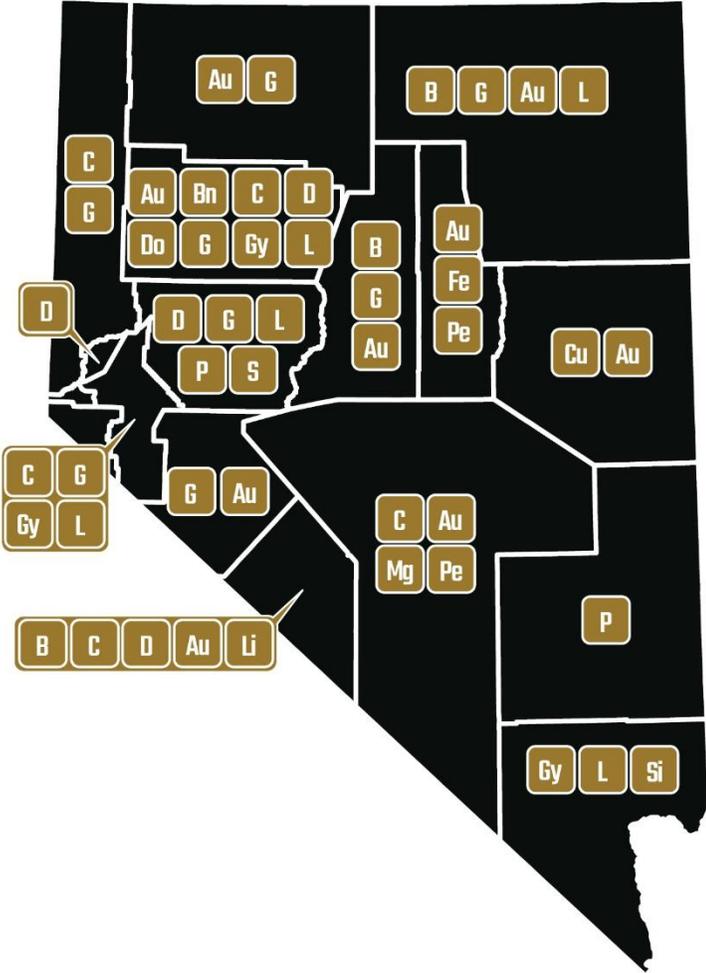
- B Barite
- Li Lithium
- Bn Bentonite
- Mg Magnesium
- c Clay
- Mo Molybdenum
- Cu Copper
- D Opals
- D Diatomite
- P Perlite
- Do Dolomite
- Pe Petroleum
- G Geothermal
- S Salt
- Au Gold
- Si Silica
- Gy Gypsum
- Ag Silver
- Fe Iron Ore
- T Turquoise
- L Limestone

Source: Nevada Department of Taxation

Nevada Mining Operations

\$8.1 B

Gross Proceeds of Minerals in 2017



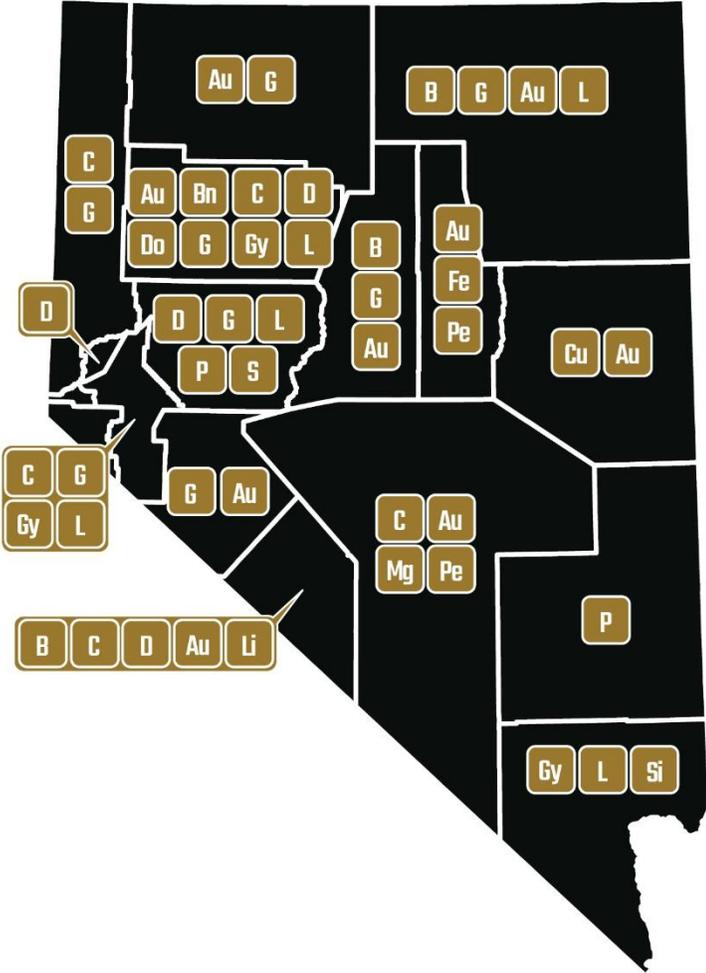
- B** Barite
- Bn** Bentonite
- C** Clay
- Cu** Copper
- D** Diatomite
- Do** Dolomite
- G** Geothermal
- Au** Gold
- Gy** Gypsum
- Fe** Iron Ore
- L** Limestone
- Li** Lithium
- Mg** Magnesium
- Mo** Molybdenum
- O** Opals
- P** Perlite
- Pe** Petroleum
- S** Salt
- Si** Silica
- Ag** Silver
- T** Turquoise

Source: Nevada Department of Taxation

Nevada Mining Operations

+9.1%

**Annual Gross Proceeds
Growth From 2016 to 2017**



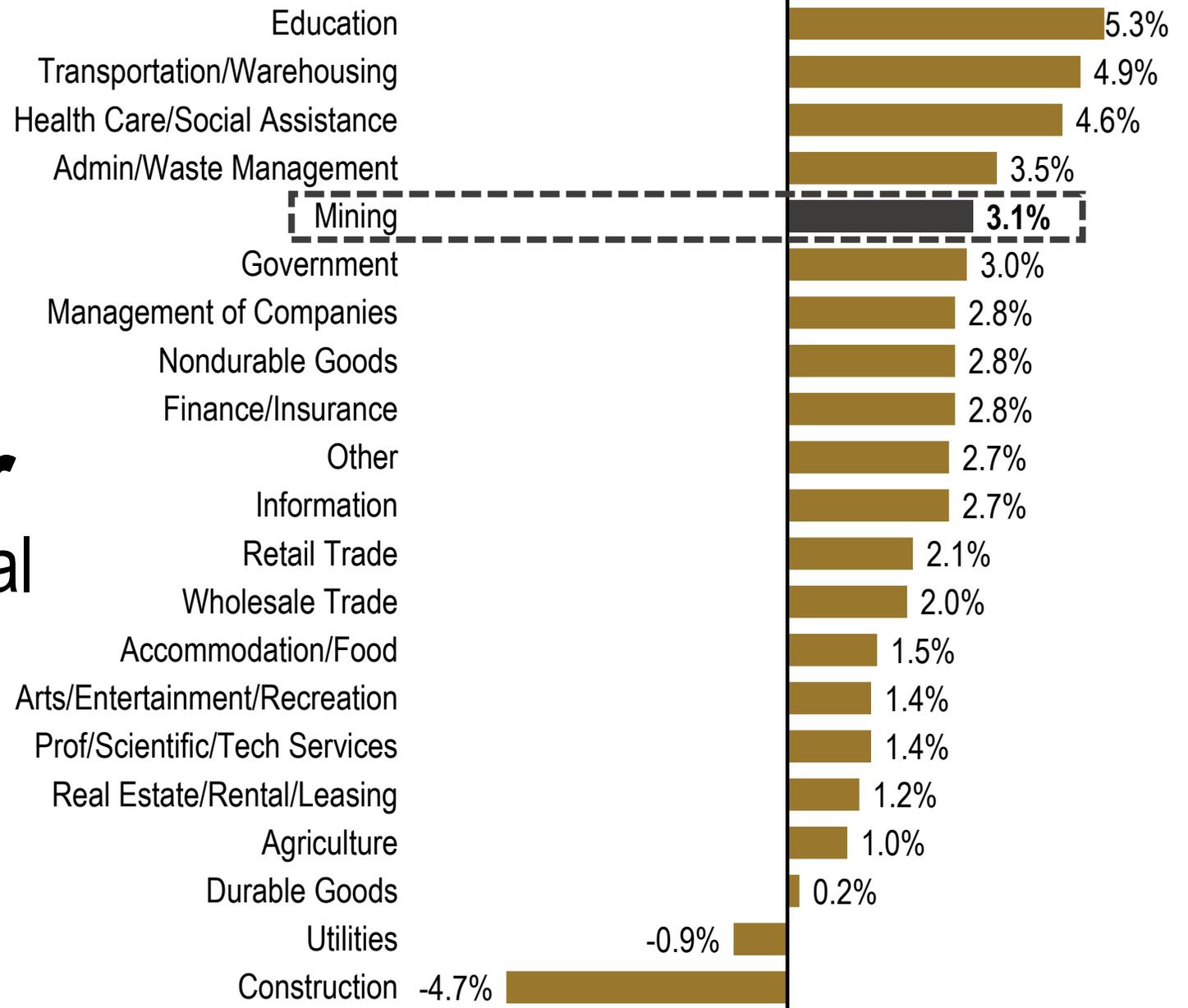
- B** Barite
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- Do** Dolomite
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- O** Opals
- P** Perlite
- Pe** Petroleum
- S** Salt
- Si** Silica
- Ag** Silver
- T** Turquoise

Source: Nevada Department of Taxation

Nevada GDP Growth by Sector

2007-2017 Compound Annual Growth Rate

All Industries Total:
+1.7%

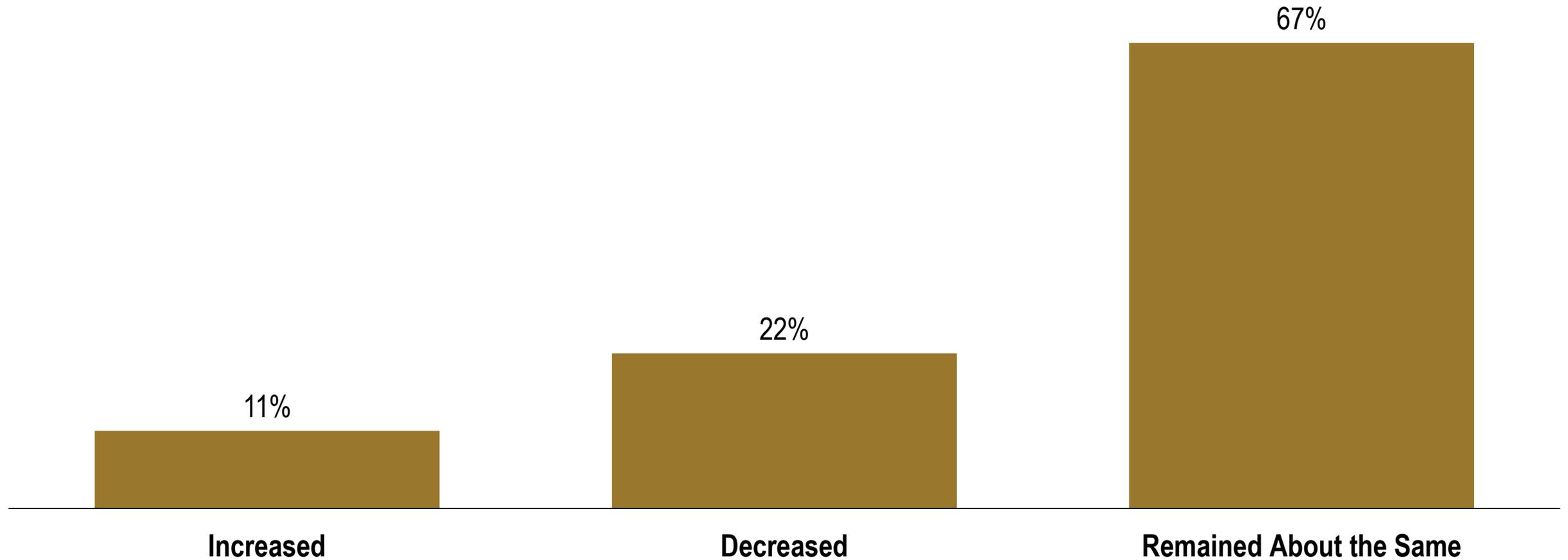


Source: United States Bureau of Economic Analysis



Mineral Production

Past 12 Months



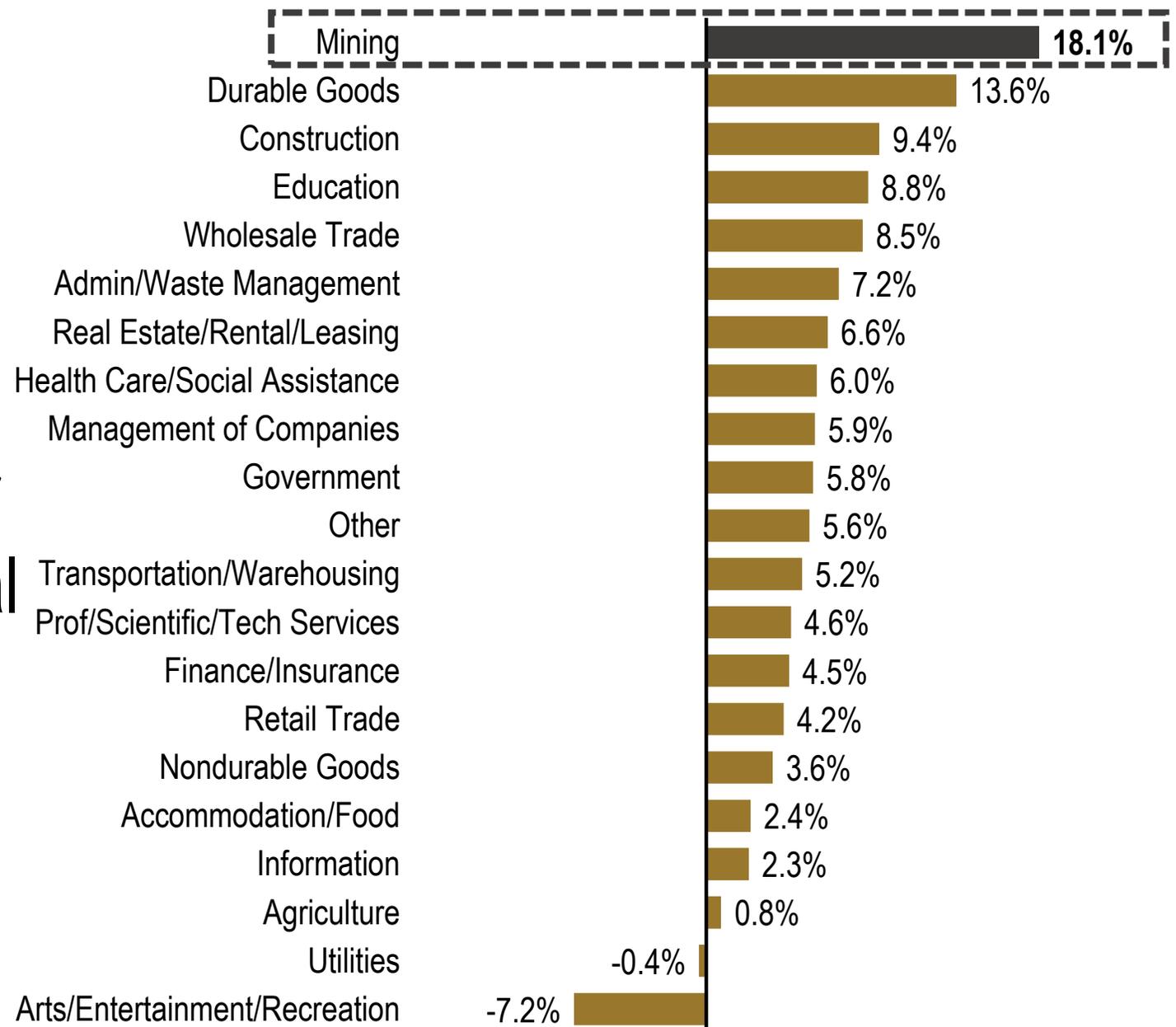
Source: NVMA 2018 Survey



Nevada GDP Growth by Sector

2016-2017 Compound Annual Growth Rate

All Industries Total:
+5.5%

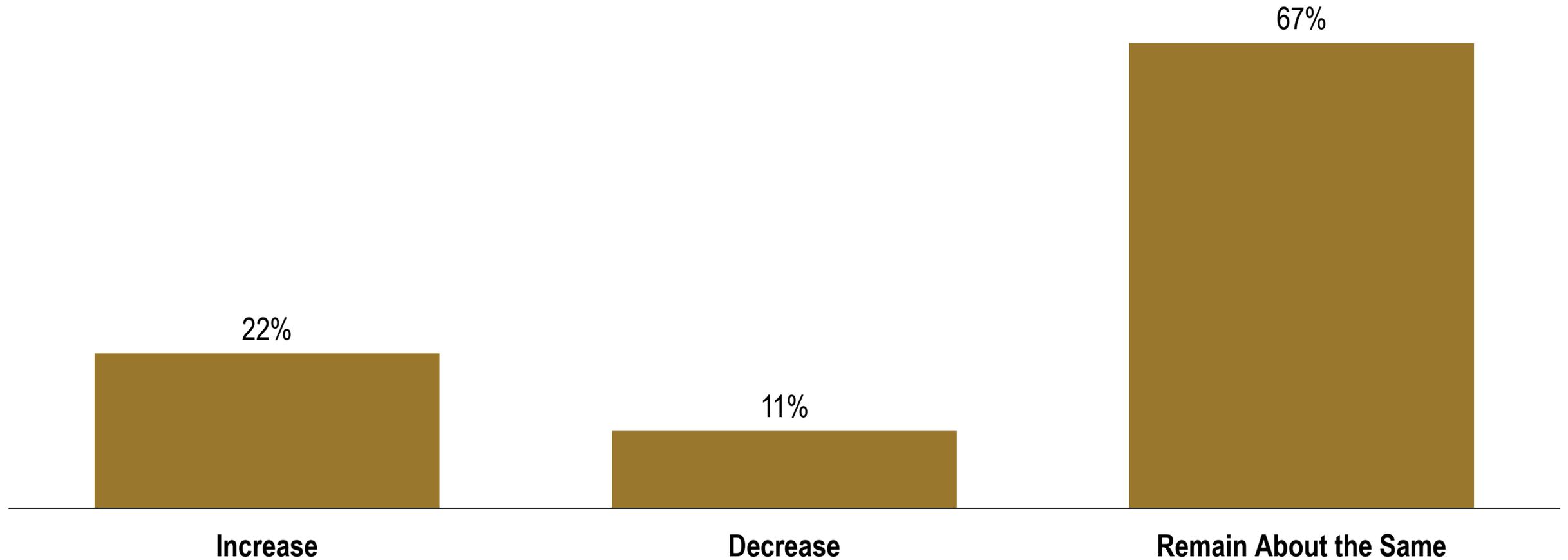


Source: United States Bureau of Economic Analysis



Mineral Production

Next 12 Months

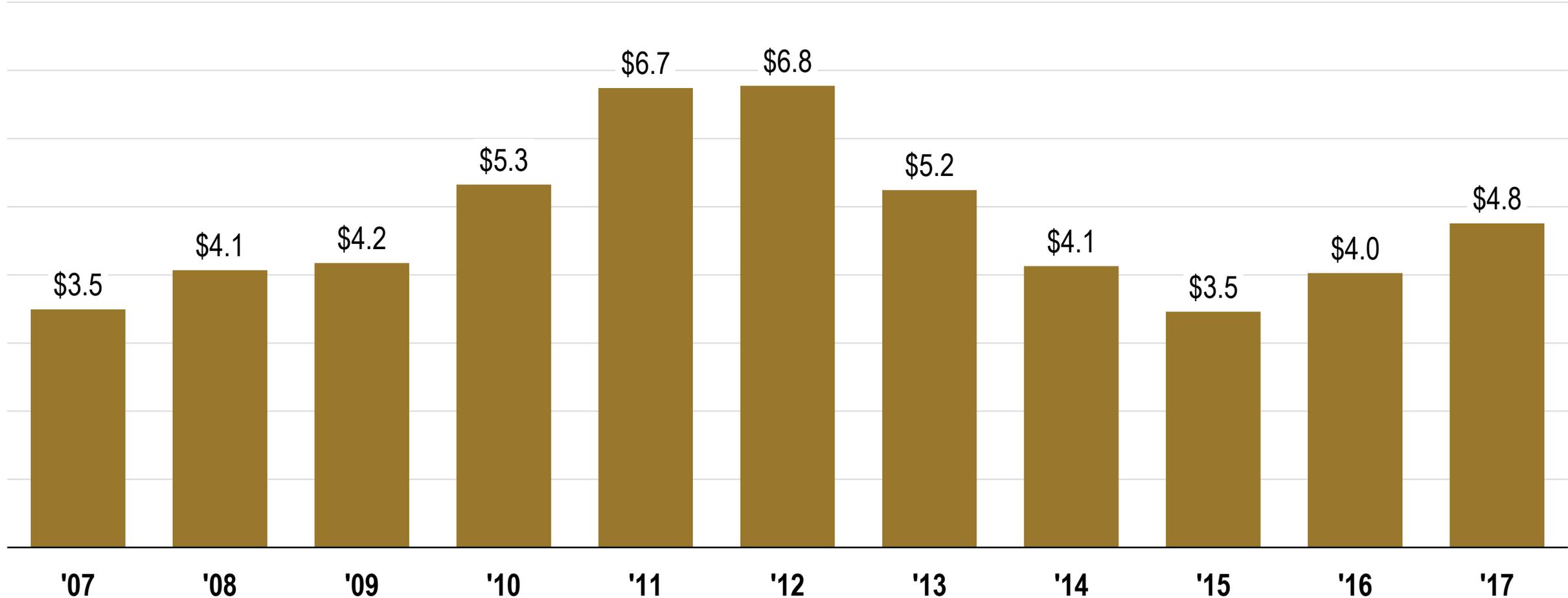


Source: NVMA 2018 Survey



Mining Gross Domestic Product (In Billions)

Nevada

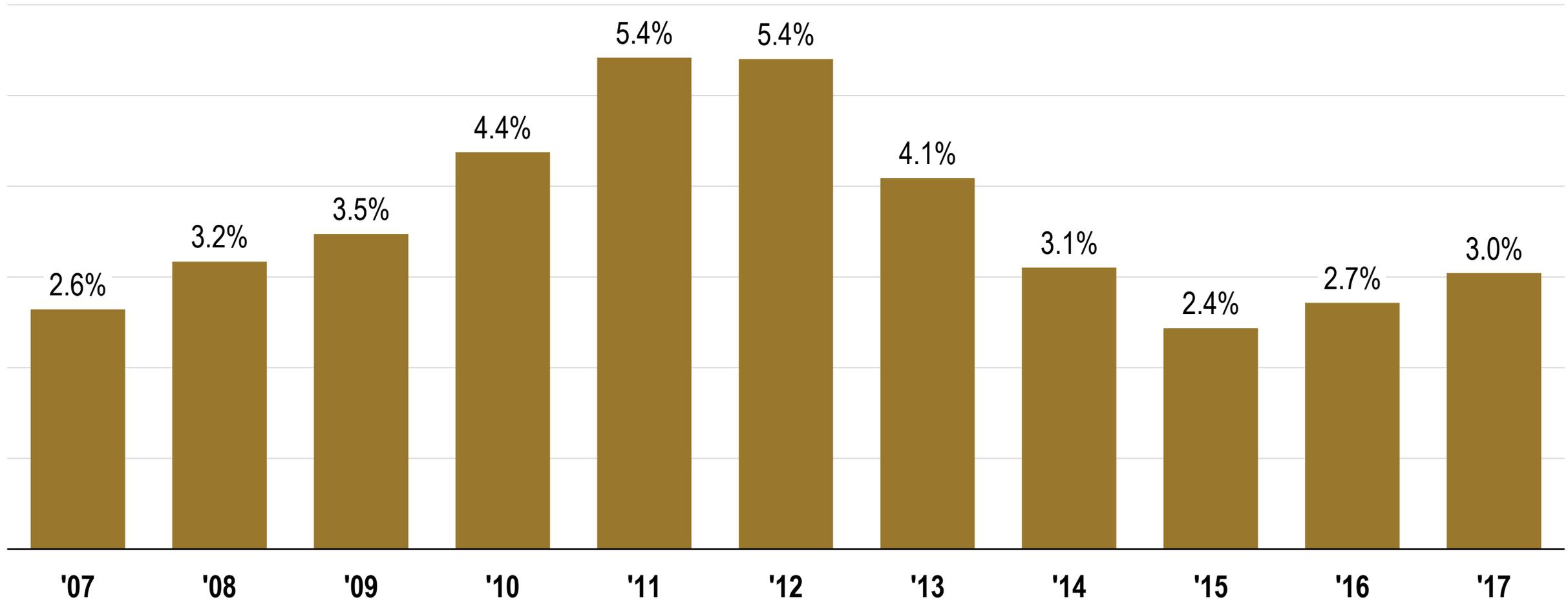


Source: United States Bureau of Economic Analysis



Mining GDP Share of All Industry Total

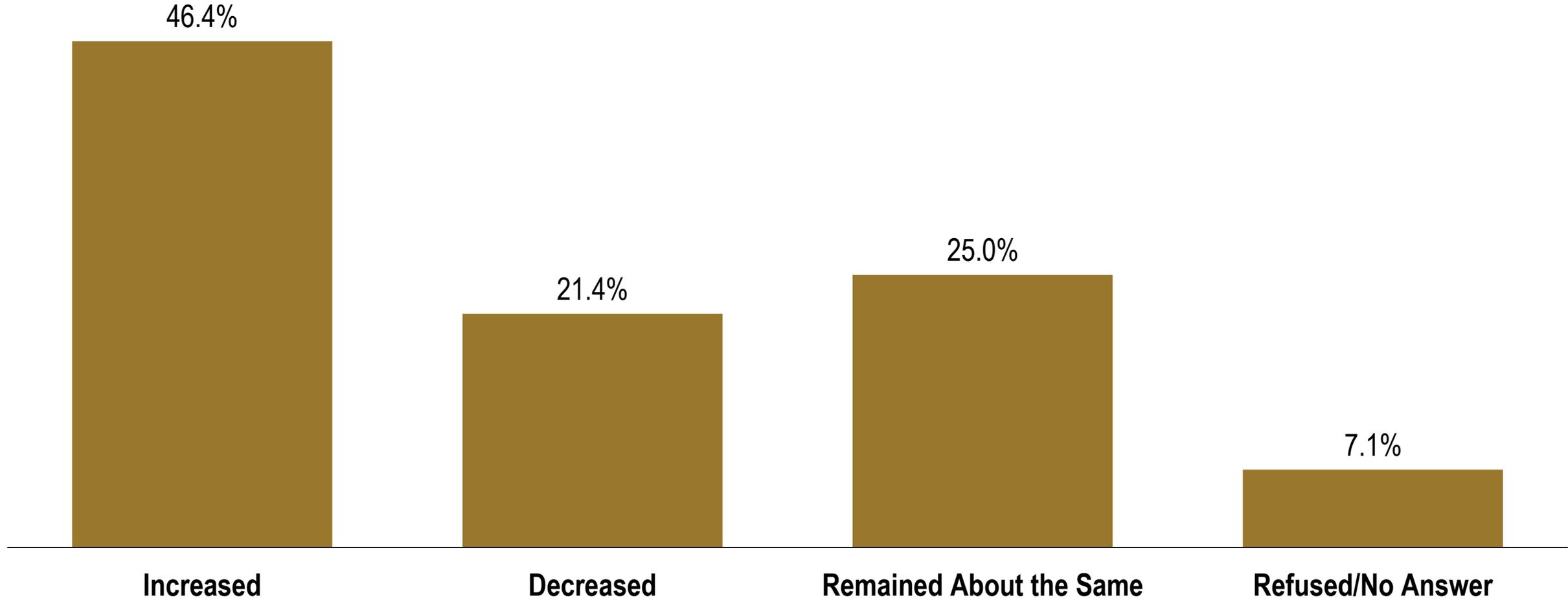
Nevada



Source: United States Bureau of Economic Analysis

Business Revenues or Sales

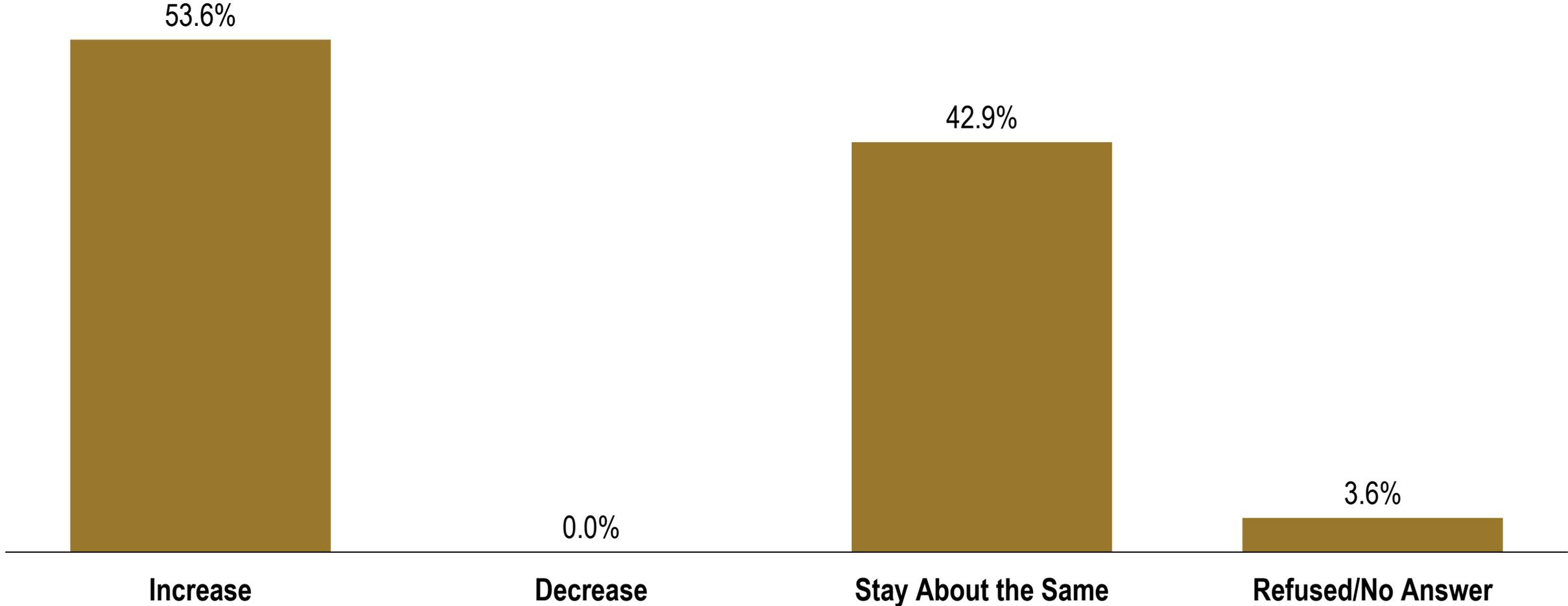
Past 12 Months



Source: NVMA 2018 Survey

Business Revenues or Sales

Next 12 Months

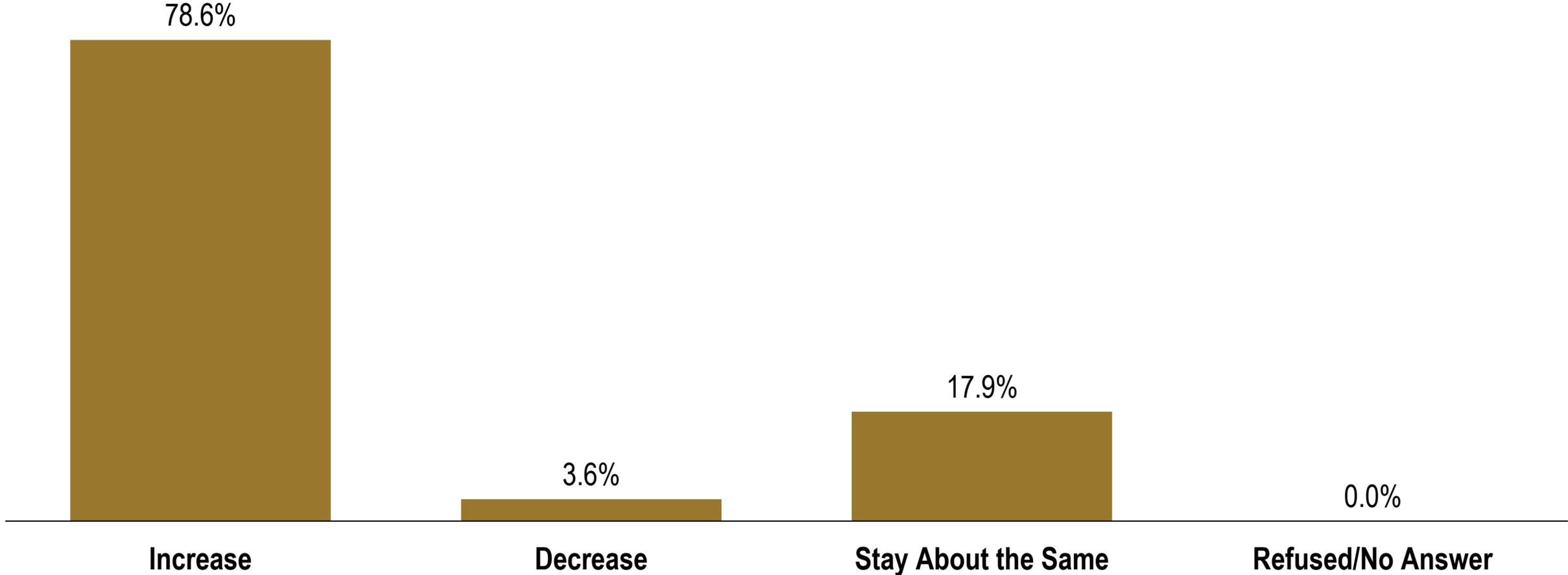


Source: NVMA 2018 Survey

WHAT IS THE OUTLOOK FOR MINING EMPLOYMENT IN NEVADA?

Nevada Employees

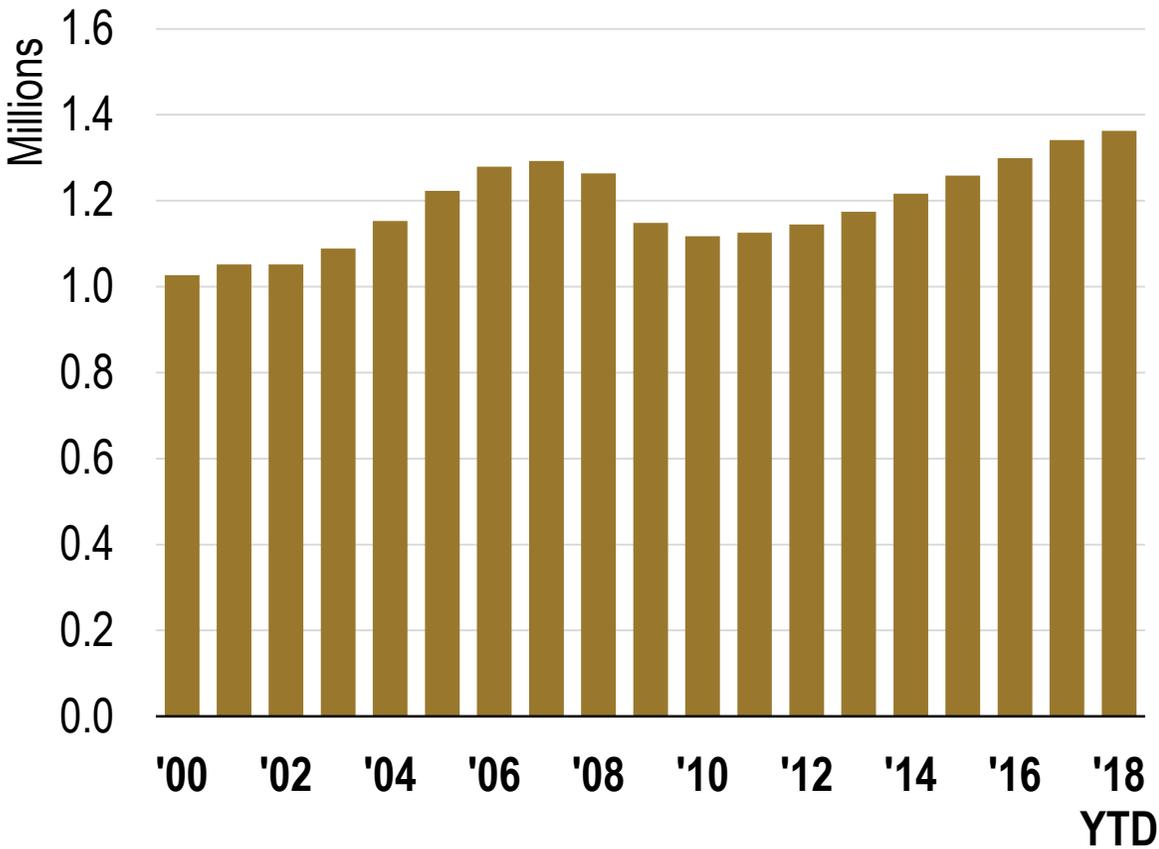
Next 12 Months



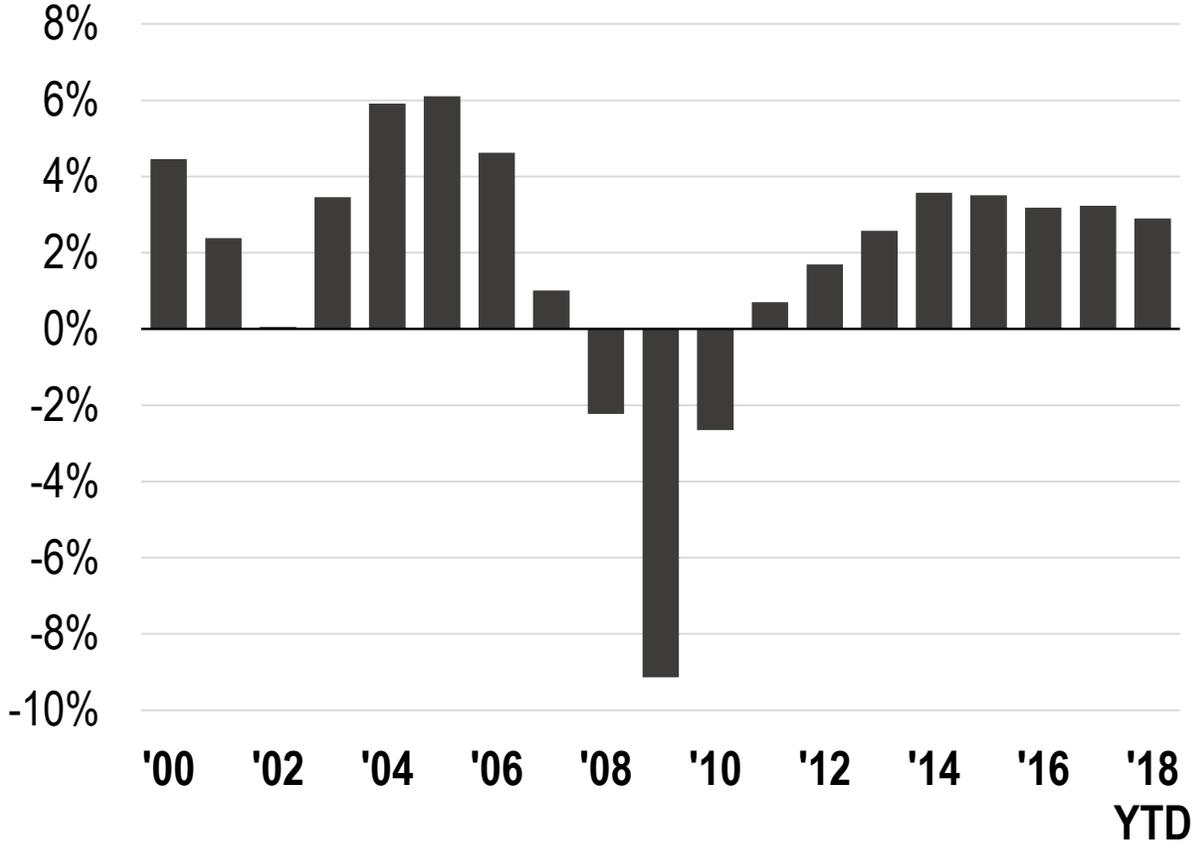
Source: NVMA 2018 Survey

Nevada Employment

Annual Employment



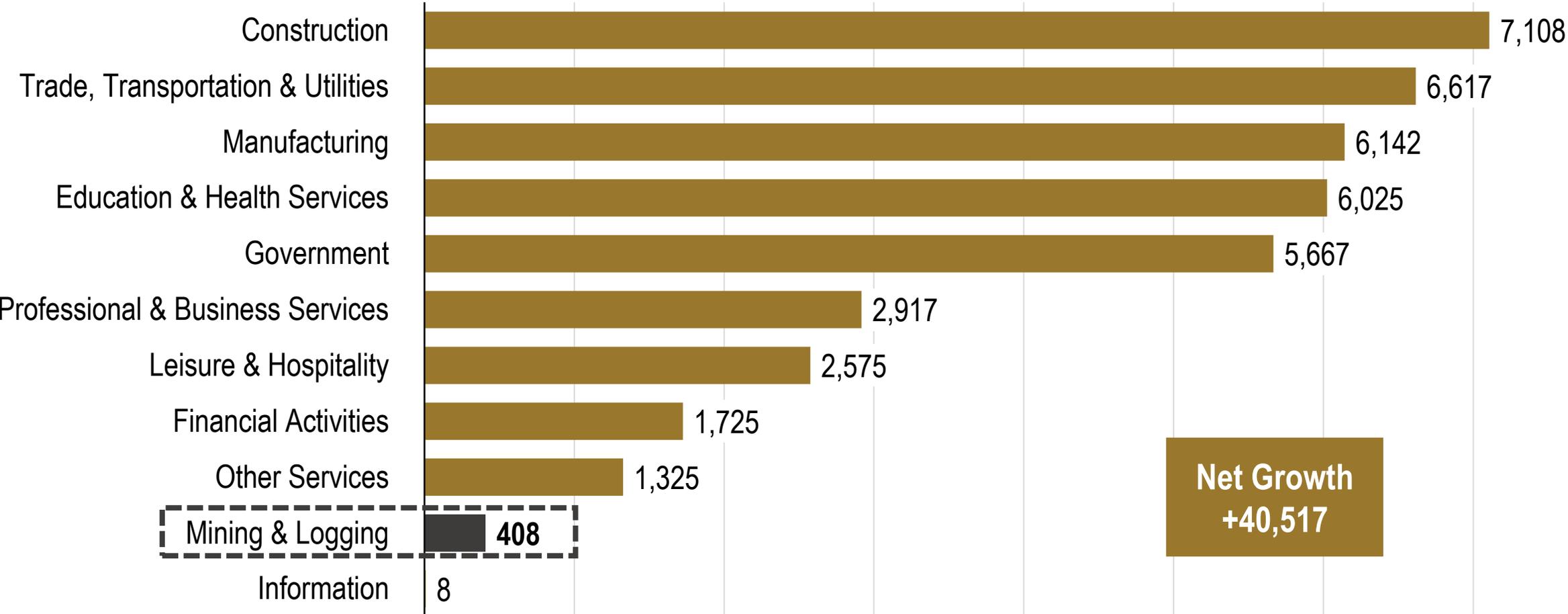
Year-over-Year Growth



Source: U.S. Bureau of Labor Statistics

Employment Growth by Sector

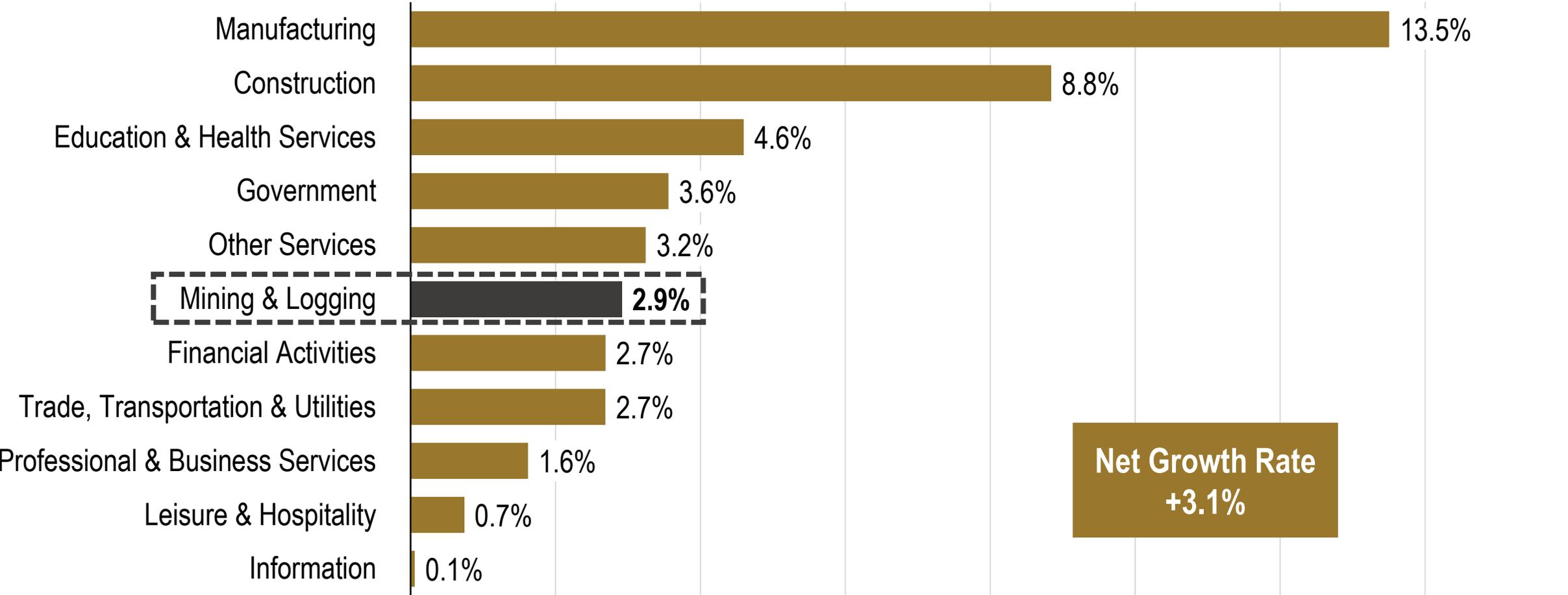
Nevada | Prior Year vs. Present



Source: U.S. Bureau of Labor Statistics

Employment Growth by Sector

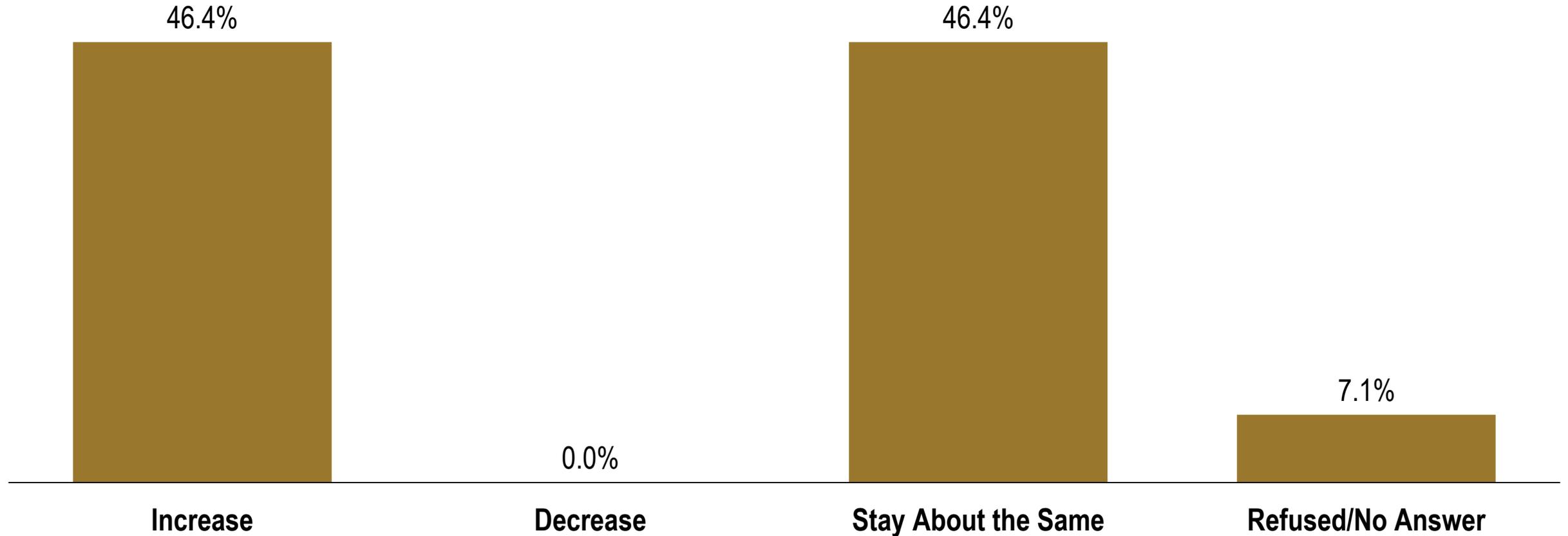
Nevada | Prior Year vs. Present



Source: U.S. Bureau of Labor Statistics

Mining Employees

Next 12 Months

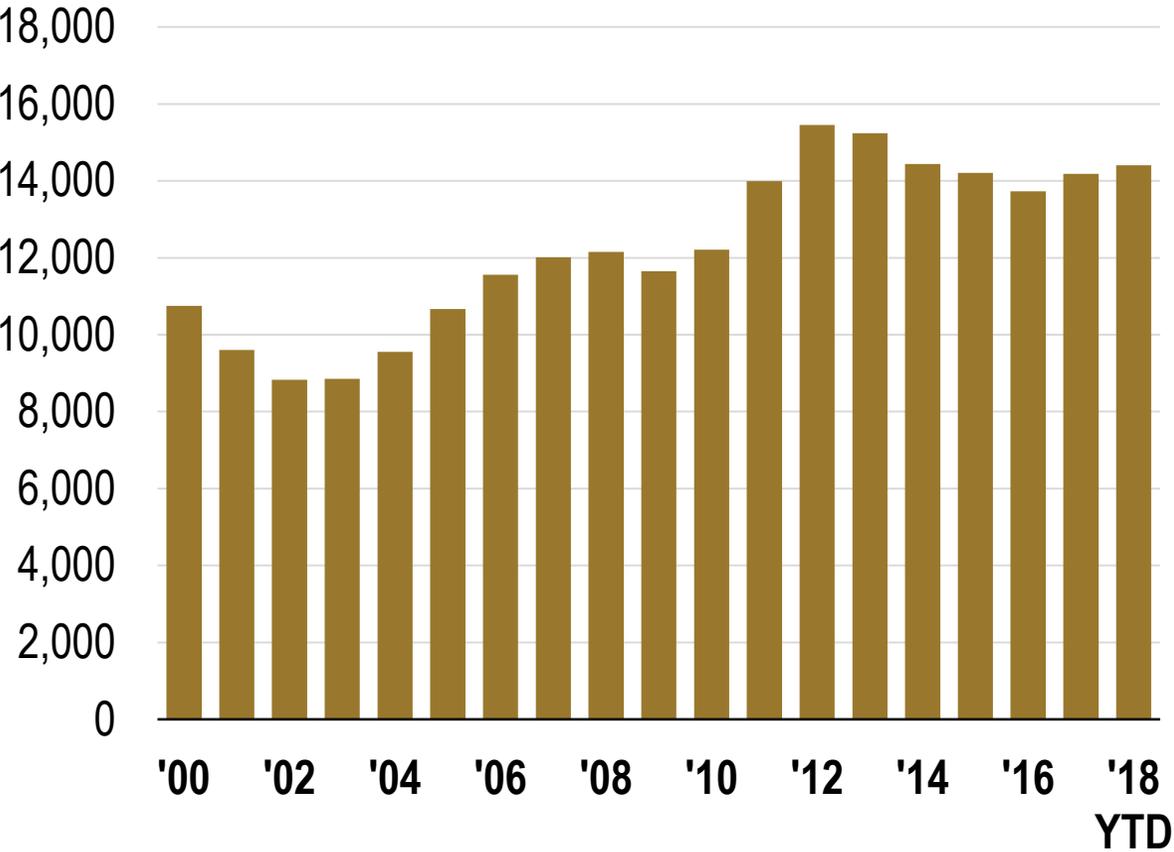


Source: NVMA 2018 Survey

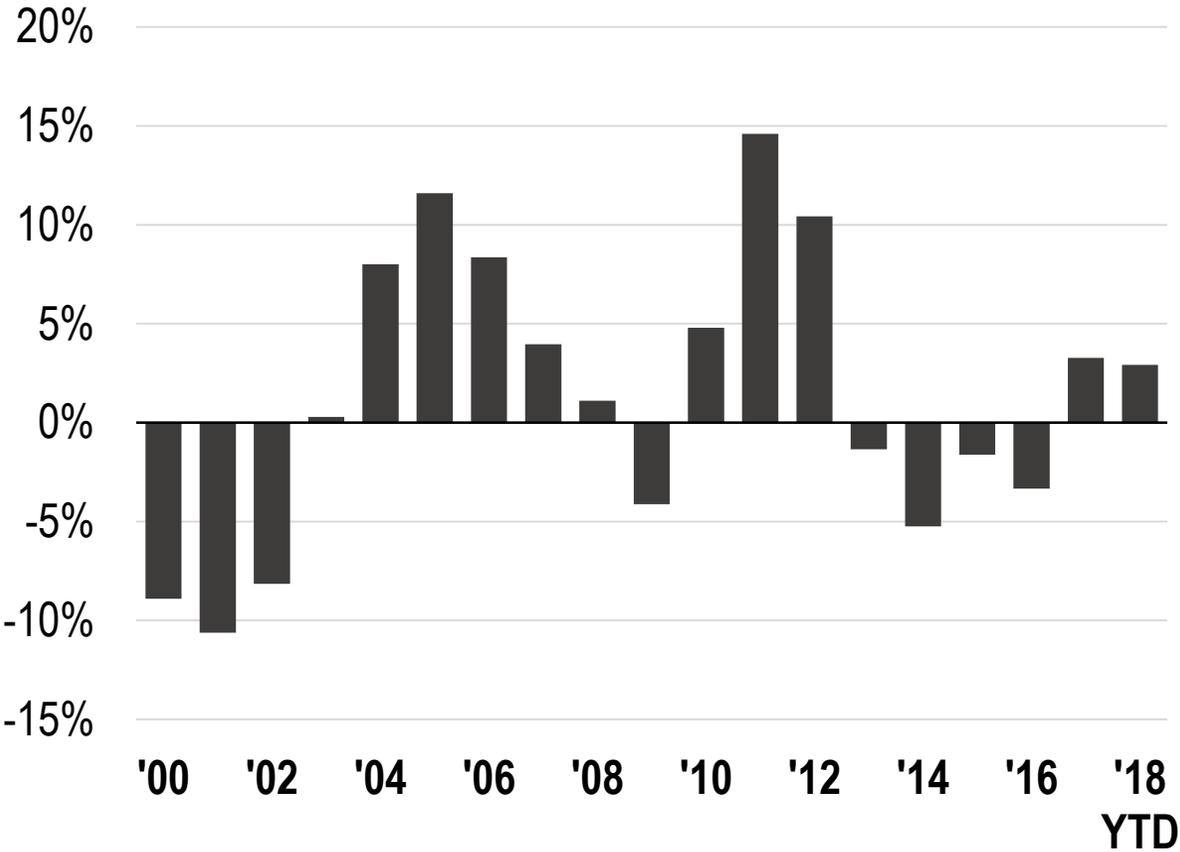


Nevada Mining Employment

Annual Employment



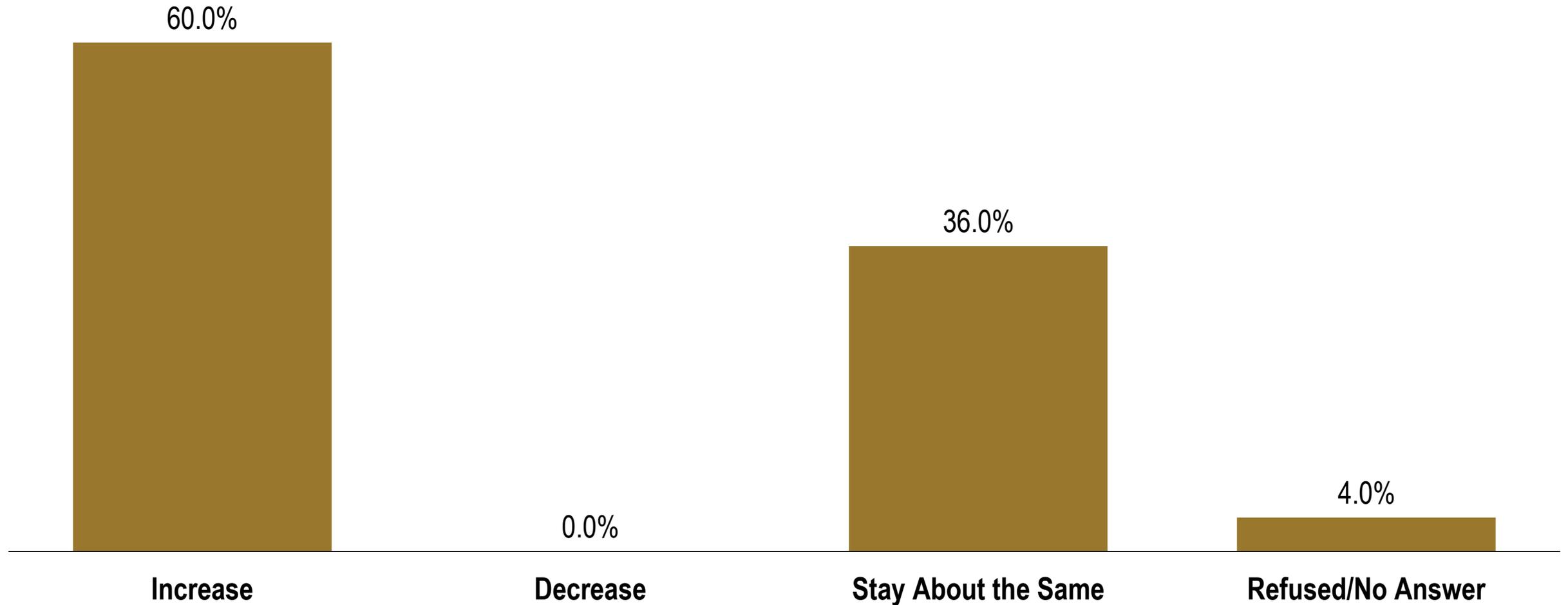
Year-over-Year Growth



Source: U.S. Bureau of Labor Statistics

Mining Company Employment Growth

Next 12 Months



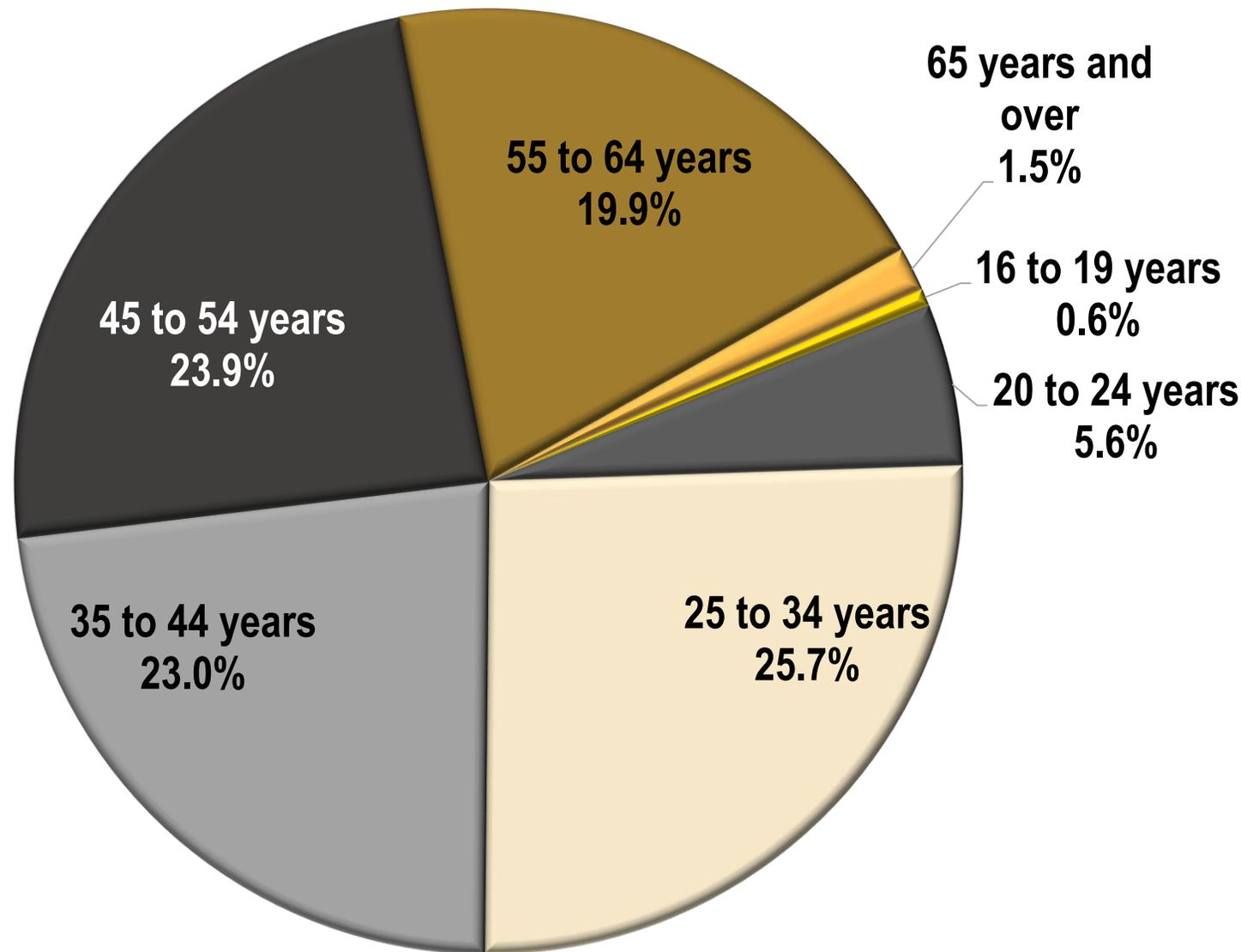
Source: NVMA 2018 Survey





Mining Employment Share by Age

21.4%
55 Years and Over



Source: NvMA 2018 Survey



HOW MUCH DOES THE MINING INDUSTRY PAY IN TAXES TO NEVADA?

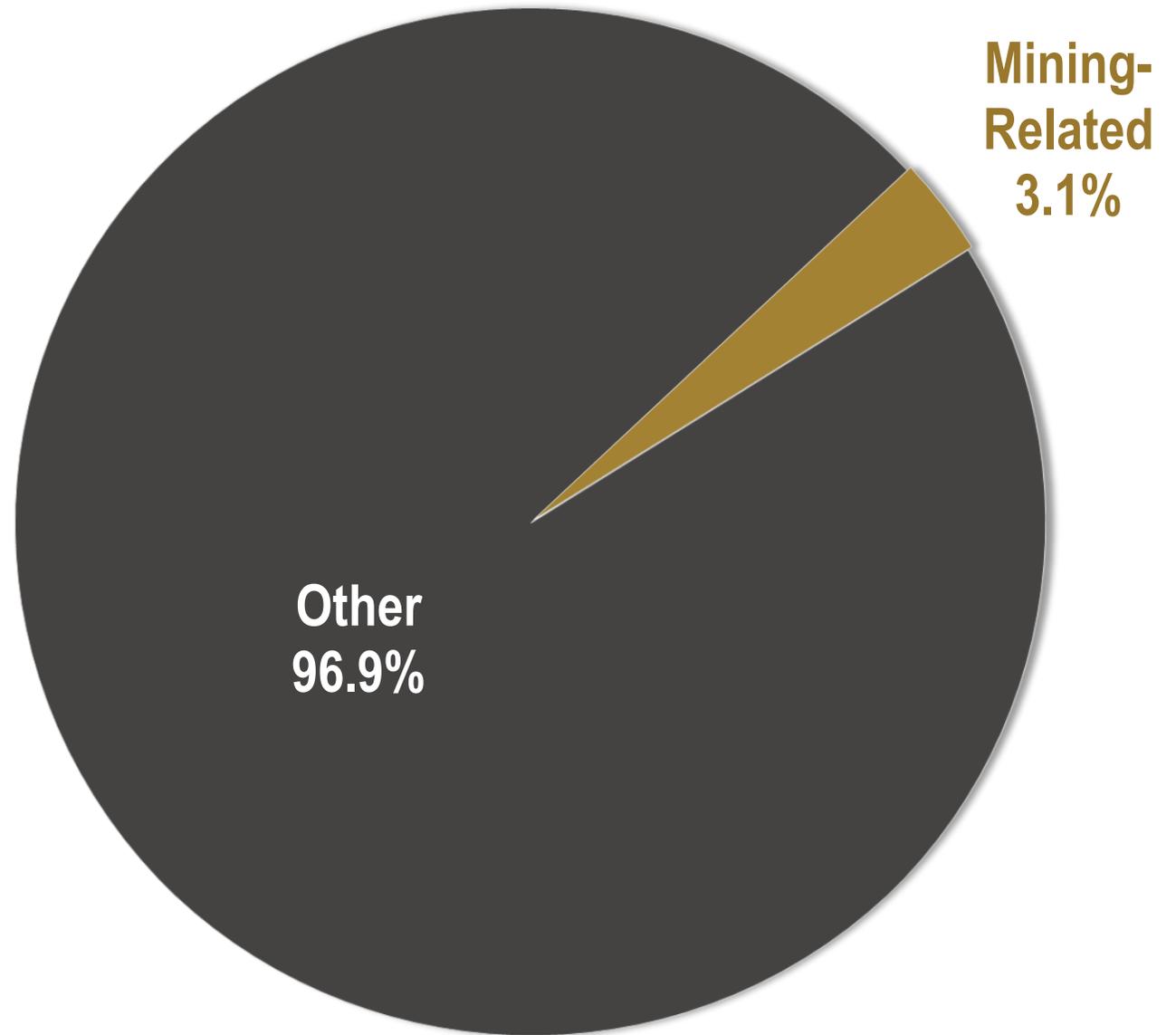
Ten Highest Assessed Taxpayers 2017-2018

RANK	TAXPAYER NAME	TOTAL (IN MILLIONS)
1	MGM Resorts International	\$3,730
2	NV Energy (1,4)	\$2,515
3	Caesars Entertainment Corporation	\$2,052
4	Las Vegas Sands Corporation	\$963
5	Wynn Resorts Limited	\$935
6	NEWMONT MINING (3,4)	\$837
7	Station Casinos Incorporated	\$739
8	BARRICK MINING (2.4)	\$542
8	Boyd Gaming Corporation	\$485
10	Ruby Pipeline LLC	\$458
TOTAL		\$13,255

Source: Nevada Department of Taxation



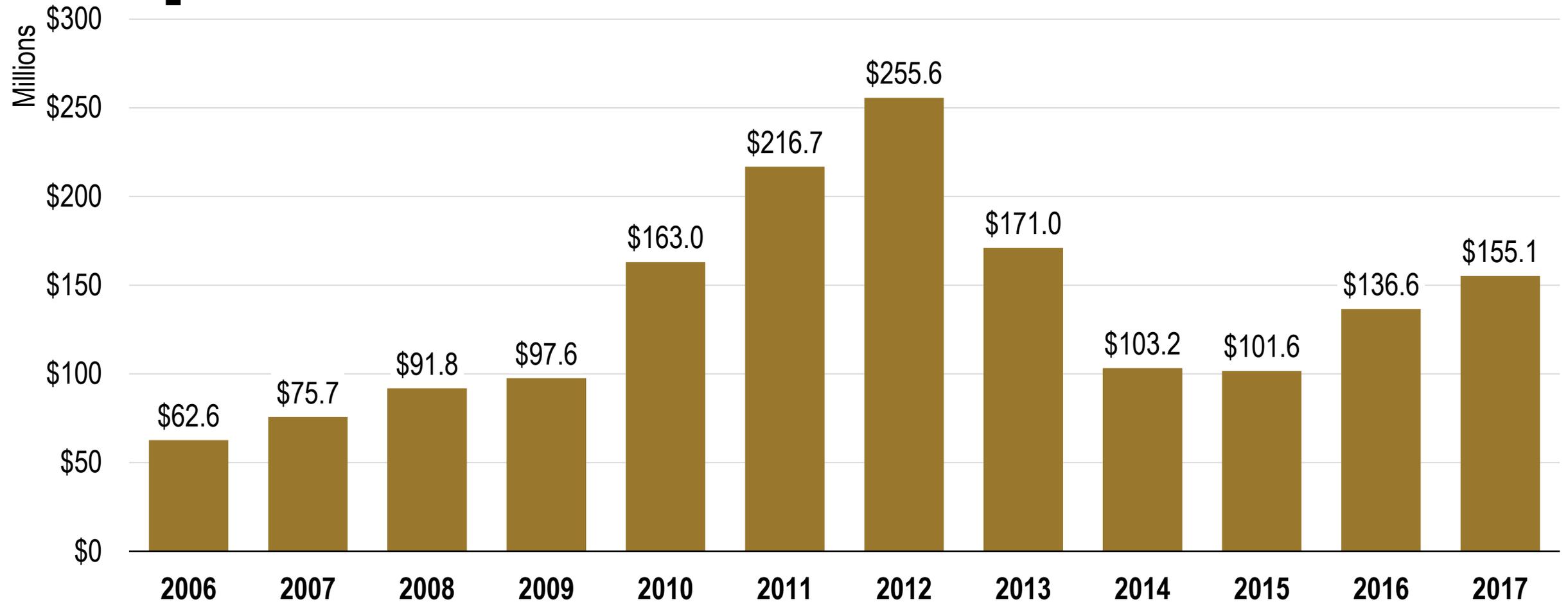
Roll Assessed Value by Class 2016-2017



Source: Nevada Department of Taxation



Net Proceeds of Minerals Taxes Paid By Nevada Mining Industry, Including Royalty Recipients



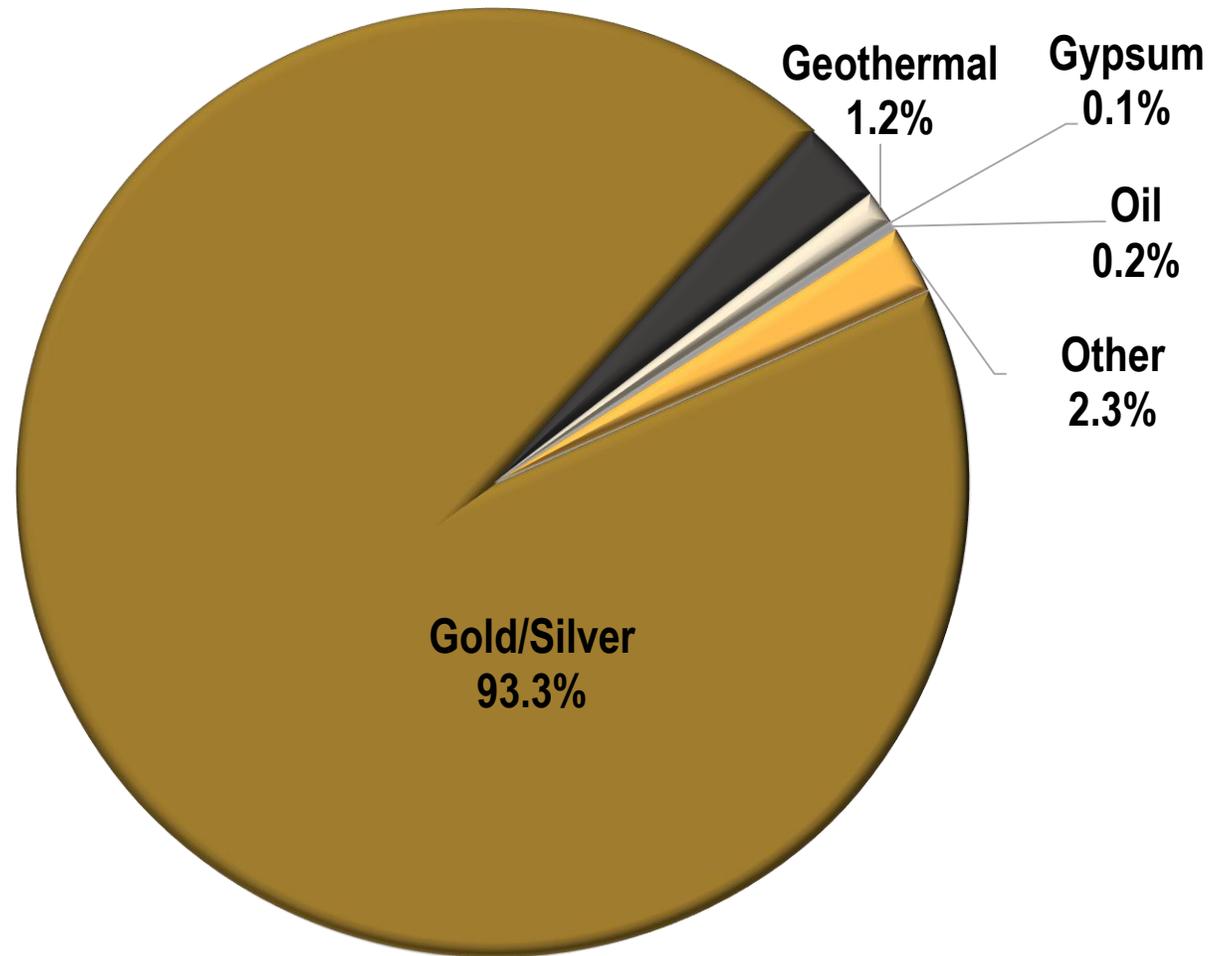
Source: Nevada Department of Taxation



Share of Net Proceeds Tax Generated by Specific Minerals (2017)

\$155 M

Total Net Proceeds Tax Generated



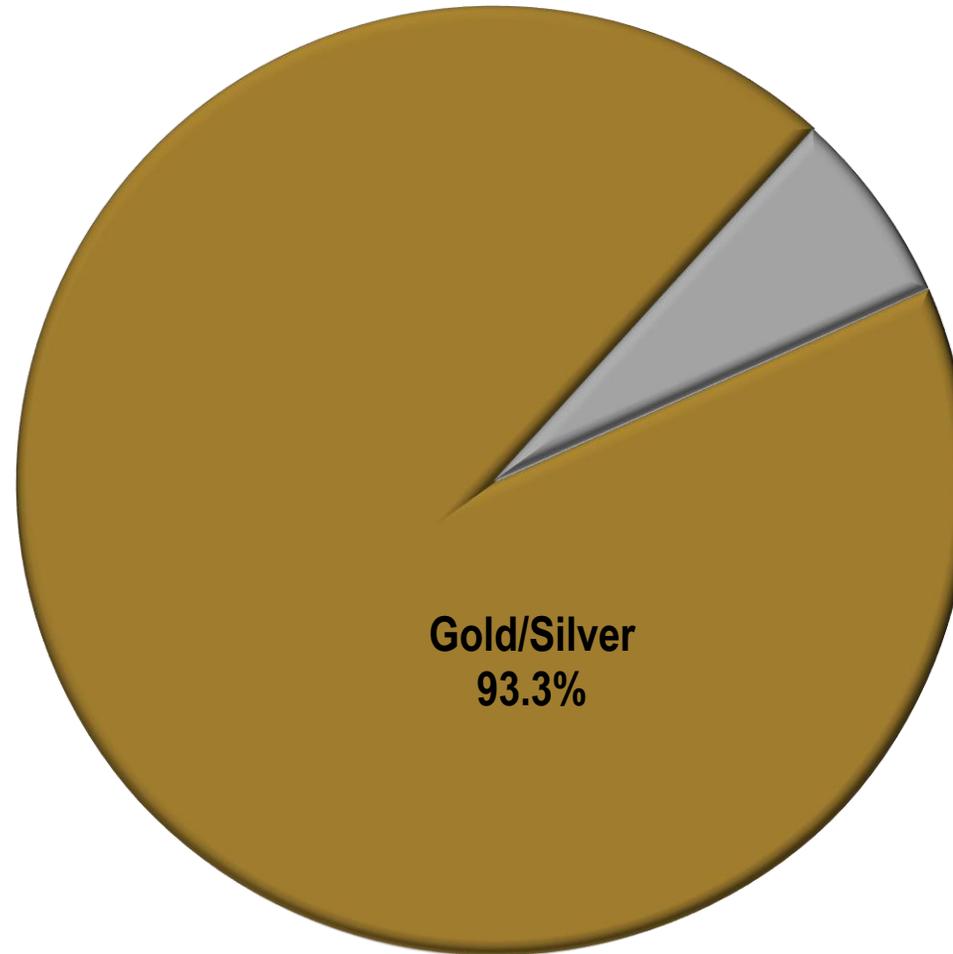
Source: Nevada Department of Taxation (Operators and Royalties Combined)



Share of Net Proceeds Tax Generated by Specific Minerals (2017)

\$145 M

**Net Proceeds Tax
Generated by
Gold/Silver**

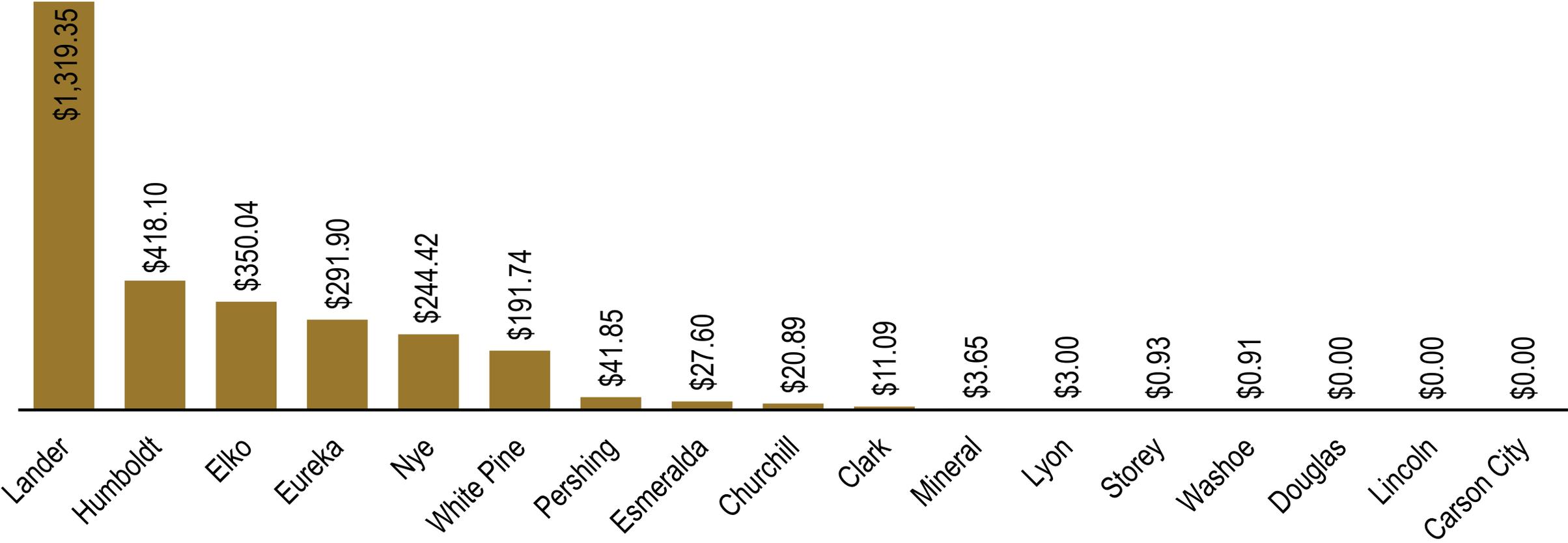


Source: Nevada Department of Taxation (Operators and Royalties Combined)



Net Proceeds Tax Generated by County

2017 | In Millions

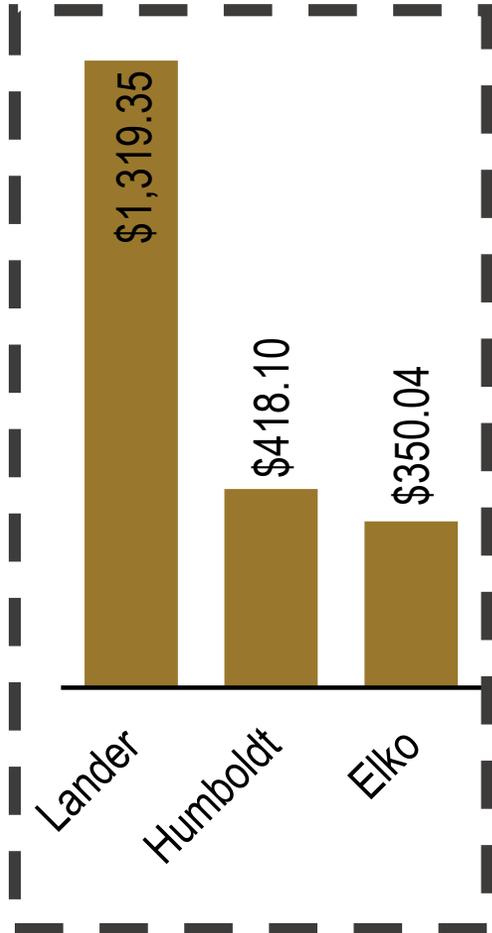


Source: Nevada Department of Taxation



Net Proceeds Tax Generated by County

2017 | In Millions



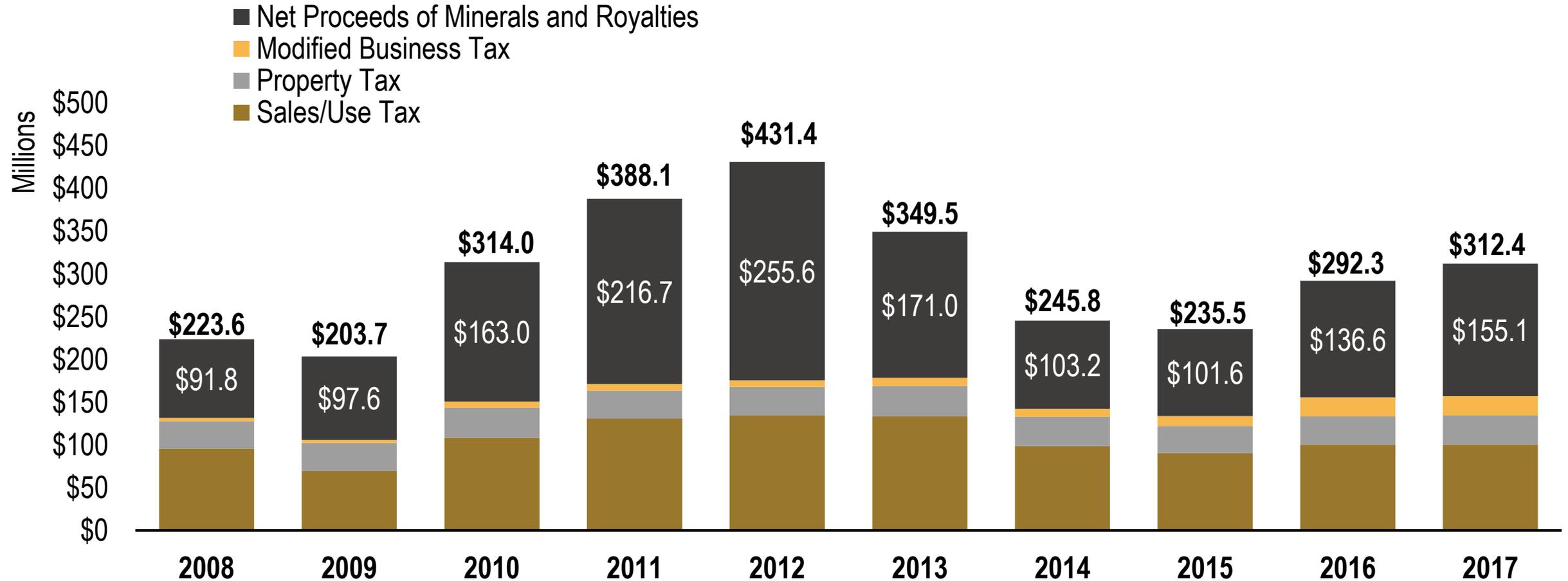
71.4%

**Of Total Net Proceeds Tax
Generated by Top 3 Counties**

Source: Nevada Department of Taxation



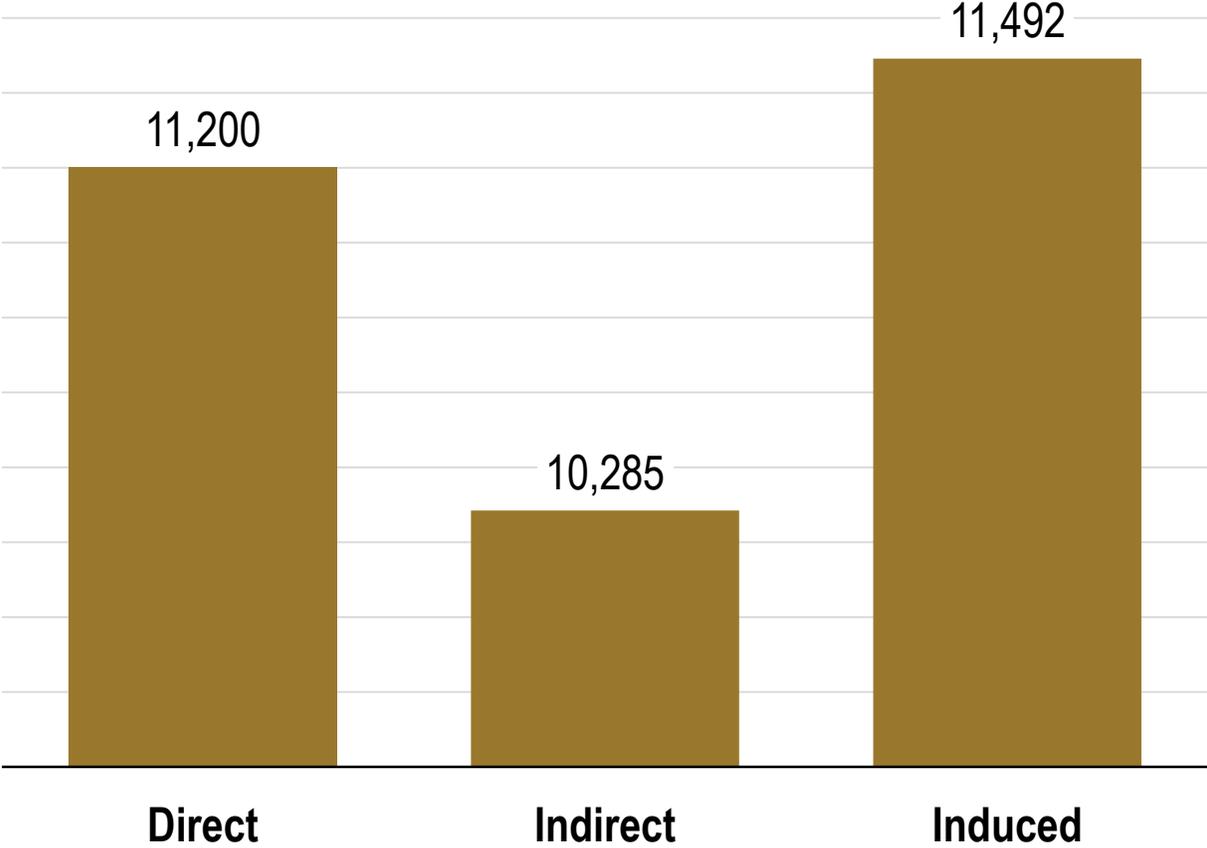
Total Estimated Major Taxes Paid by Nevada Mining



Source: NVMA Member Survey; Natural Resource Industry Institute (2008 – 2010), NV Dept of Taxation and Industry Surveys
 Note: Historical figures may be adjusted to reflect the latest available information.

WHAT ARE THE IMPACTS OF MINING IN NEVADA?

Employment Impacts for Nevada Mining Industry Operations (2017)

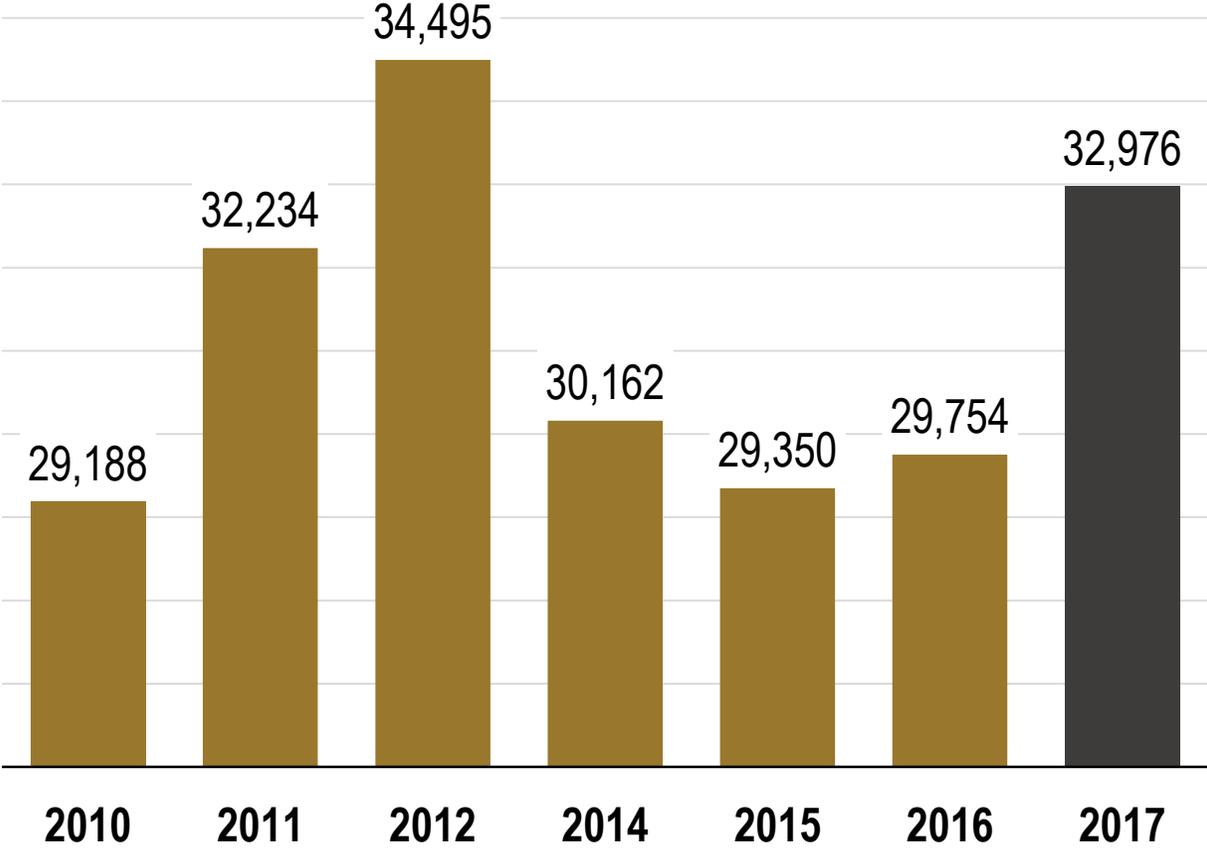


32,976

Total Jobs Supported by Nevada Mining Industry Operations

Source: U.S. Bureau of Labor Statistics; Nevada Department of Taxation; IMPLAN; Applied Analysis

Employment Impacts for Nevada Mining Industry Operations

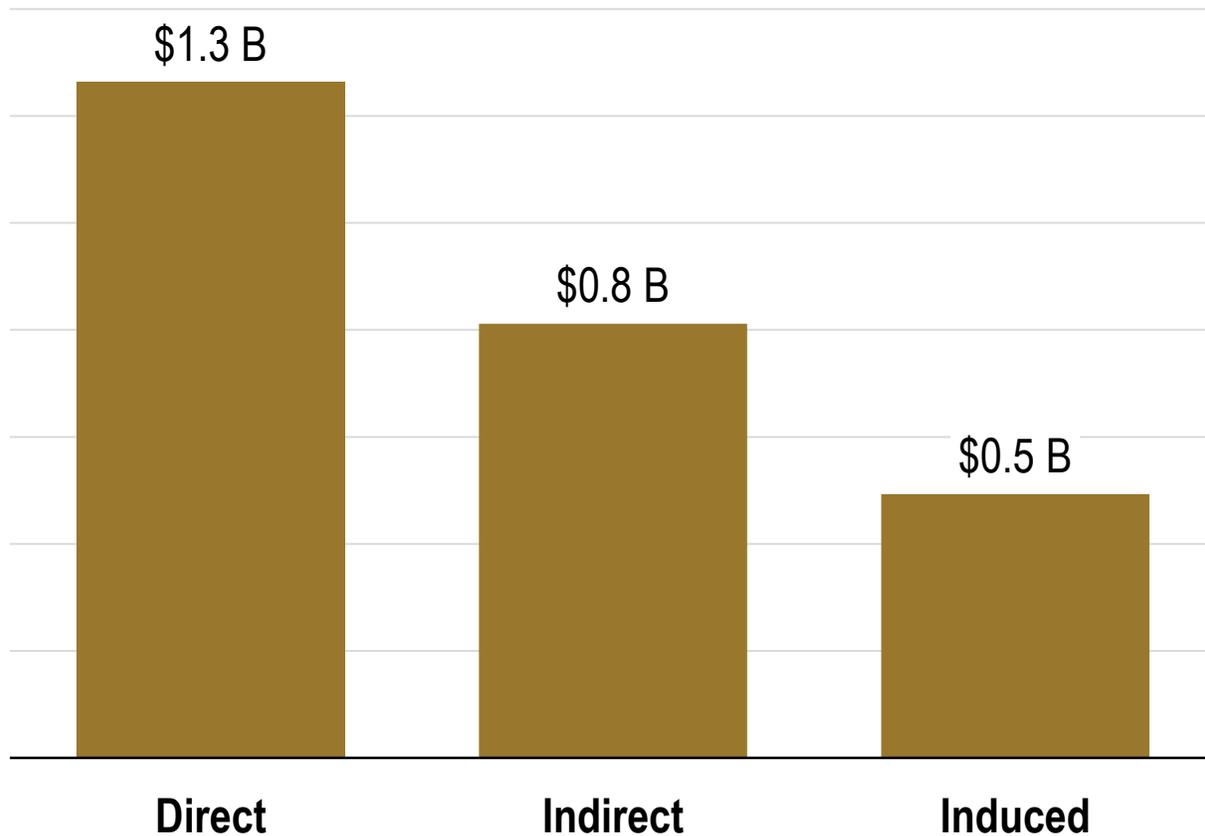


32,976

Total Jobs Supported by Nevada Mining Industry Operations

Source: U.S. Bureau of Labor Statistics; Nevada Department of Taxation; IMPLAN; Applied Analysis

Wage/Salary Impacts for Nevada Mining Industry Operations (2017)



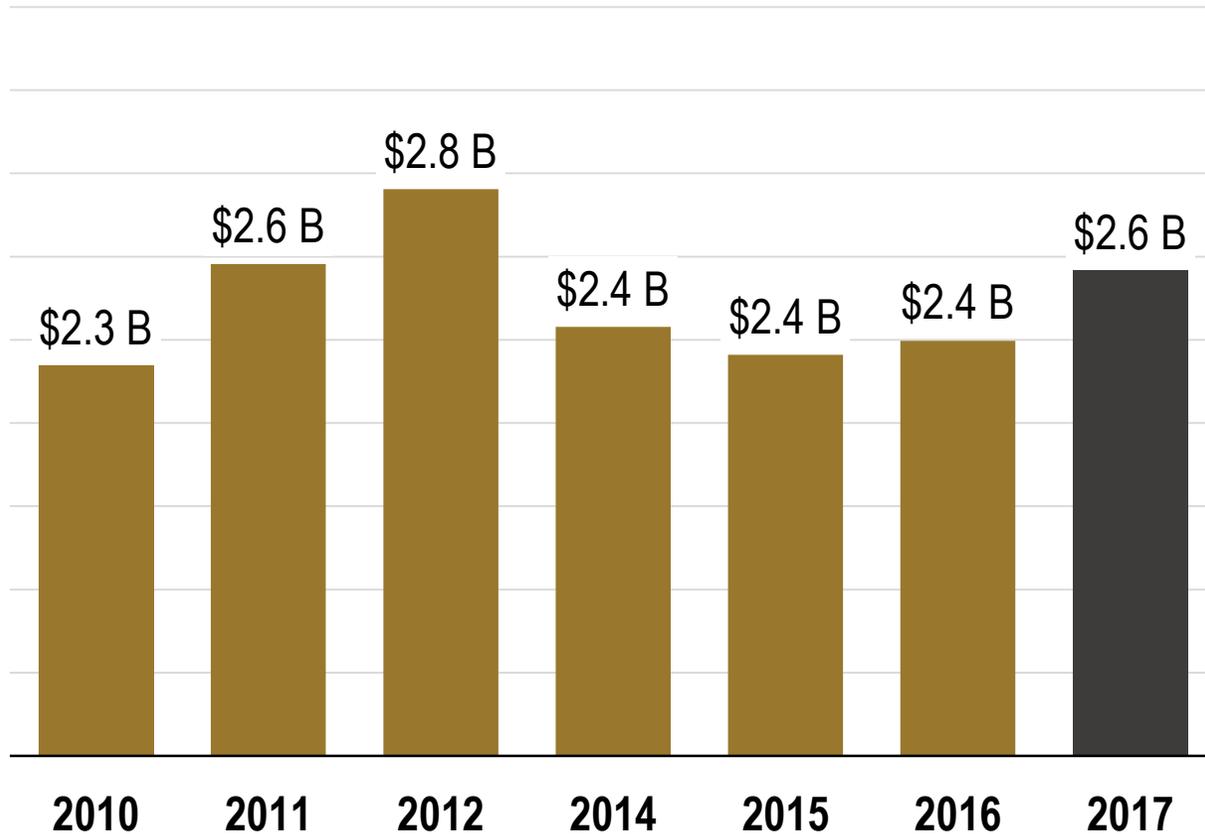
\$2.6B

**Total Labor Income Supported
by Nevada Mining Industry
Operations**

Source: U.S. Bureau of Labor Statistics; Nevada Department of Taxation; IMPLAN; Applied Analysis



Wage/Salary Impacts for Nevada Mining Industry Operations



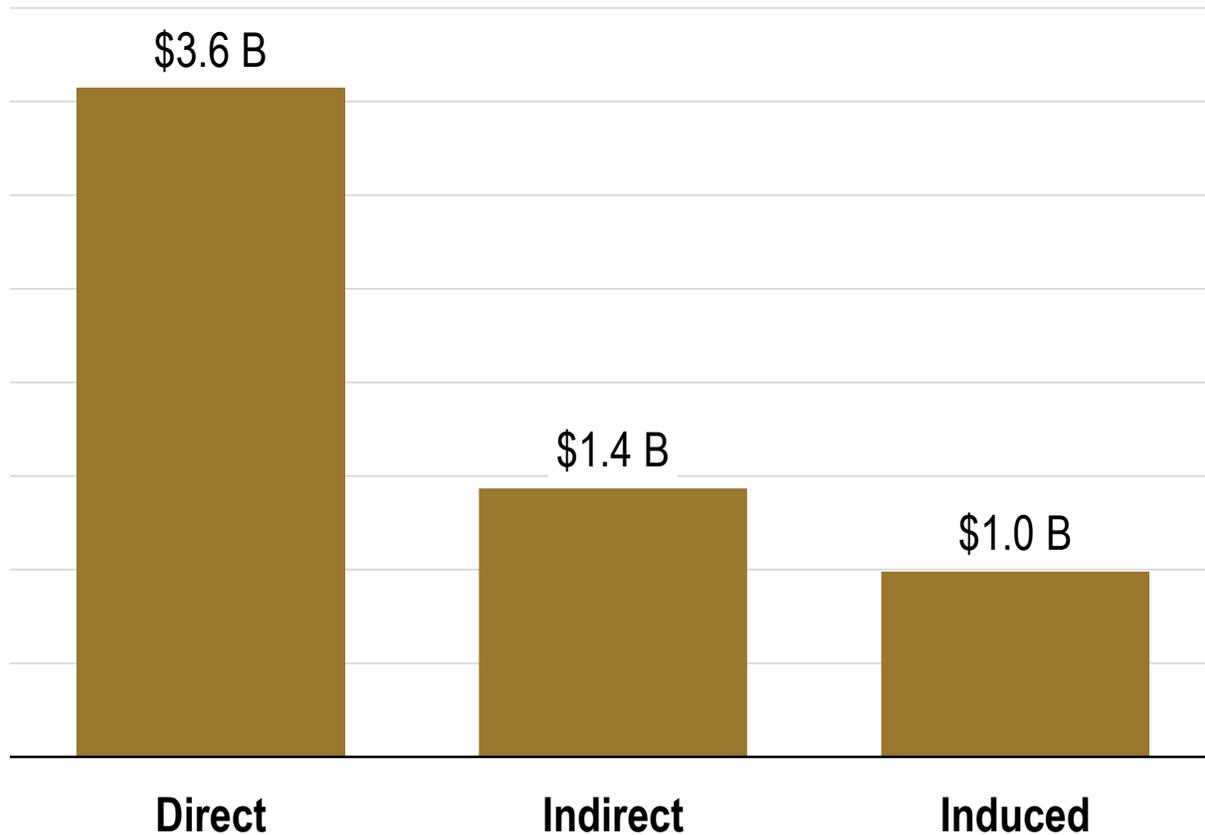
\$2.6B

**Total Labor Income Supported
by Nevada Mining Industry
Operations**

Source: U.S. Bureau of Labor Statistics; Nevada Department of Taxation; IMPLAN; Applied Analysis



Value-Added Impacts for Nevada Mining Industry Operations (2017)



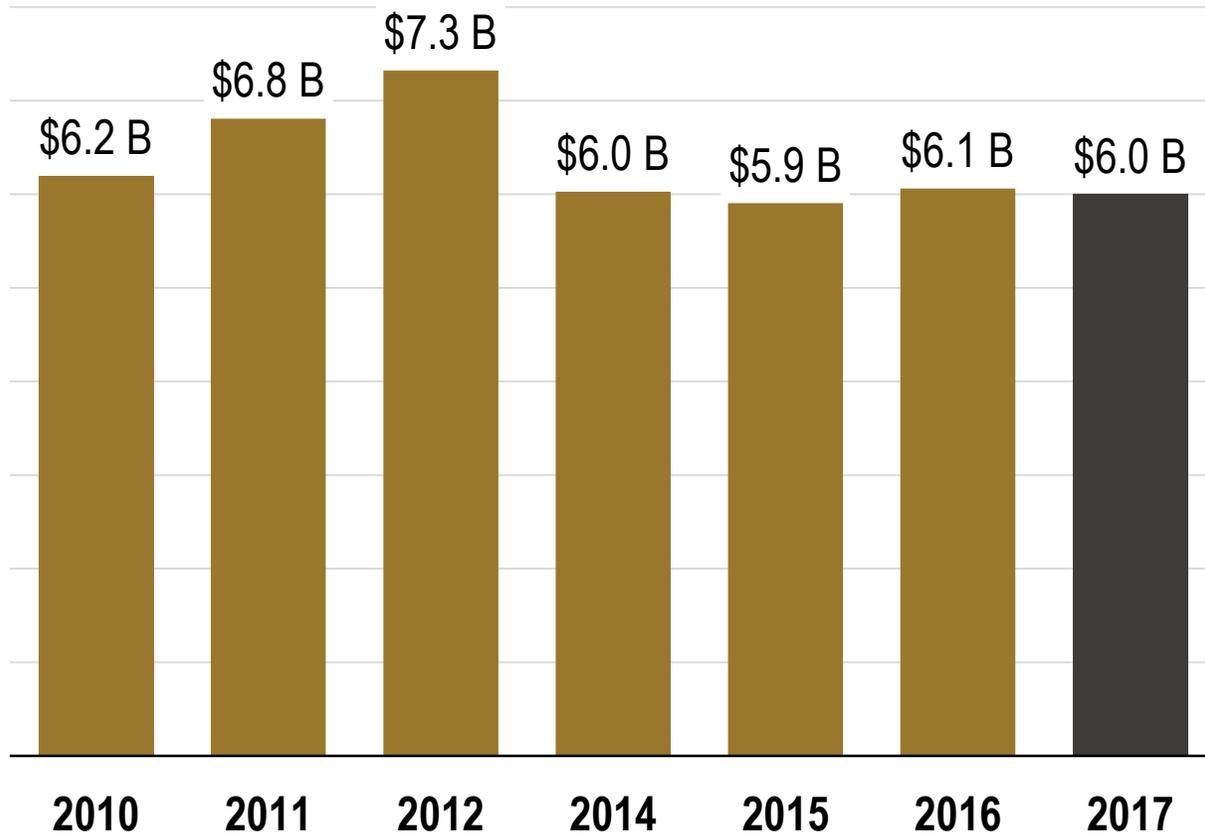
\$6.0B

**Total GDP Supported
by Nevada Mining Industry
Operations**

Source: U.S. Bureau of Labor Statistics; Nevada Department of Taxation; IMPLAN; Applied Analysis



Value-Added Impacts for Nevada Mining Industry Operations



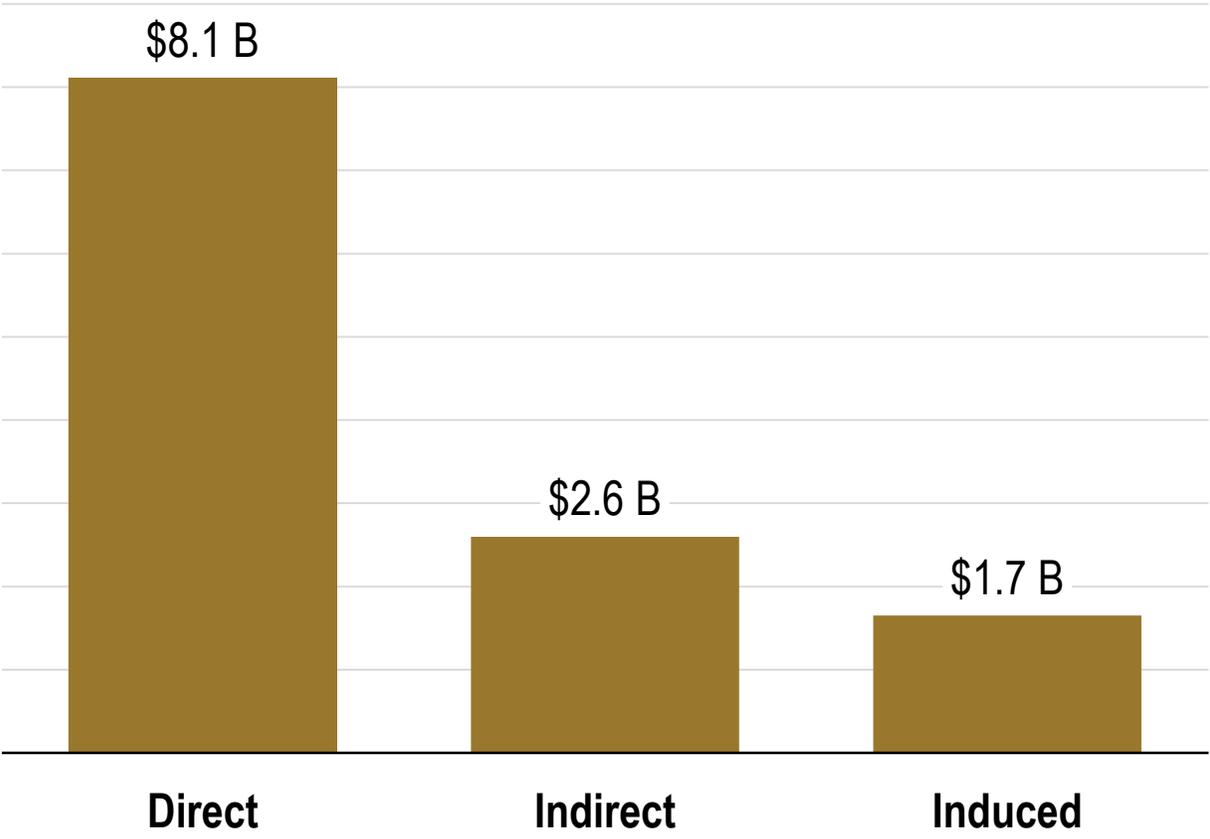
\$6.0B

**Total GDP Supported
by Nevada Mining Industry
Operations**

Source: U.S. Bureau of Labor Statistics; Nevada Department of Taxation; IMPLAN; Applied Analysis



Economic Output for Nevada Mining Industry Operations (2017)

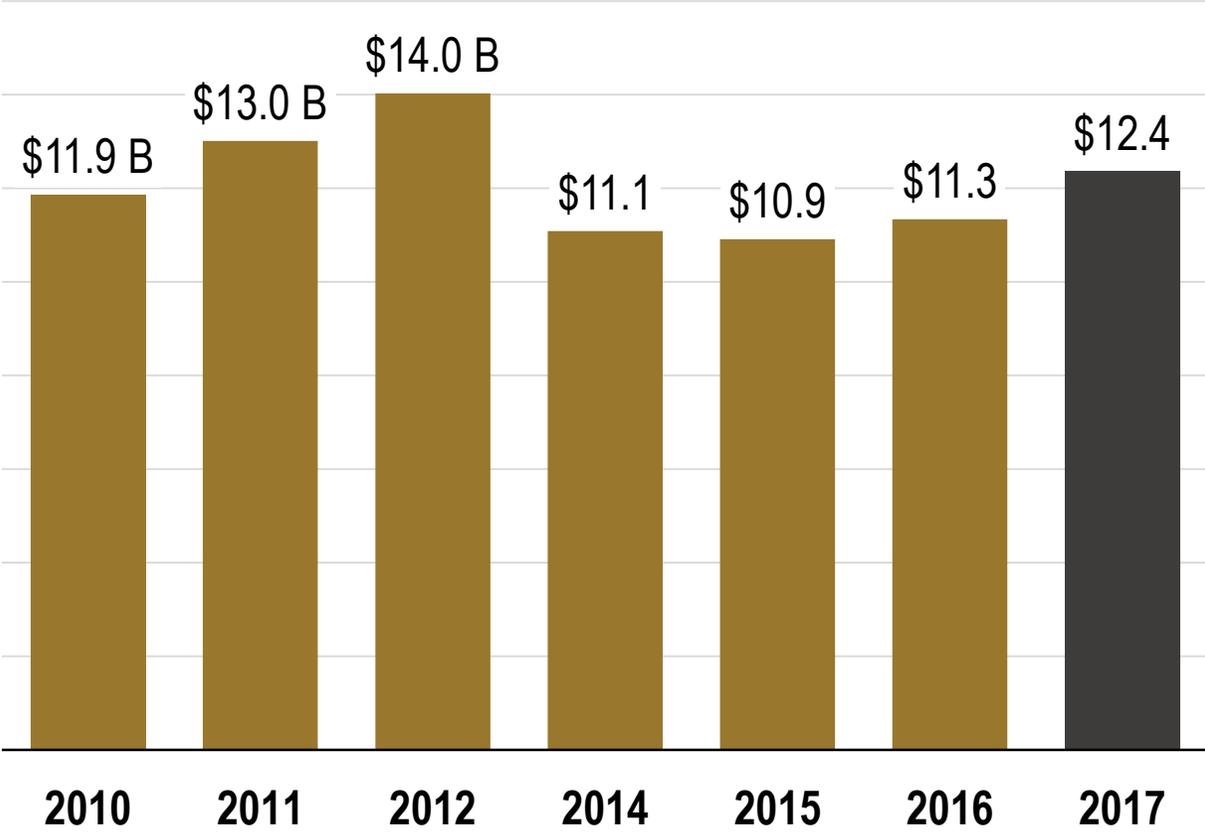


\$12.4B

Total Economic Output Generated by Nevada Mining Industry Operations

Source: U.S. Bureau of Labor Statistics; Nevada Department of Taxation; IMPLAN; Applied Analysis

Economic Output for Nevada Mining Industry Operations



\$12.4B

**Total Economic Output Generated
by Nevada Mining Industry
Operations**

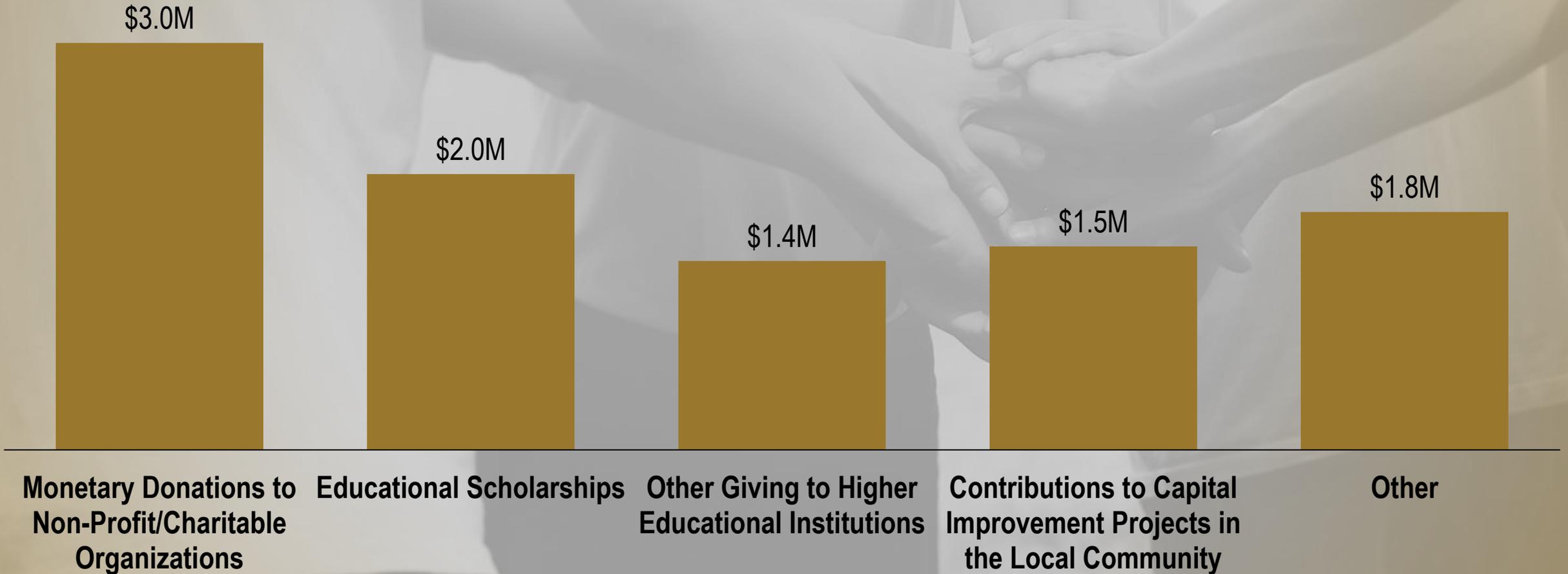
Source: U.S. Bureau of Labor Statistics; Nevada Department of Taxation; IMPLAN; Applied Analysis



BEYOND THE ECONOMICS, WHAT ARE THE INDUSTRY CONTRIBUTIONS?

Charitable Gifts Donated

Calendar Year 2017



Source: NvMA 2018 Survey



Total Charitable Gifts Donated

Calendar Year 2017



\$9.7 M

Donated

Source: NVMA 2018 Survey



Volunteer Hours Donated

Calendar Year 2017



3,020

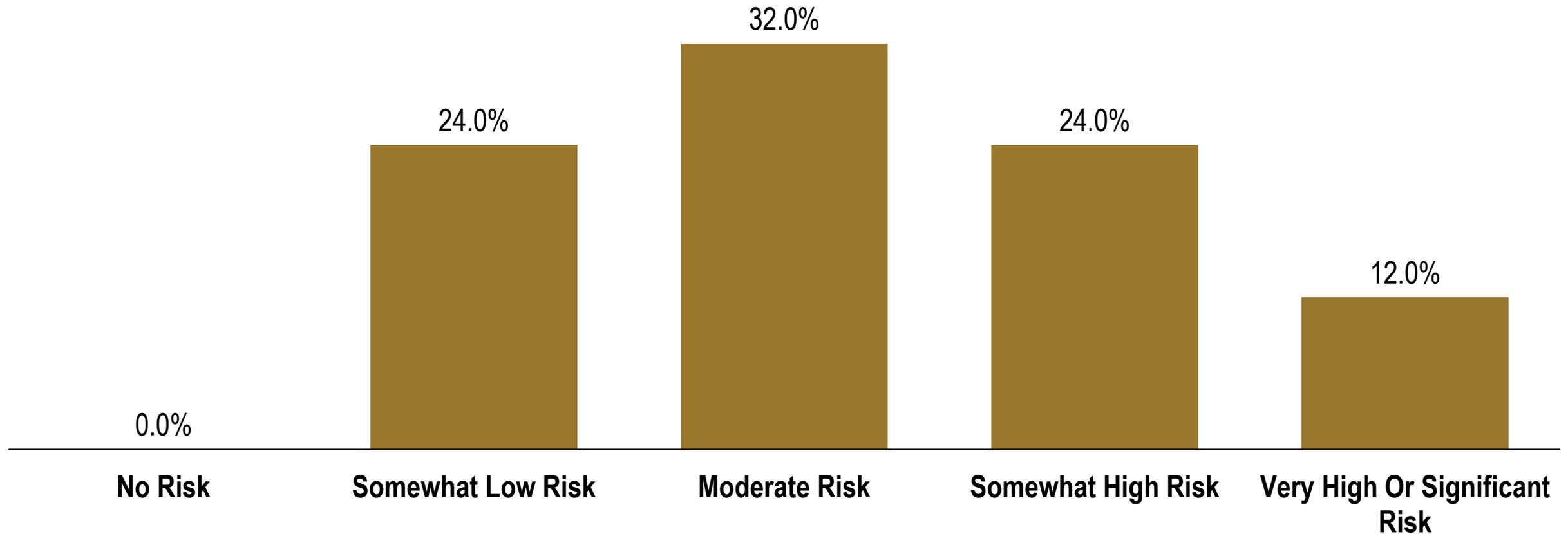
Hours Donated

Source: NVMA 2018 Survey



HOW WILL NEW LAWS AND REGULATIONS IMPACT THE MINING INDUSTRY?

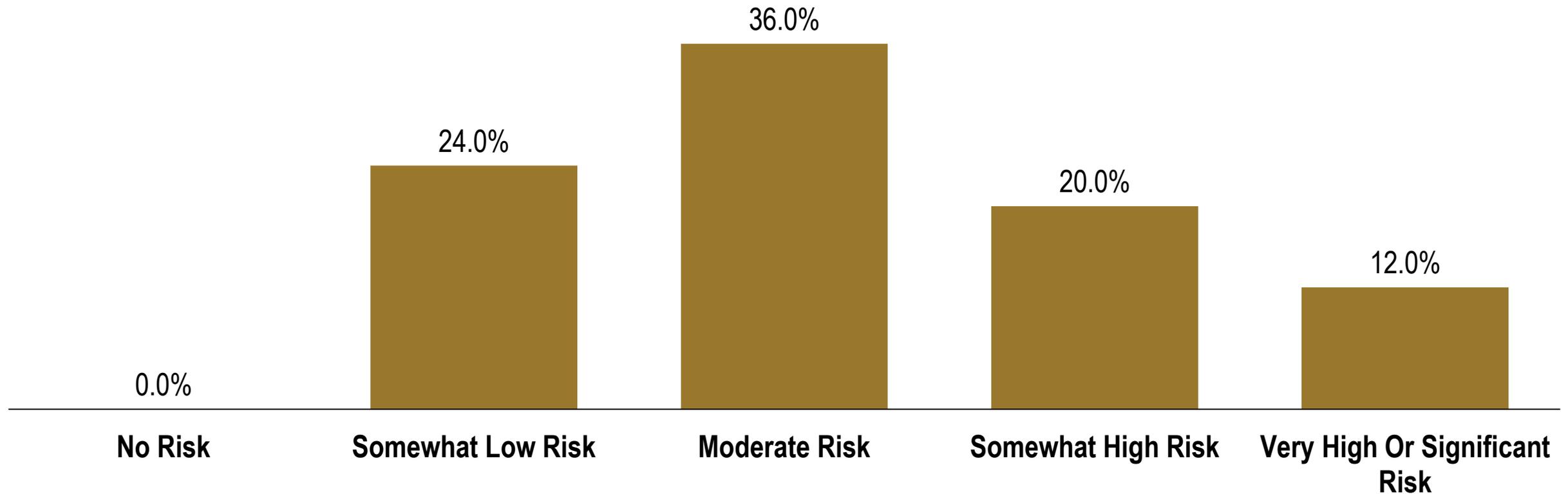
Public Lands Withdrawals/Restricted Access for Exploration



Source: NVMA 2018 Survey



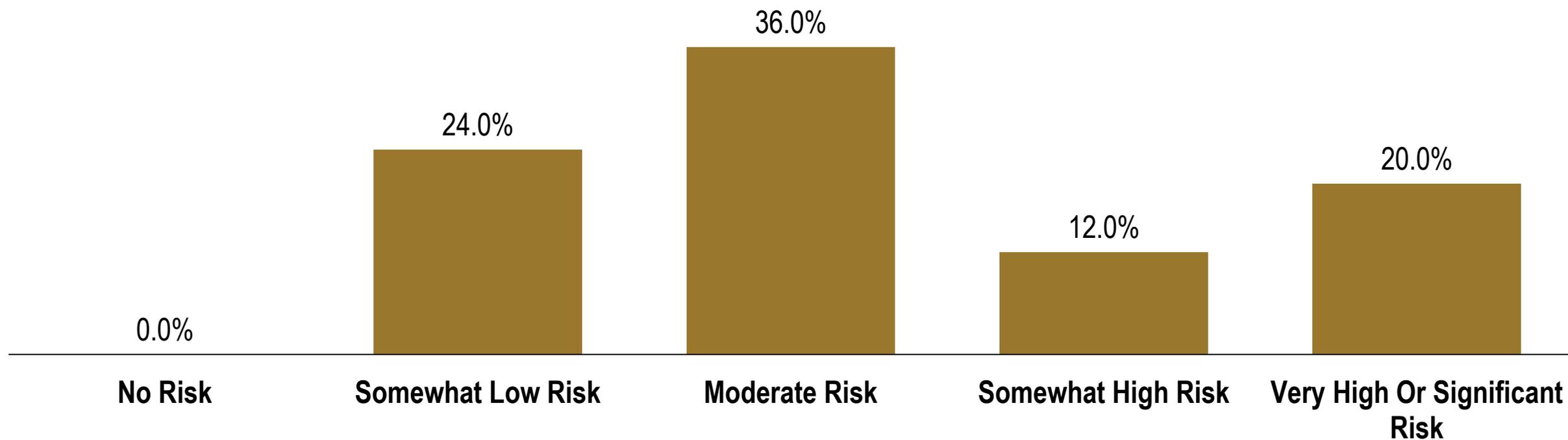
Public Lands Withdrawals/Restricted Access for Mineral Development



Source: NVMA 2018 Survey



Exploitation of Environmental Law/Regulations



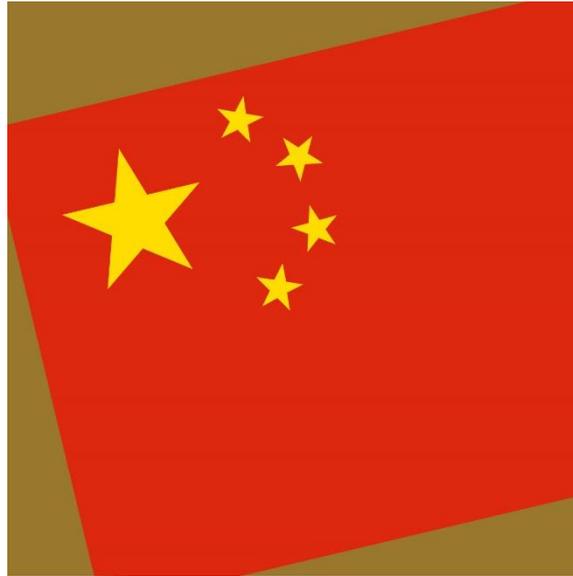
Source: NVMA 2018 Survey



Tariffs & NAFTA



**MINERAL
PRICES**



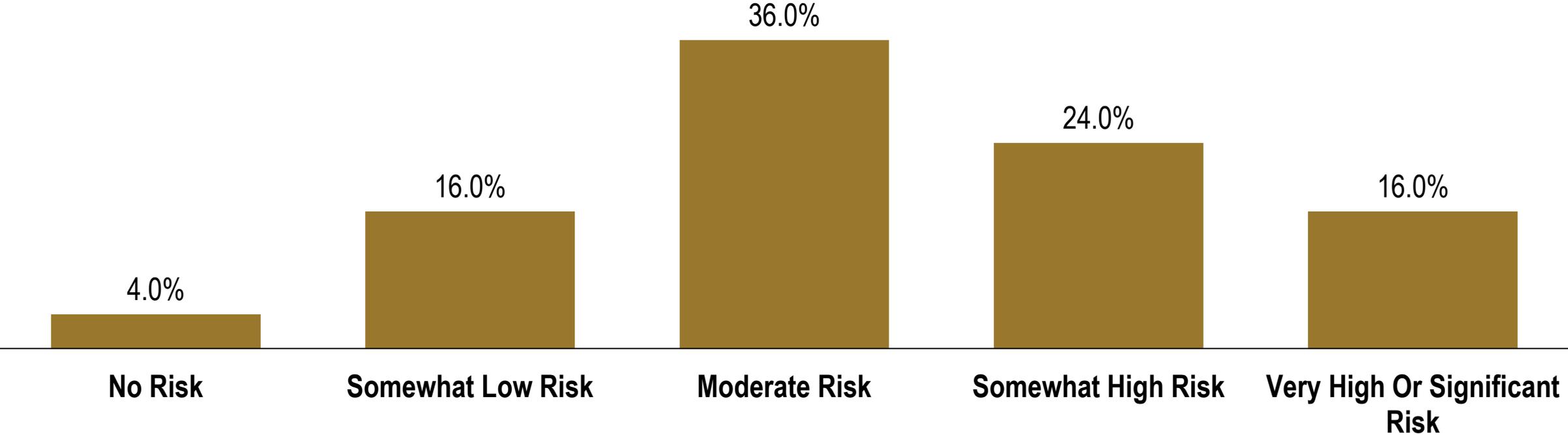
CHINA



NAFTA

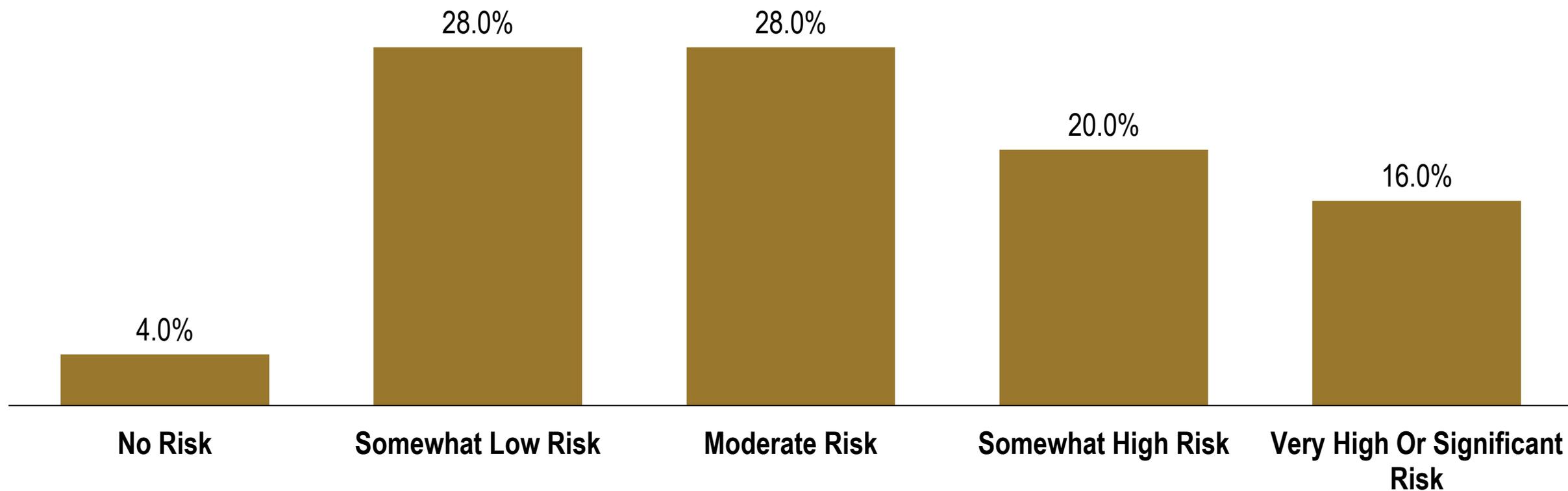


Monetary Policies (Impact on Inflation/Gold Prices)



Source: NvMA 2018 Survey

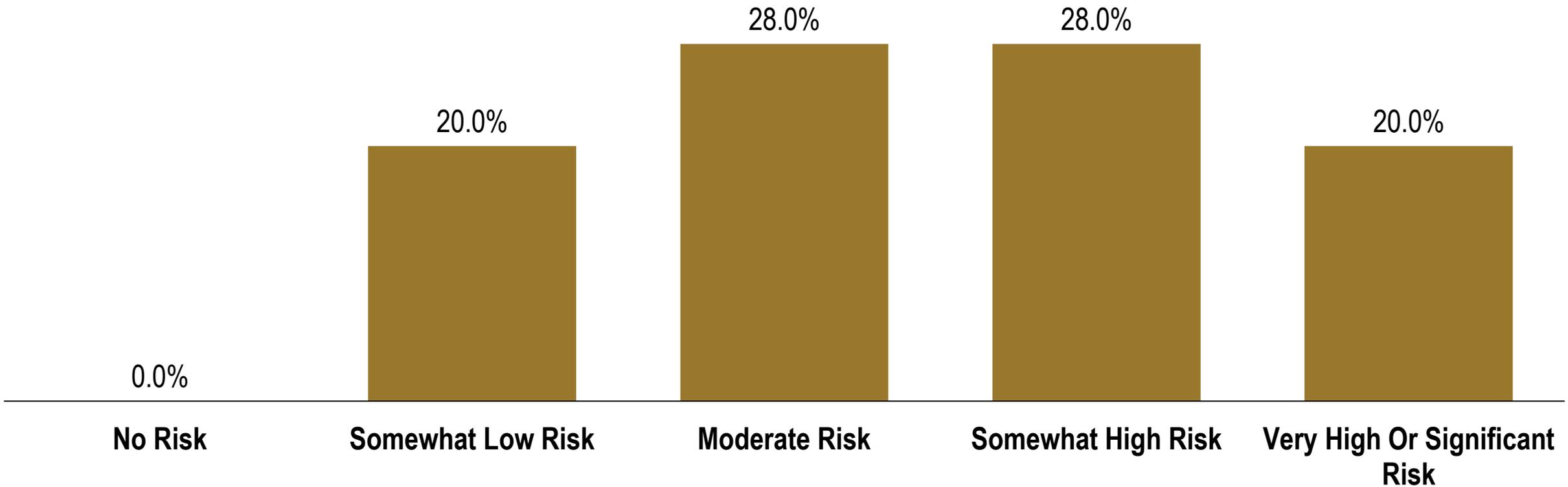
Access to Capital and/or Financing for Operations



Source: NVMA 2018 Survey

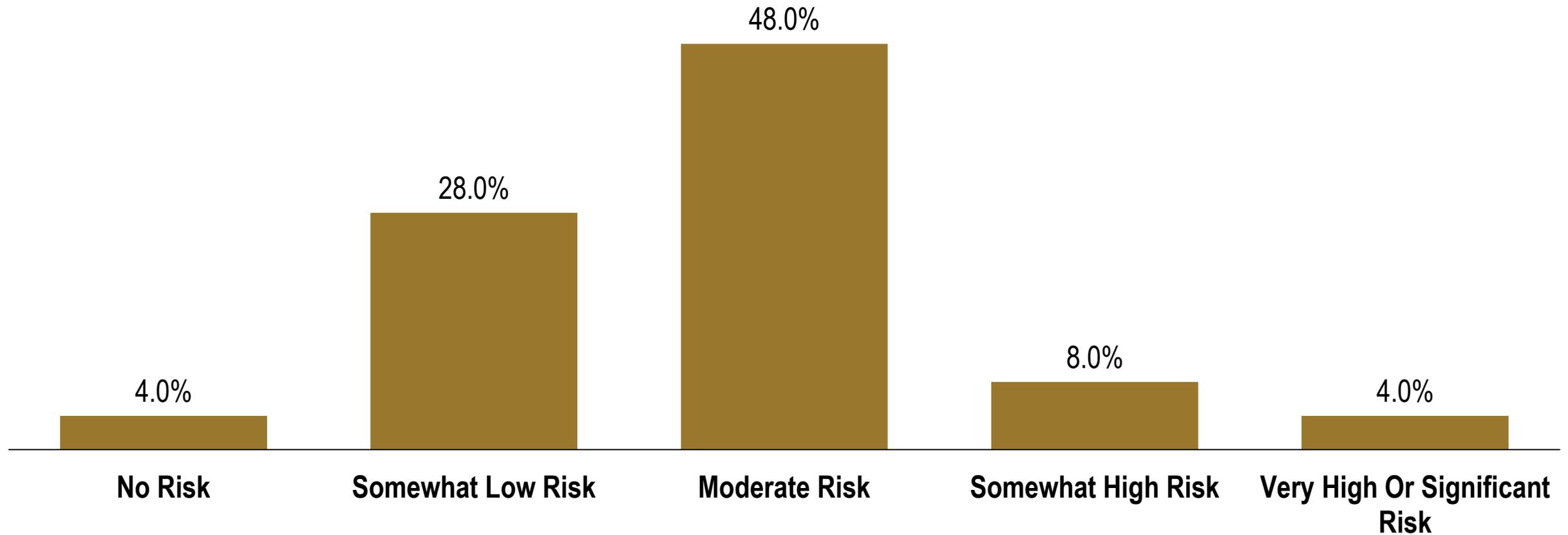


Cost of Equipment and/or Capital Purchases



Source: NvMA 2018 Survey

Change in Fiscal (Tax) Policies



Source: NVMA 2018 Survey



Tax Cuts & Jobs Act



- Statutory rate reduction
- Percentage depletion retained
- Repeal of corporate AMT, retention of individual AMT
- Increase in bonus depreciation
- Limit net interest expense deduction



HOW WILL CHANGES IN THE ENERGY INDUSTRY IMPACT THE MINING INDUSTRY?

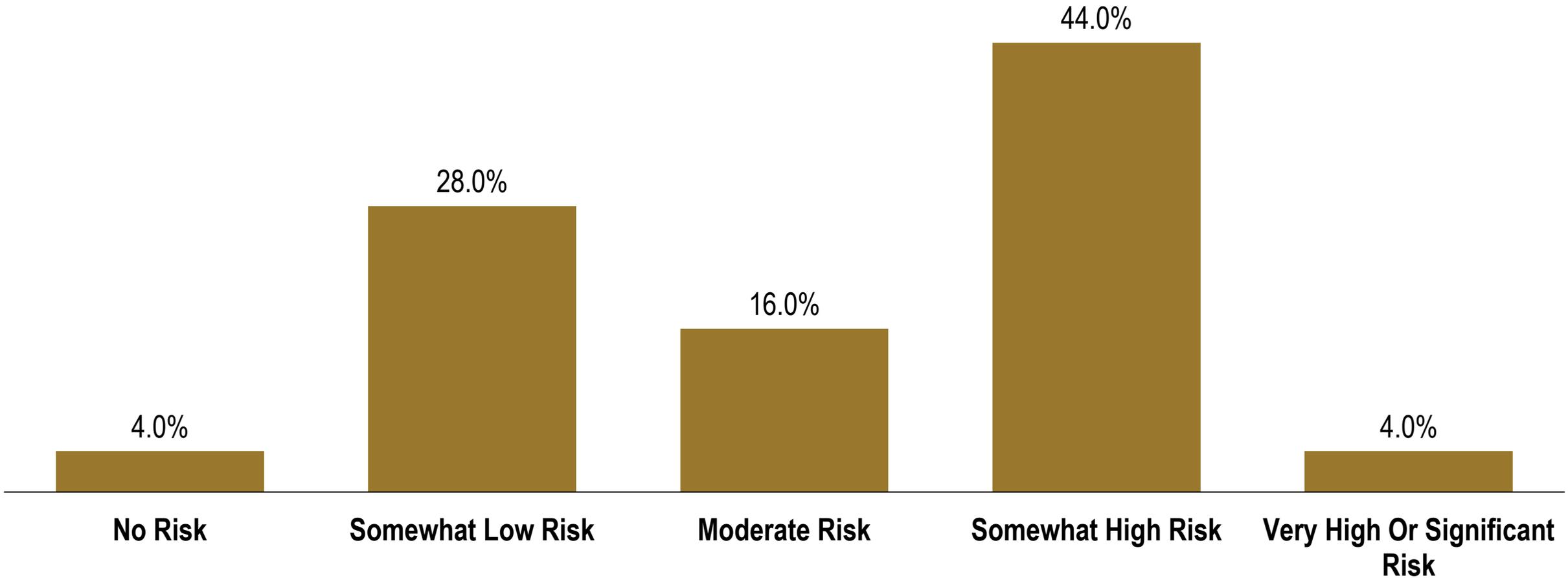
Energy



- Uncertainty around Question 3 and Question 6
- Increased shareholder and general public scrutiny of energy sources and uses
- Record-low solar PPAs being signed
- New storage technologies help assure reliability/redundancy



Climate Change Impact on Energy Usage/Demand

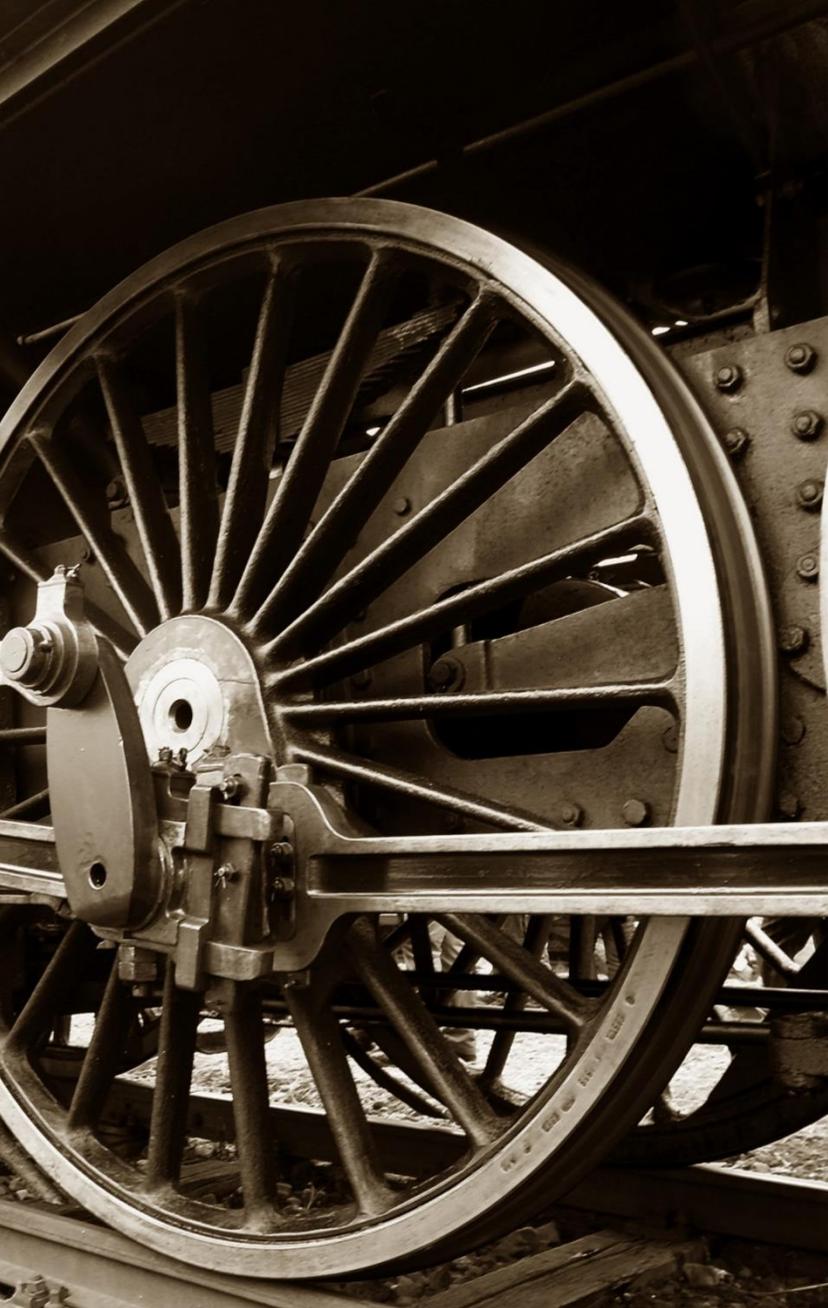


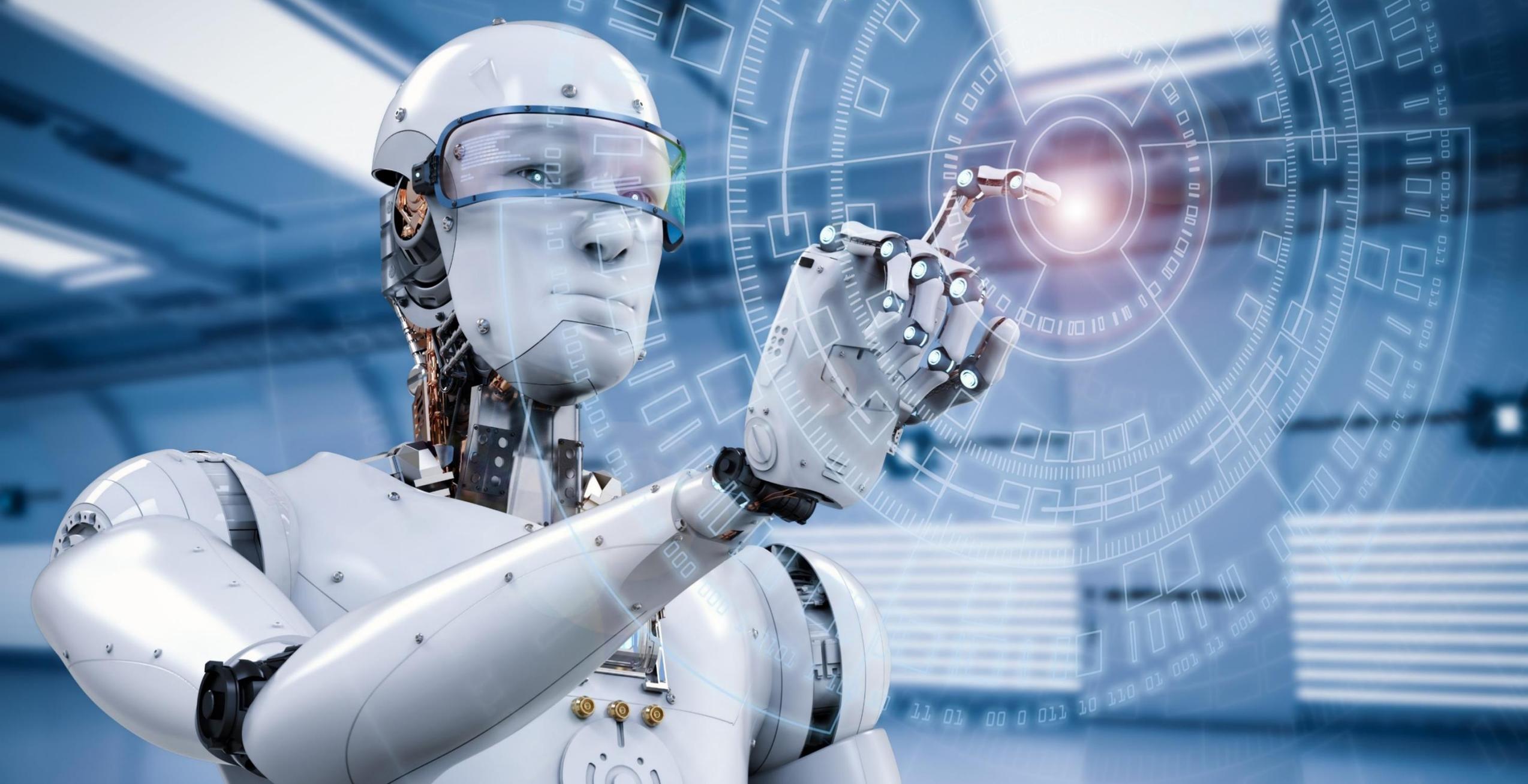
Source: NVMA 2018 Survey

HOW WILL TECHNOLOGY IMPACT THE MINING INDUSTRY?

THE CHALLENGE OF THE FOURTH INDUSTRIAL REVOLUTION







Forbes

THE 4TH INDUSTRIAL REVOLUTION: HOW MINING COMPANIES ARE USING AI, MACHINE LEARNING AND ROBOTS

“In an industry such as mining where improving efficiency and productivity is crucial to profitability, even small improvements in yields, speed and efficiency can make an extraordinary impact.”

Source: Forbes, 9/7/2018



“...already been using autonomous haul trucks that can carry 350 tons and operate totally independently since 2008. These trucks have impacted the company’s bottom line by reducing fuel use by 13 percent and are safer to operate.”



Source: Forbes; Business Insider



CHAPTER.....

AN ACT relating to transportation; revising requirements for the testing or operation of an autonomous vehicle on a highway within this State; authorizing the use of driver-assistive platooning technology; authorizing the use of a fully autonomous vehicle to provide transportation services in certain circumstances by persons licensed by the Department of Motor Vehicles, Nevada Transportation Authority or Taxicab Authority; providing for the regulation of autonomous vehicle network companies; providing penalties; and providing other matters properly relating thereto.

Legislative Counsel's Digest:

Existing law requires the Department of Motor Vehicles to adopt regulations authorizing the operation of autonomous vehicles on highways within this State. (NRS 482A.100) Existing law also provides certain requirements which must be met before an autonomous vehicle is tested or operated on a highway within this State. (NRS 482A.060-482A.080) **Section 5.6** of this bill prohibits a local government from imposing a tax, fee or other requirement on an automated driving system or autonomous vehicle. **Section 5.8** of this bill requires a person responsible for the testing of an autonomous vehicle to report certain crashes to the Department. **Section 6** of this bill authorizes the Department to impose an administrative fine for violations of laws and regulations relating to autonomous vehicles. **Section 8** of this bill allows a fully autonomous vehicle to be tested or operated on a highway within this State with the automated driving system engaged and without a human operator if the vehicle is capable of achieving a minimal risk condition upon a failure of its automated driving system. **Section 9** of this bill allows an autonomous vehicle or fully autonomous vehicle to be tested or operated on a highway within this State if the vehicle satisfies certain requirements relating to safety if an automated driving system fails. **Section 9.5** of this bill extends immunity from liability for damages caused by modifications by an unauthorized third party to the original manufacturer or developer of an automated driving system. **Section 10** of this bill authorizes the Department to adopt certain regulations relating to autonomous vehicles. **Section 5.4** of this bill authorizes the use of driver-assistive platooning technology within this State. **Section 11.7** of this bill excludes a vehicle using driver-assistive platooning technology from the provisions of law prohibiting the driver of a vehicle from following another vehicle too closely. **Section 11.5** of this bill defines the term "driver" for the purposes of the traffic laws of this State to include the owner of a fully autonomous vehicle and the person who causes the automated driving system of any other autonomous vehicle to engage.

Existing law requires: (1) each person operating as a common, contract or private motor carrier in this State to obtain a license from the Department of Motor Vehicles; (2) each person who engages in the taxicab business in certain counties to hold a certificate of public convenience and necessity issued by the Public Service Commission of Nevada before July 1, 1981, or by the Taxicab Authority; and (3) each person who engages in the business of a transportation network company in this State to hold a permit issued by the Nevada Transportation Authority. (NRS 706.491, 706.881, 706.8827, 706A.110) **Sections 14.2-14.9** of this bill provide for

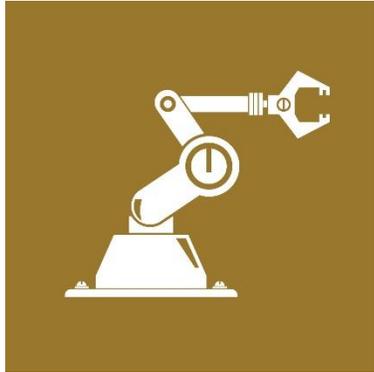


79th Session (2017)

“This legislation establishes Nevada as a leader in embracing self-driving vehicles and puts the people of Nevada at the forefront for the opportunity to realize the many benefits of self-driving vehicles.”

-General Motors, 6/19/2017

Automation: It's REAL and It's Coming



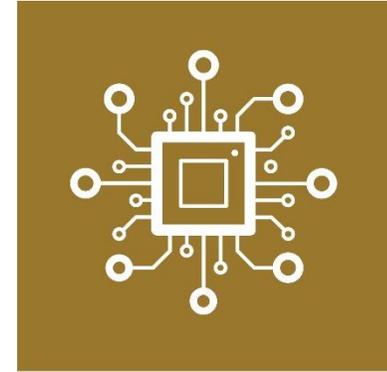
NOT A FAD

Every sector is experiencing or will experience real disruption



MINING JOBS

Up to 50% of mining jobs are ripe for automation



DATA COLLECTION & ANALYSIS

in addition to physical work can be automated



Largest Companies by Market Cap

2001

2006

2011

2016

2018

1	
2	 Microsoft
3	EXXON
4	citi
5	Walmart ✱

1	EXXON
2	
3	 TOTAL
4	 Microsoft
5	citi

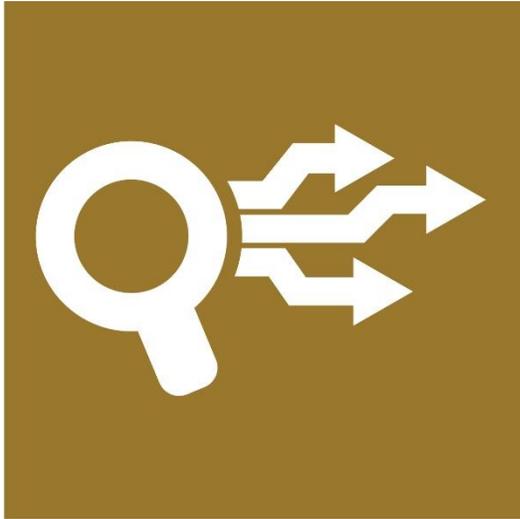
1	EXXON
2	
3	 PetroChina
4	
5	

1	
2	Alphabet
3	 Microsoft
4	
5	

1	
2	
3	 Microsoft
4	Alphabet
5	



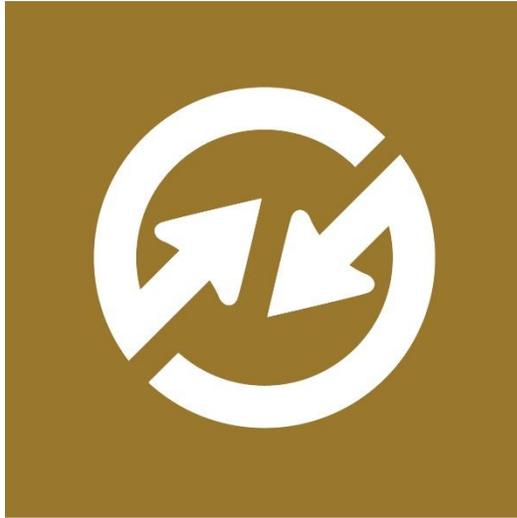
How Are You Thinking About Digital Integration?



- From mine to customer, thousands of digital integrations coming
 - IoT
 - Blockchain
 - Artificial Intelligence
 - Automation



How Are You Thinking About Digital Integration?



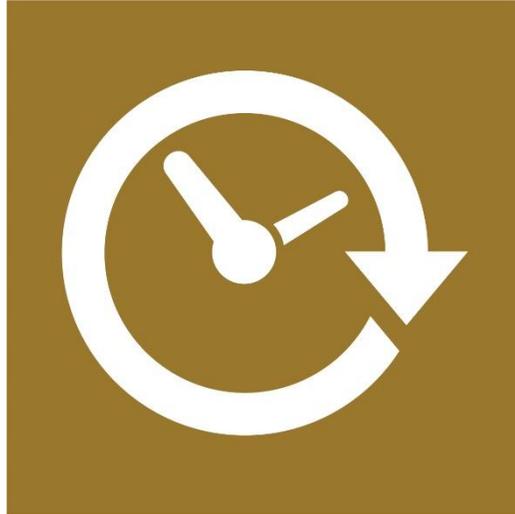
- Increase operational productivity
- Better maintain assets
- Enhance employee safety



Barriers to Innovation



RISK AVERSION



**SHORT-TERM
SHAREHOLDER
VALUE**



CASH FLOW



**REGULATORY
RESTRICTIONS**



HOW WILL POLITICAL CHANGES IMPACT THE MINING INDUSTRY?



**2018 State
Elections**

Houses of State Government Transitioning in 2018

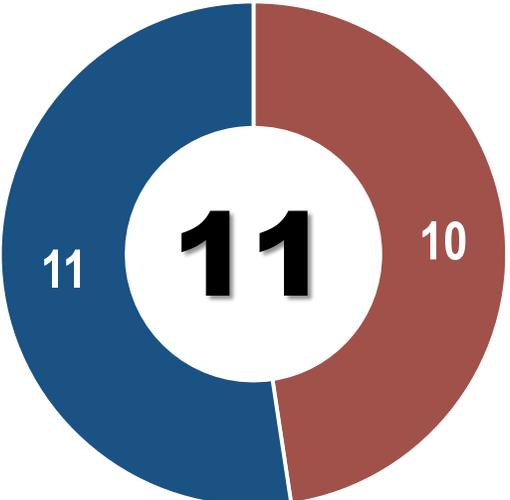
Governor



Up for Election

Senate

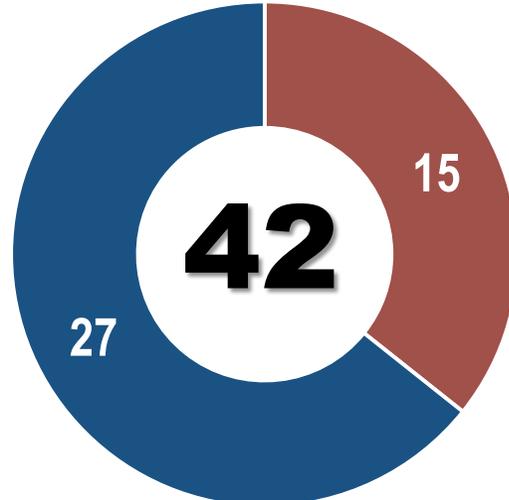
2017 Session



11 Seats up for Election

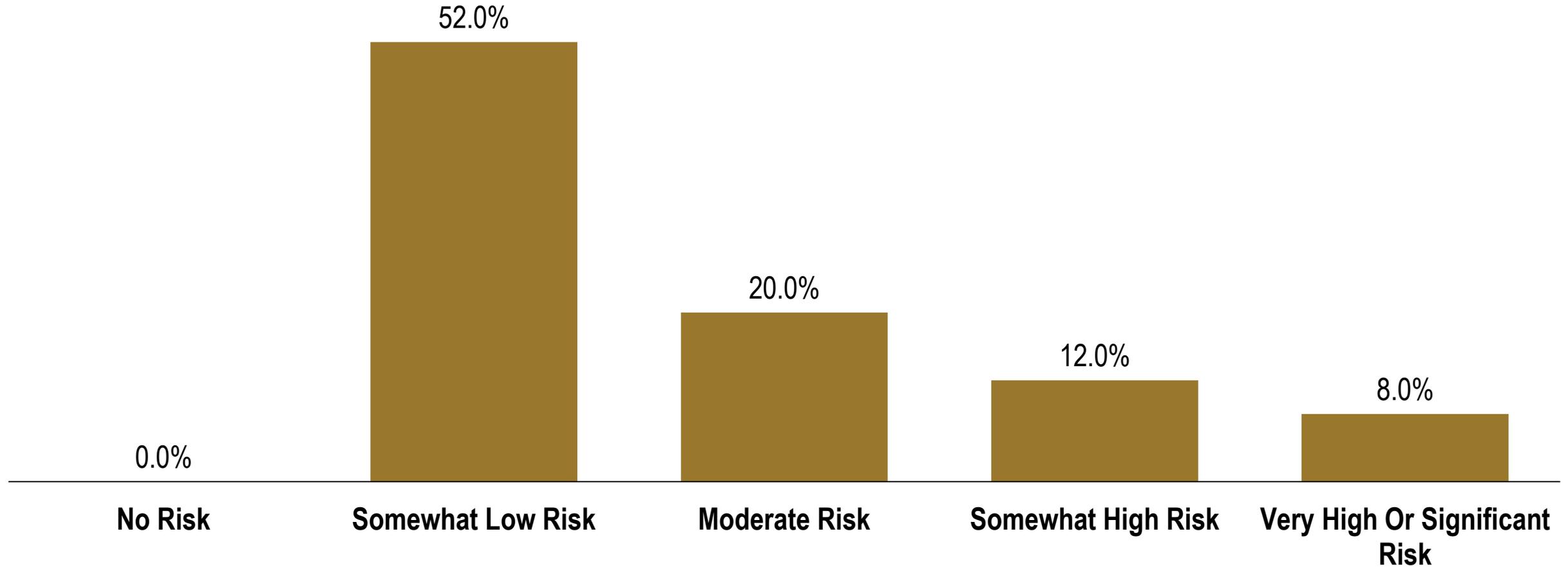
Assembly

2017 Session



All 42 Seats up for Election

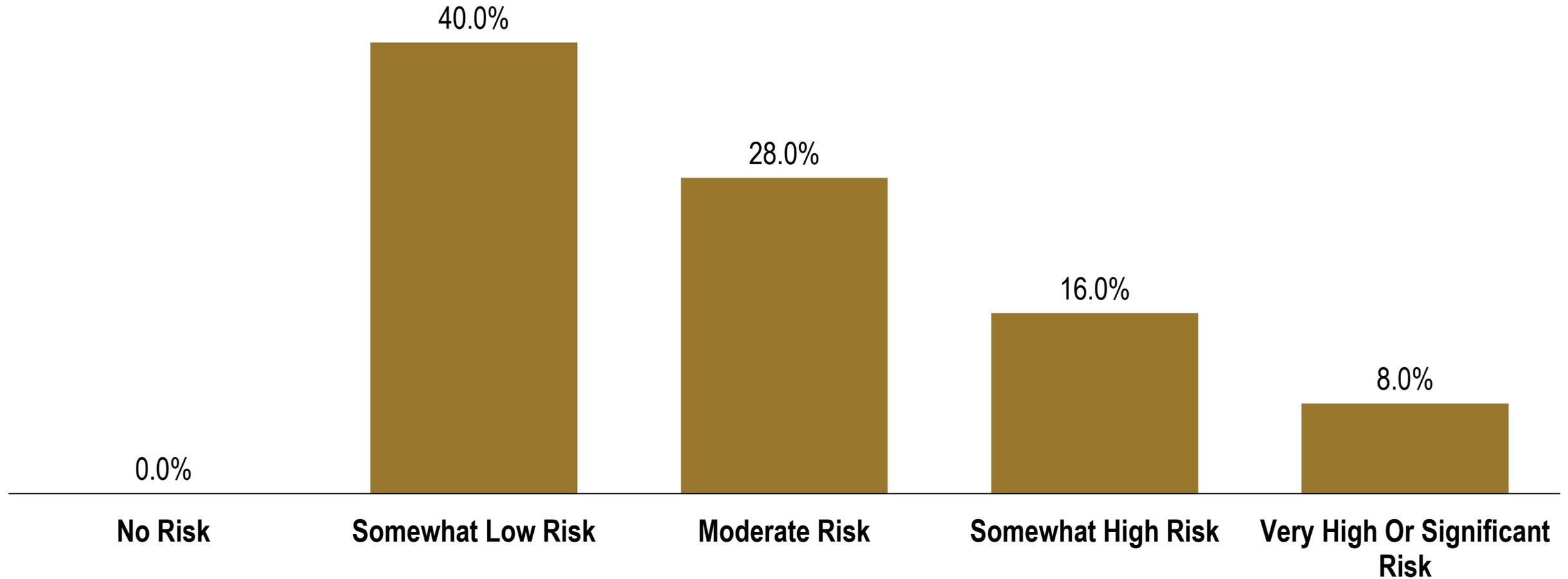
Change in State Government/ Regulatory Policies on the Industry



Source: NVMA 2018 Survey

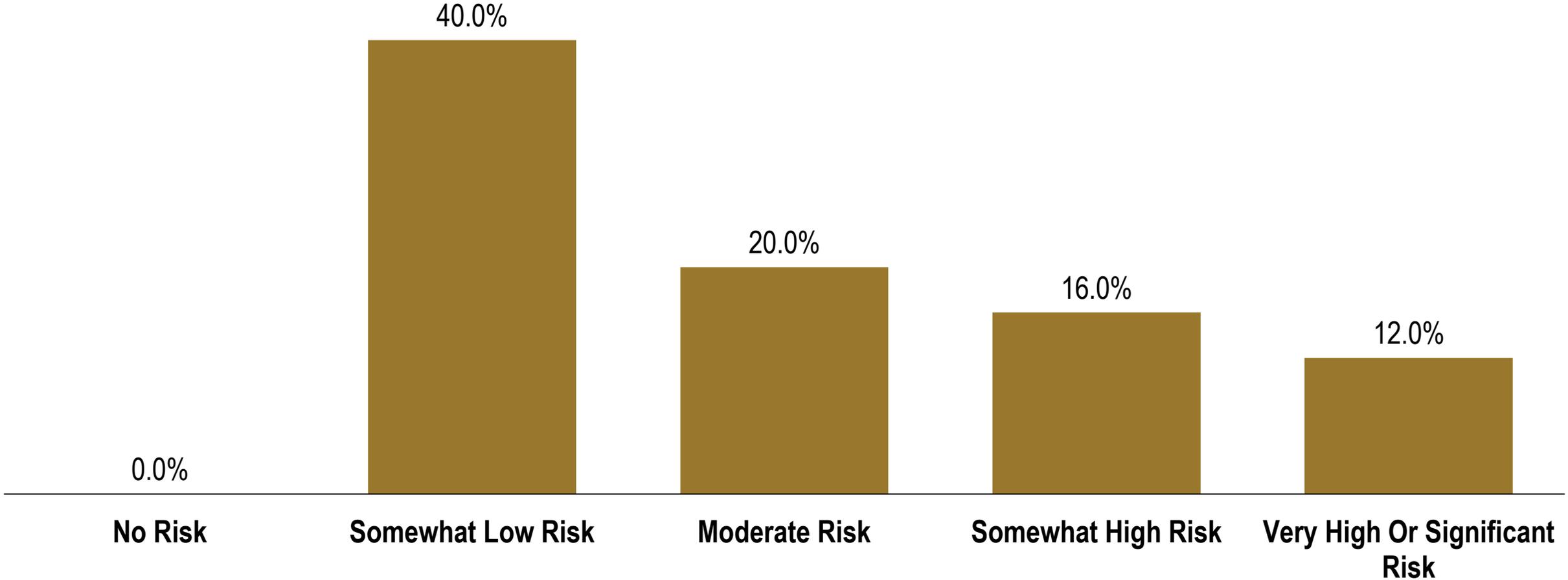


Change in National Government/Regulatory Policies on the Industry



Source: NVMA 2018 Survey

Change in International Government/Regulatory Policies on the Industry



Source: NvMA 2018 Survey

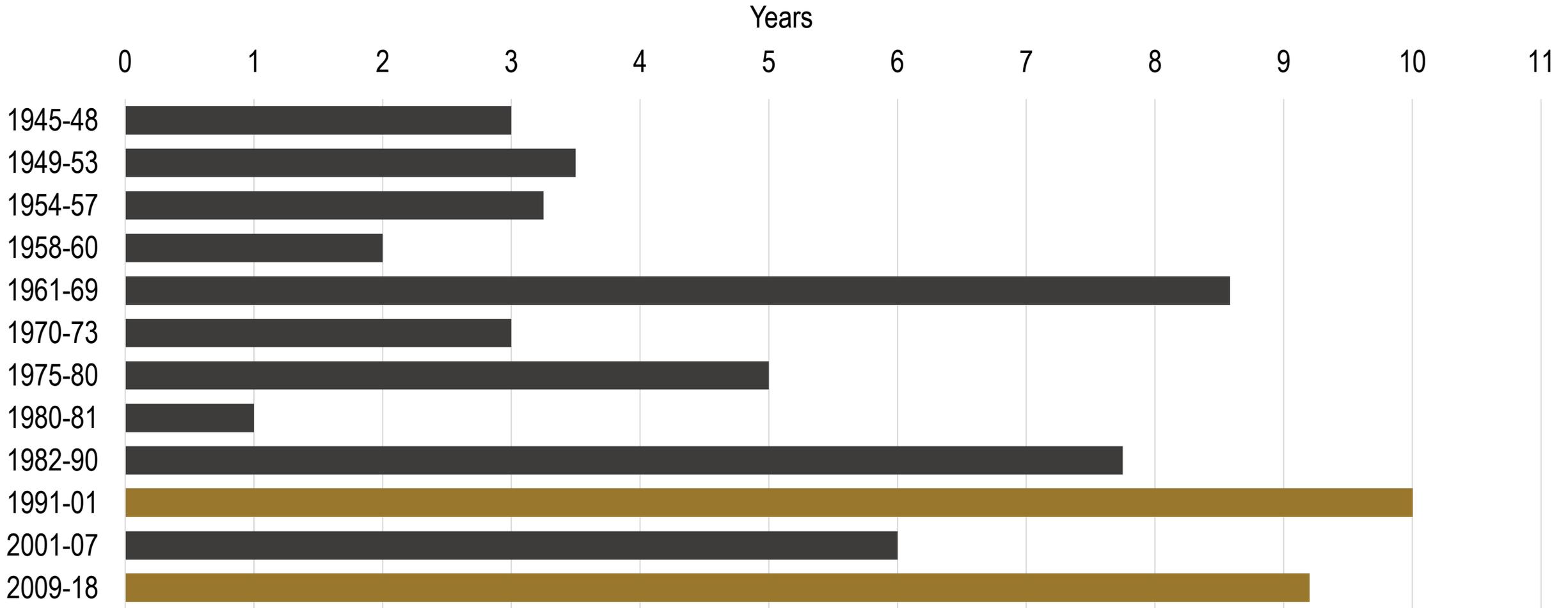


RECOVERY

RECESSION



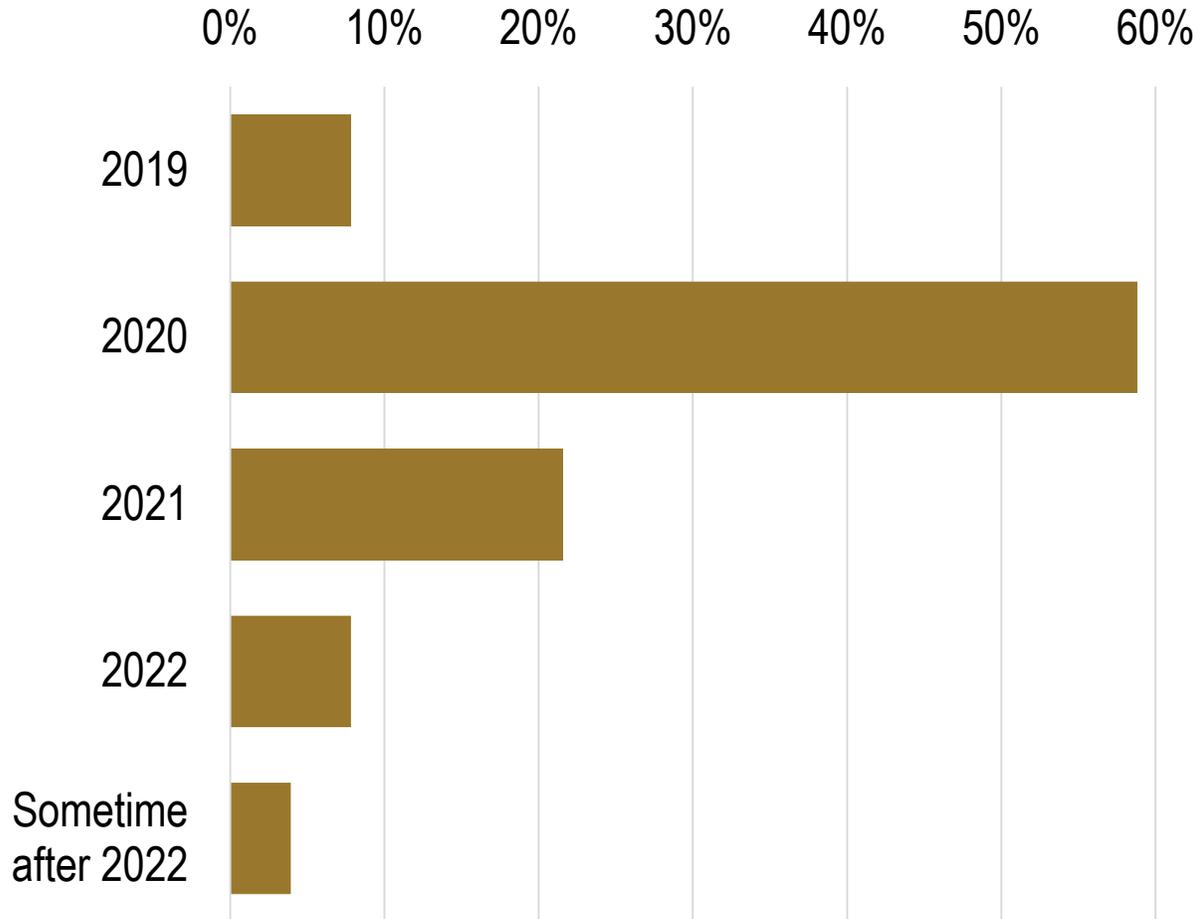
2nd Longest Expansion in U.S. History



Source: National Bureau of Economic Research, The Wall Street Journal, Applied Analysis



The Next Recession

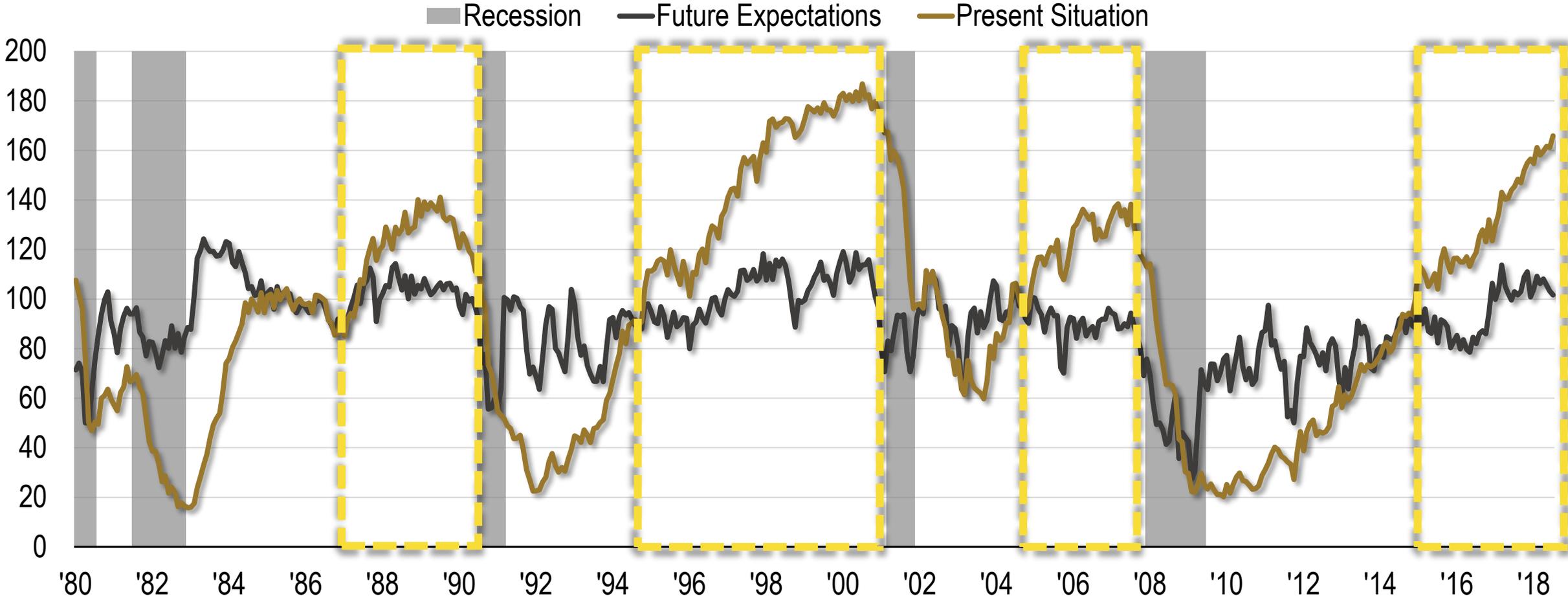


Economists have predicted **nine out of the last **five** recessions?**

Source: Wall Street Journal Survey of Economists Conducted May 4-8, 2018, 5/10/18



Consumer Confidence



Source: The Conference Board



NEVADA
Mining Association

2018

**MINING INDUSTRY
ISSUES AND OPPORTUNITIES**

