



MINING INDUSTRY  
HUMAN RESOURCES COUNCIL

# CANADIAN MINING OUTLOOK

2024





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**For more information, contact:**

**Mining Industry Human Resources Council**

50 Frank Nighbor Place, Unit 105  
Kanata, Ontario K2V 1B9

**Tel:** (613) 270-9696

**Email:** [research@mihr.ca](mailto:research@mihr.ca)

**Or visit the website at:**

**[www.mihr.ca](http://www.mihr.ca)**

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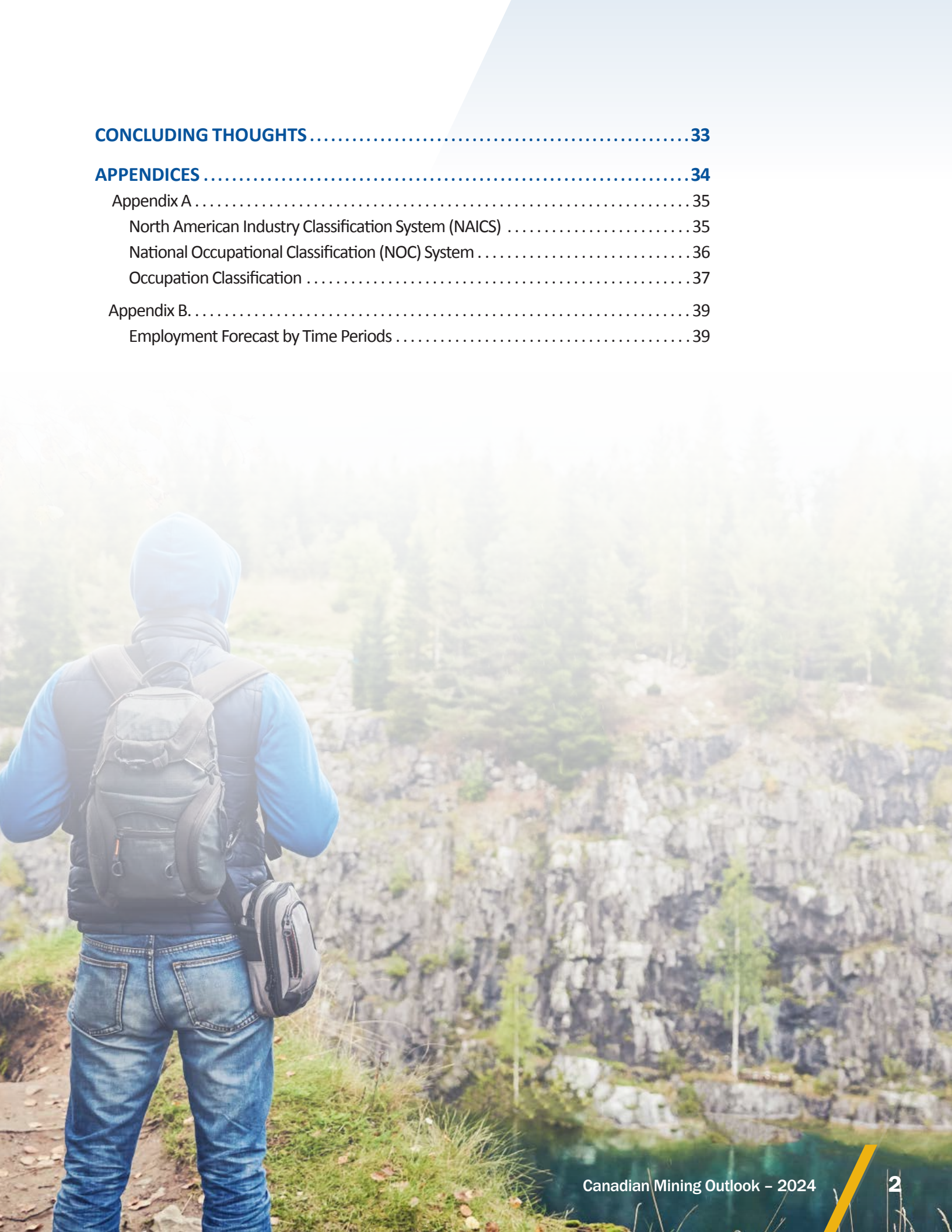
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# Introduction

The Mining Industry Human Resources Council's (MiHR) *Canadian Mining Outlook (2023)* examined the state of Canada's mining labour market, exploring a handful of key indicators to evaluate labour market tightness in the industry:

- A labour market tightness checklist illustrated a tight (and tightening) labour market for the mining industry emerging from the disruptive events of the past few years, opening with the COVID-19 pandemic in 2020.
- A labour market forecast to 2033 measured labour tightness from a long-term perspective and found certain labour categories (e.g. *Extraction and Milling* and *Production Occupations*) were especially susceptible to labour tightness under particular scenarios. In these cases, forecasted entries are not expected to be sufficient to completely alleviate the hiring pressures generated by new labour demand and exiting workers.

One year later, the *Canadian Mining Outlook (2024)* provides an update from last year’s seminal report. **This review finds that most key indicators have cooled down from 2023 levels, yet not enough to alleviate labour tightness concerns.** MiHR anticipated a correction was likely in the short-term, especially given the intensity of the trends observed from 2021-2022:

“The events of the past three years can be characterized as shorter-term disruptions, which may lead to many trends correcting or reverting to their normal state. Eventually, global supply chains will resolve their issues, inflationary concerns will subside and global conflicts like the Russia-Ukraine war will end, though the timing of these developments is highly uncertain.”

– *Canadian Mining Outlook (2023)*

While the disruptions of the past few years have begun to level, **the long-term stability of Canada’s mining labour market remains a concern.** Several non-reverting factors continue to undermine the mining labour supply’s ability to effectively respond to periods of growth, such as unfavorable demographics, negative perceptions of the industry and declining post-secondary enrolment trends.

This report examines the current labour market conditions of Canada’s mining industry and explores key areas where the sector may encounter labour market challenges over the next decade. The report is structured into three main sections:

1. **Many labour tightness signals have slowed.**
2. **Reasons for current labour market tightness.**
3. **Labour market outlook and forecast.**

### MiHR’s Definition of Canada’s Mining Industry

MiHR defines the mining industry as inclusive of activities that fall within the following three sub-sectors:

1. **Extraction and Milling:** Describes the activities at operating mines across Canada, including both surface and underground mining operations; includes on-site processing activities.
2. **Support Services:** Includes the activities of organizations providing support services for a wide range of mining activities, usually on a contract or fee basis<sup>1</sup>.
3. **Primary Metal Manufacturing:** Consists of activities that are directly downstream from extraction and milling, including smelting and refining of ferrous and non-ferrous metals.

Wherever possible, MiHR uses data and information that adhere to its definition of the mining industry. This includes sector-level data based on the North American Industry Classification System (NAICS). NAICSs codes corresponding to each sub-sector are defined within the report in Sections 1 and 2. Section 3’s labour market outlook and forecast uses a more robust set of NAICS codes for sub-sector definitions (see Appendix A for more information).

<sup>1</sup> *Support services* are those required for mine construction, extraction, processing and exploration activities.

# Many Labour Tightness Signals Have Slowed

# 1

Labour market tightness simply means that labour supply is not keeping pace with labour demand. A tight labour market is often characterized by labour shortages, which make it more difficult for employers to find the skilled workers they require.

Tighter labour markets drive up costs in recruitment, wages and advertising, and increase the need for competitors to inefficiently poach talent from each other. On the other hand, a labour market that is more sustainable and competitive would have a labour pool sizeable enough to effectively respond to the short-term acute needs of the industry.



# MiHR’s Labour Market Tightness Checklist

There are various signals that can point to labour market tightness. MiHR continuously monitors a handful of labour market indicators to diagnose labour tightness, comparable to a doctor looking for symptoms to diagnose a patient. This section follows a *labour market tightness checklist* to develop a rounded picture of the state of Canada’s mining labour market in the post-COVID era (Table 1).

**TABLE 1** *Labour Market Tightness Checklist*

Indicator	Research Question
Industry Sentiment	<i>Do employers feel there is a tight labour market?</i>
Unemployment Rate	<i>Is the pool of job seekers large enough to accommodate growth in the mining industry?</i>
Job Vacancy Rate	<i>What share of job openings is unfilled?</i>
Unemployed-to-Vacancies Ratio	<i>Are job seekers difficult or easy to find?</i>
Employment Growth	<i>Has employment grown at a sustainable pace?</i>
Wage Growth	<i>Are competitive pressures pushing up wages?</i>

Source: Mining Industry Human Resources Council, Canadian Mining Outlook, 2024.





## Indicator #1: Industry Sentiment

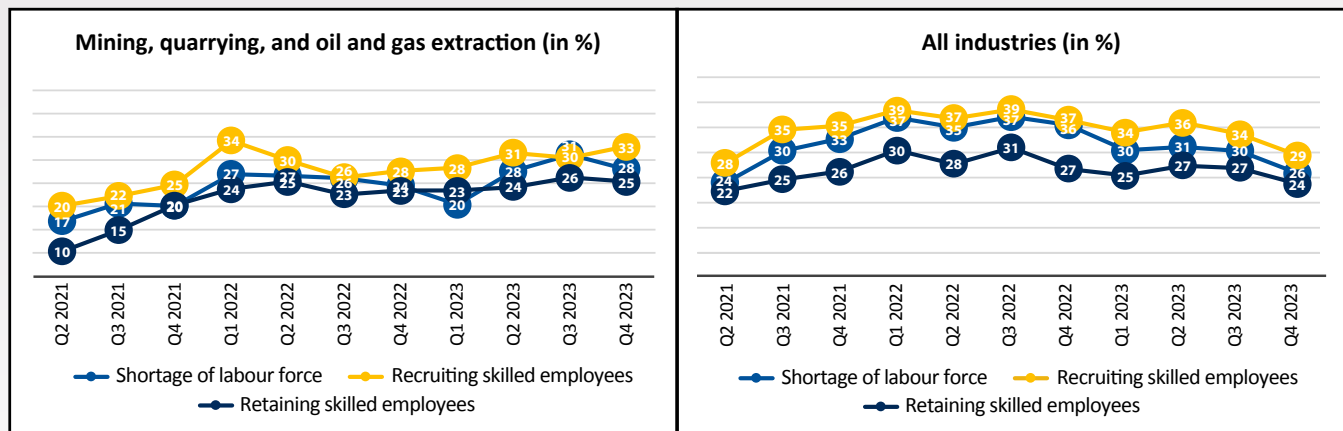
Industry sentiment follows the perspectives of industry employers to gauge whether their concern over labour tightness is growing or subsiding.

The *Canadian Survey on Business Conditions* monitors the economic outlook and expectations among businesses on a quarterly basis. Specifically, respondents were asked if the following factors were expected to be obstacles in the next quarter (Figure 1): (i) *Shortage of labour force*, (ii) *Recruiting skilled employees* and (iii) *Retaining skilled employees*.

Among respondents in *Mining, quarrying and oil and gas extraction (NAICS 21)*, expectations for labour tightening factors have trended upward in 2023, after briefly stabilizing in the prior year.<sup>2</sup> In contrast, the outlook across all industries has reverted, falling back to 2021 levels in late-2023.



**FIGURE 1** Perceived Obstacles for Businesses Over the Next Three Months<sup>3</sup>, Mining, Quarrying and Oil and Gas Extraction (NAICS 21) and All Industries (2021 - 2023)



Source: Mining Industry Human Resources Council, *Canadian Mining Outlook*, 2024; Statistics Canada; *Canadian Survey on Business Conditions*, 2023.

<sup>2</sup> Note that, for each quarter, data from *Canadian Survey on Business Conditions* was accessed from a separate table product number. This means the design and administration of this survey may have varied from quarter to quarter to accommodate new emerging and topical questions. MiHR has identified those questions that are consistent throughout and has presented them as a time series for the purpose of this analysis.

<sup>3</sup> Question wording: "Over the next three months, which of the following are expected to be obstacles for this business or organization?"

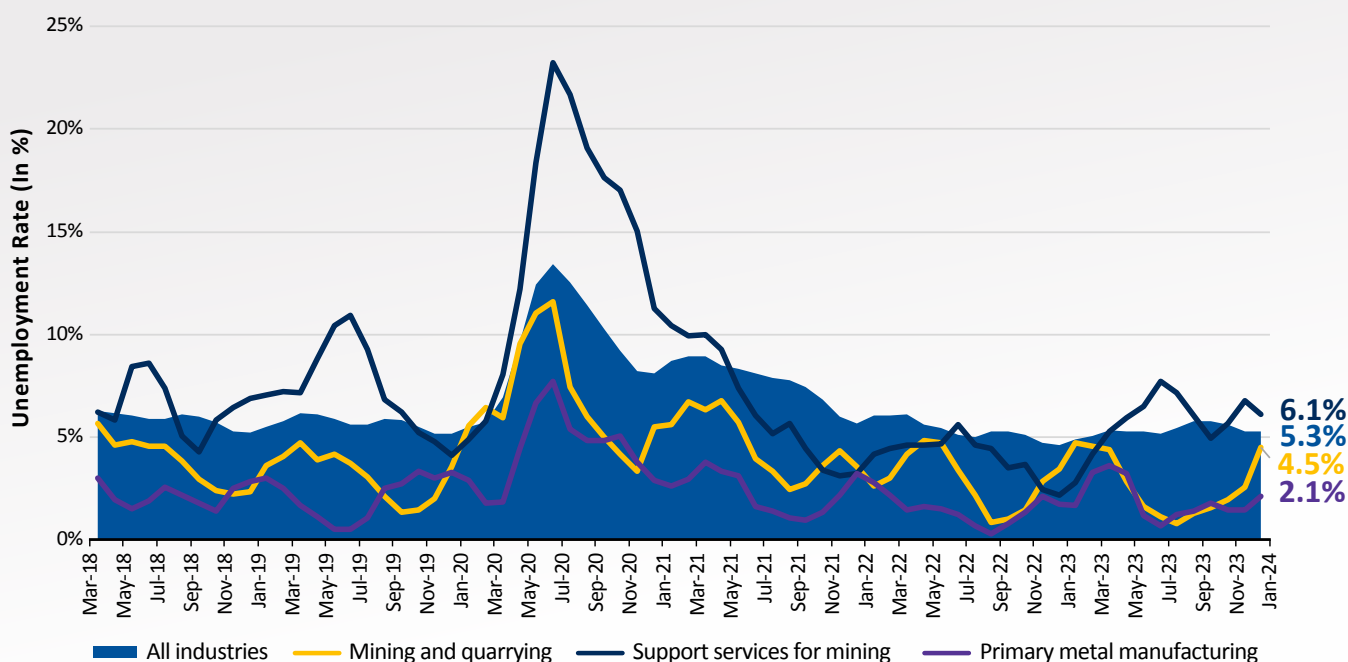
## Indicator #2: Unemployment Rate

**A tight labour market will tend to have a lower unemployment rate**, as the industry begins to exhaust its available labour pool and there are fewer labour force participants without a job. Consequently, this type of environment is often described as a *job seeker's market* since those looking for work are in short supply, providing them with additional bargaining power (i.e., the ability to command higher wages, extra benefits/perks, flexible schedules, etc.).

Figure 2 illustrates the rate of unemployment across all industries in Canada, as well as for *Mining and quarrying (NAICS 212)*, *Mining support services (NAICS 213)*, and *Primary metal manufacturing (NAICS 331)*. Since 2023, the unemployment rate in each sector has mostly returned to pre-pandemic levels and seasonality patterns. However, while this indicator has stabilized, it continues to exhibit acute labour market tightness, with roughly 1% unemployment during the low the periods for *Mining and quarrying (NAICS 212)* and *Primary metal manufacturing (NAICS 331)*.



**FIGURE 2** Unemployment Rates (Three-Month Moving Average), All Industries, Mining and Quarrying (NAICS 212), Mining Support Services (NAICS 213) and Primary Metal Manufacturing (NAICS 331) (2018 - 2023)



Source: Mining Industry Human Resources Council, Canadian Mining Outlook, 2024; Statistics Canada, Labour Force Survey (Custom Data).

### Indicator #3: Job Vacancy Rate

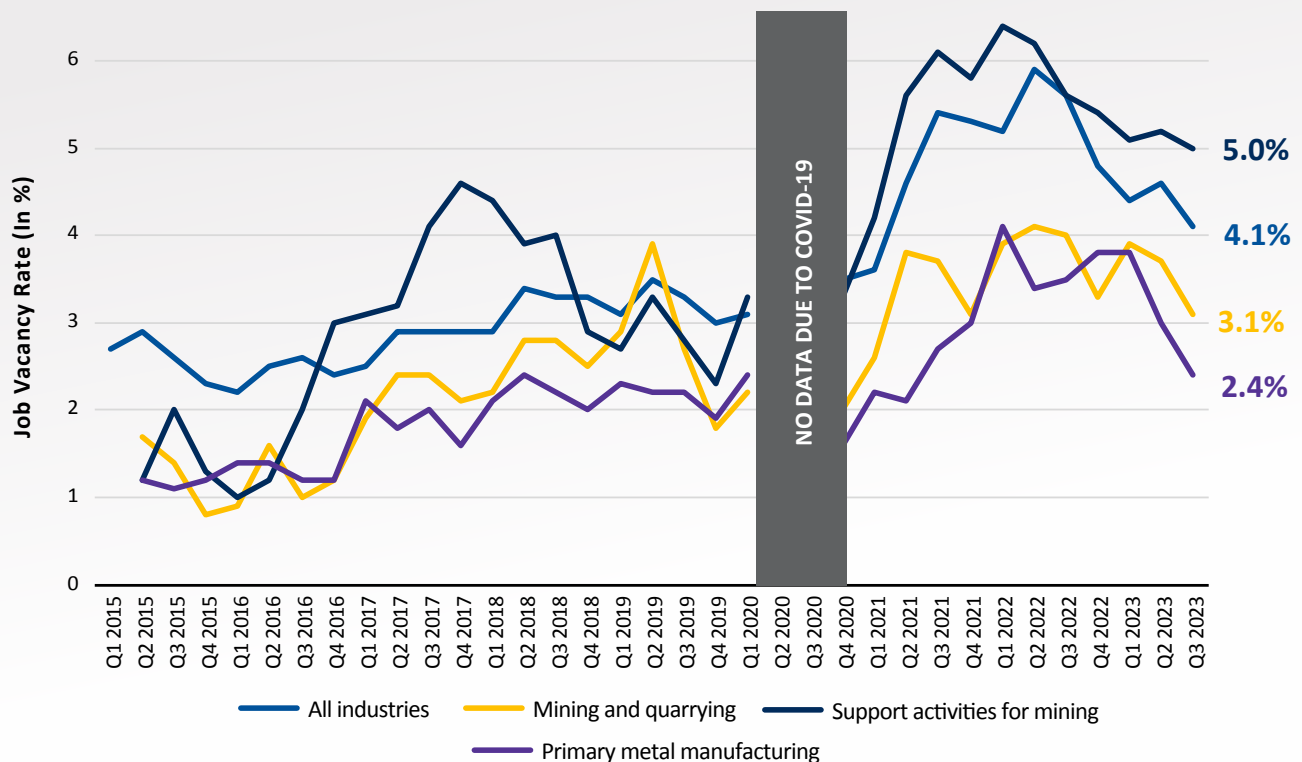
The job vacancy rate measures the percentage of total labour demand that is unfilled job positions.

**A tight labour market will display a high job vacancy rate as new openings become more difficult to fill.**

Job vacancy rates have adjusted downward from their peak in 2022, suggesting that labour market conditions have improved over the past year (Figure 3). Despite this recent trend, job vacancy rates remain elevated compared to pre-pandemic levels in *Mining and quarrying (NAICS 212)*, *Mining support services (NAICS 213)* and *Primary metal manufacturing (NAICS 331)*. It is uncertain whether this indicator will fully revert to its historical range or indefinitely continue at elevated levels in the coming years.



**FIGURE 3** Job Vacancy Rates, All Industries, Mining and Quarrying (NAICS 212), Mining Support Services (NAICS 213) and Primary Metal Manufacturing (NAICS 331) (2018 – 2023)



Source: Mining Industry Human Resources Council, Canadian Mining Outlook, 2024; Statistics Canada, Job Vacancy and Wage Survey, 2024.

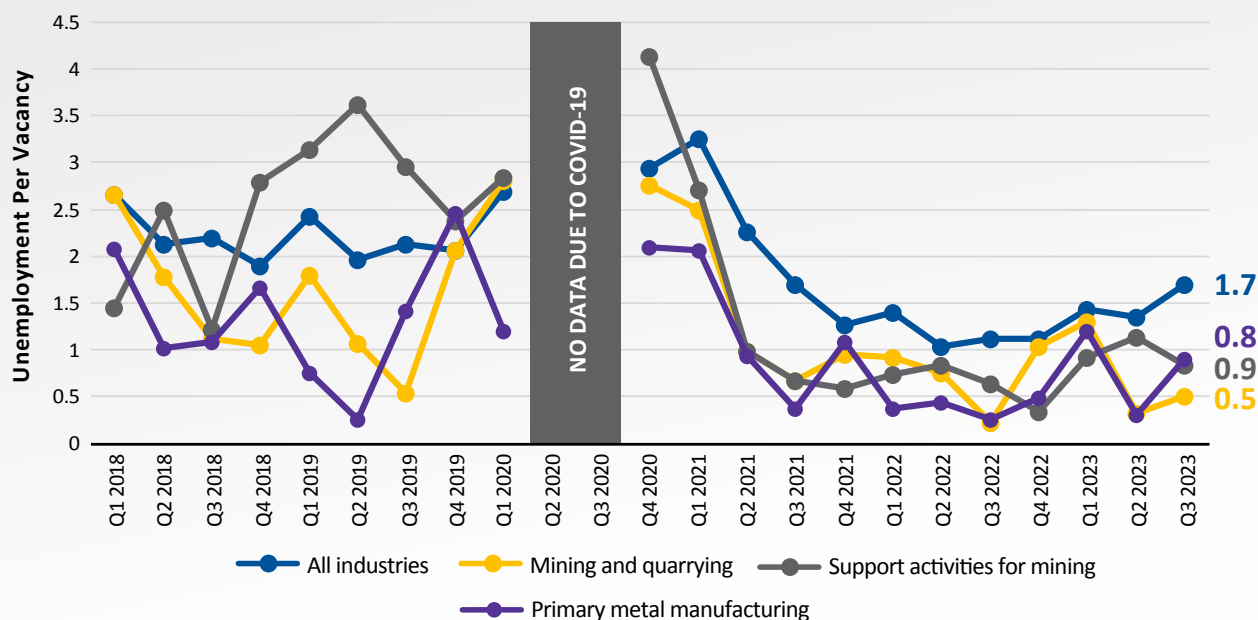
## Indicator #4: Unemployed-to-Vacancies Ratio

The unemployed-to-vacancies ratio compares the number of job seekers with the number of job openings. **A low ratio indicates there are fewer job seekers for every position that is available, pointing to a tight labour market environment where candidates are relatively difficult to find.**

Following the pandemic interruption, this indicator shows a prominent tightening trend in mining related sectors (Figure 4), a combination of having more job openings and fewer people looking for work. Notably, the ratio in *Mining and quarrying (NAICS 212)* has fallen dramatically since the pandemic, from 2.8 to less than one unemployed per job vacancy. This is markedly lower than pre-pandemic levels of roughly 1.5 on average. Other mining-related sectors display a similar trend with less than one unemployed per job vacancy as the new normal.



**FIGURE 4** *Unemployed-to-Vacancies Ratio, All Industries, Mining and Quarrying (NAICS 212), Mining Support Services (NAICS 213) and Primary Metal Manufacturing (NAICS 331) (2018 – 2023)*

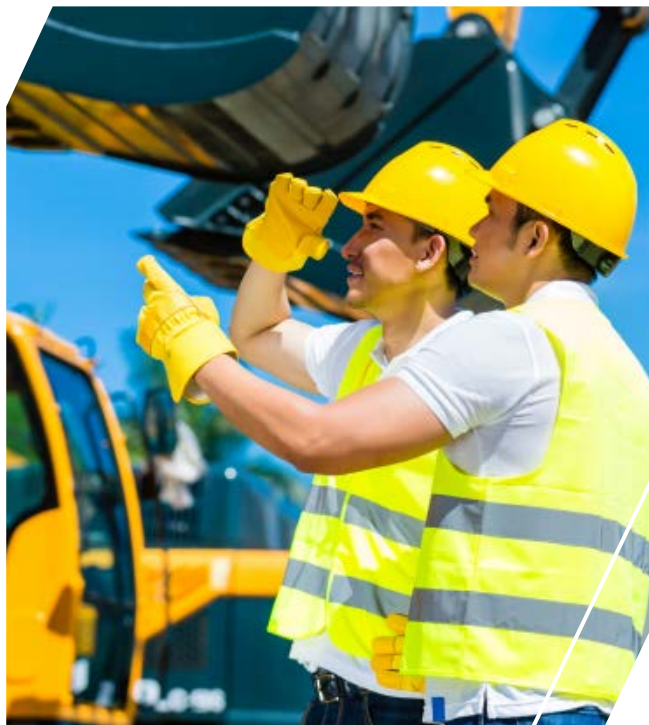


Source: Mining Industry Human Resources Council, *Canadian Mining Outlook*, 2024; Statistics Canada, *Labour Force Survey (Custom Data)*; Statistics Canada, *Job Vacancy and Wage Survey*, 2023.

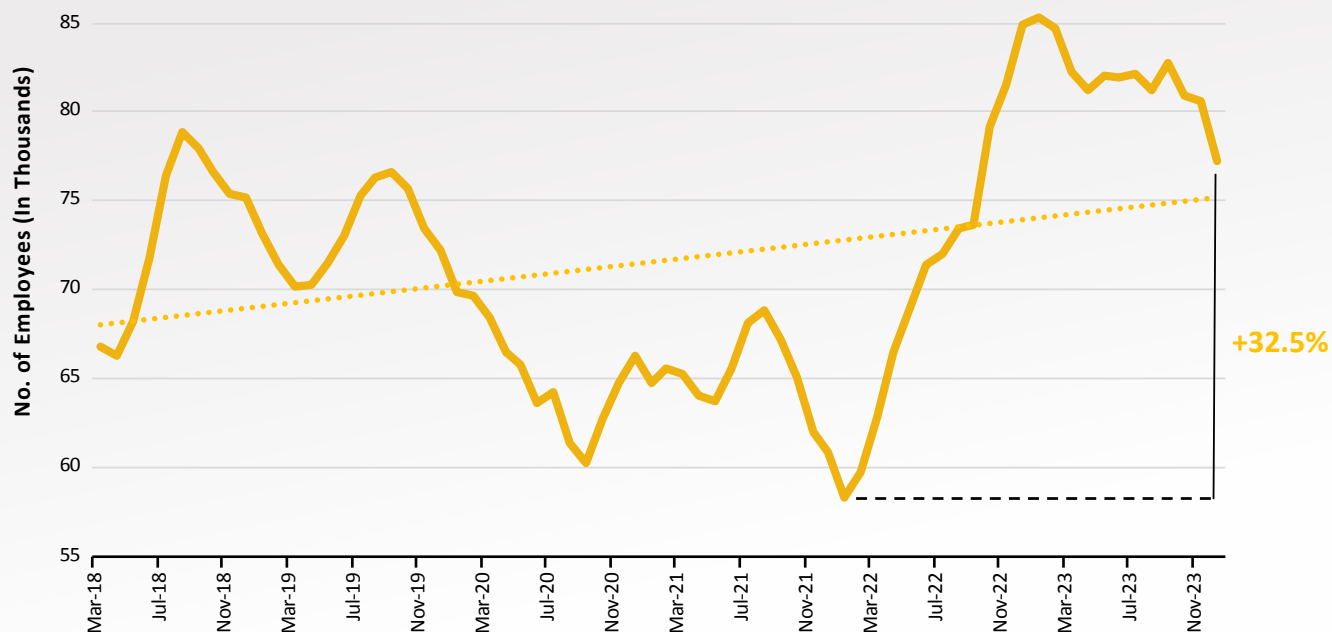
## Indicator #5: Employment Growth

**Rapid employment growth can be a catalyst for labour market tightness**, especially if employment grows unsustainably. Recruitment and workforce training take time and may not respond seamlessly to fast-growing labour demand.

In 2022, *Mining and quarrying (NAICS 212)* grew by roughly 50%, reaching eighty-five thousand workers in January 2023 (Figure 5). This hurried growth undoubtedly put a strain on the expanding industry, including rival employers looking for talented individuals and education institutions looking to supply them. In 2023, employment growth tapered off from its seemingly unsustainable pace in 2022, falling by about 9.5% to seventy-seven thousand workers. Nevertheless, this drop has not wiped away the shocks of the past two years, in which the workforce grew by nearly 33% from its low point in January 2021.



**FIGURE 5** *Employment (Three-Month Moving Average), Mining & Quarrying (NAICS 212) (2018 - 2023)*



Source: Mining Industry Human Resources Council, *Canadian Mining Outlook*, 2024; Statistics Canada, *Labour Force Survey (Custom Data)*.

## Indicator #6: Wage Growth

**A tight labour market will tend to place an upward pressure on wages**, as job seekers test their bargaining power with employers who are more desperate to hire workers.

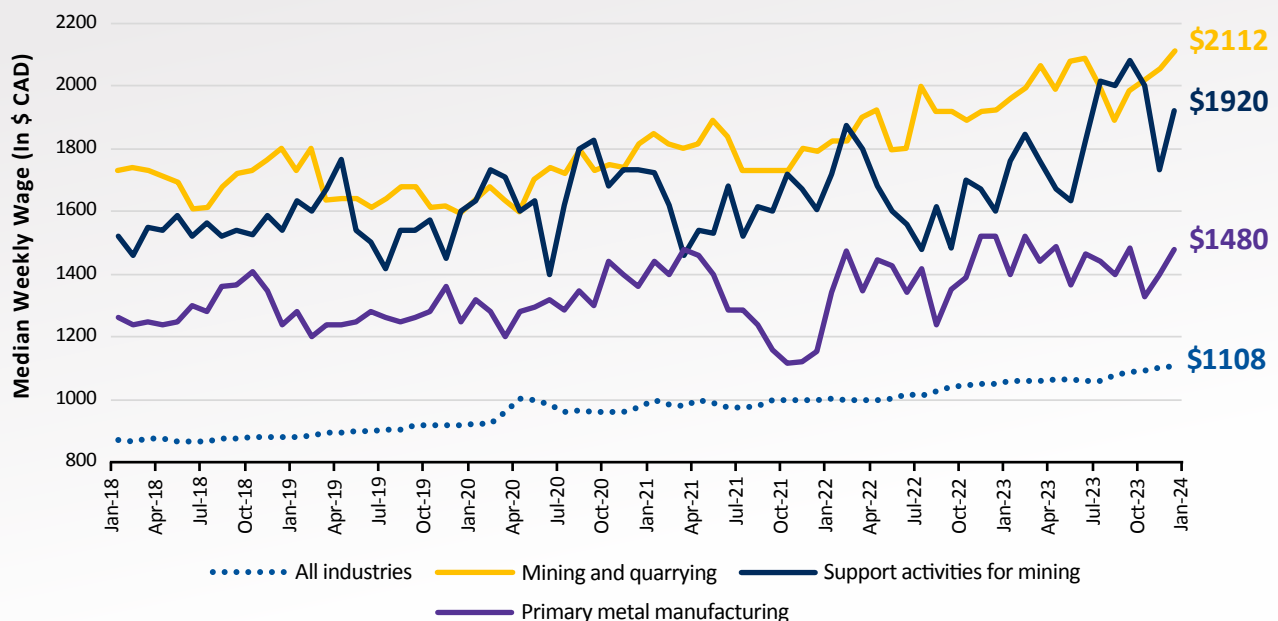
The mining industry is shown to have relatively high wages (Figure 6). *Mining and quarrying (NAICS 212)*, *Mining support services (NAICS 213)* and *Primary metal manufacturing (NAICS 331)* each display greater median weekly wages compared to the average for all industries. This result is not necessarily due to labour market tightness, given the types of occupations may differ in each industry.

Instead, this indicator observes how wages have grown compared to other industries over the past few years. Since January of 2018, median weekly wages

across all industries in Canada grew by a compound annual growth rate (CAGR) of 4.2%. Though there has been some volatility, wages in *Mining and quarrying (NAICS 212)* grew by 3.4% CAGR over the same period.



**FIGURE 6** Median Weekly Wages (Three-Month Moving Average), All Industries, Mining and Quarrying (NAICS 212), Mining Support Services (NAICS 213) and Primary Metal Manufacturing (NAICS 331) (2018 - 2023)



Source: Mining Industry Human Resources Council, Canadian Mining Outlook, 2024; Statistics Canada, Labour Force Survey (Custom Data).

## Labour Market Checklist Revisited

The abovementioned indicators paint a picture of labour market tightness. Table 2 summarizes these findings by evaluating each indicator with a checkmark under three categories: *Tight*, *Neutral* and *Slack*.

**The data are symptomatic of a tight labour market environment in Canada’s mining sector, which began following the pandemic in 2020 and has persisted into 2024.** While this list is not comprehensive, these indicators collectively provide clear evidence of heightened labour market pressures for mining employers in Canada.

Although the *Tight* category has more checkmarks than last year, many indicators have in fact slowed down in 2023, and underlying tightness trends are fundamentally weaker in comparison. At the same time, these indicators continue to signal labour market tightness compared to their historical benchmarks.

**TABLE 2** *Labour Market Tightness Checklist Revisited*

Indicator	Research Question	Tight	Neutral	Slack
Industry Sentiment	<i>Do employers feel there is a tight labour market?</i>	✓		
Unemployment Rate	<i>Is the pool of job seekers large enough to accommodate growth in the mining industry?</i>	✓		
Job Vacancy Rate	<i>What share of job openings is unfilled?</i>	✓		
Unemployed-to-Vacancies Ratio	<i>Are job seekers difficult or easy to find?</i>	✓		
Employment Growth	<i>Has employment grown at a sustainable pace?</i>	✓		
Wage Growth	<i>Are competitive pressures pushing up wages?</i>		✓	

Source: Mining Industry Human Resources Council, Canadian Mining Outlook, 2024.

# Reasons for Current Labour Market Tightness

## 2

Last year, the labour market tightness picture was clear: Canada's mining industry was facing acute labour shortages during a period of rapid growth, higher metals and minerals prices and increasing capital expenditures. These developments were coupled with significant worldwide disruptive events, including the pandemic, the Russian-Ukraine war, and newfound concerns of inflation and monetary policy.

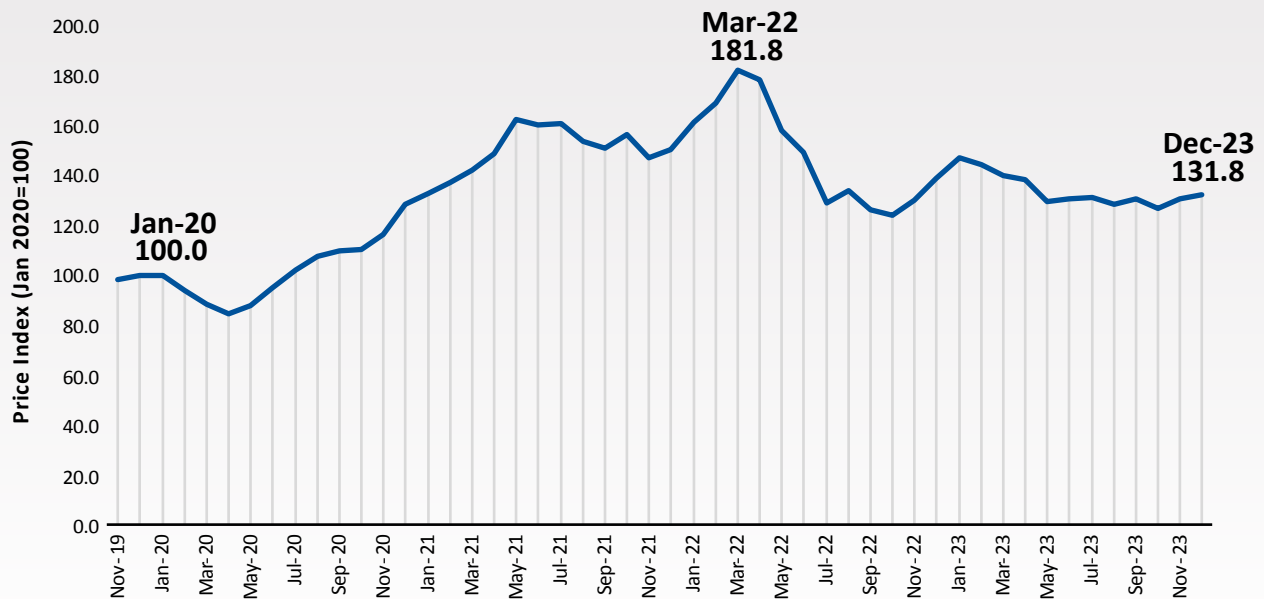
Although these disruptions have since subsided and stabilized, the lingering effects are still felt in today's labour market environment – and the current labour market tightness picture continues to be rooted in the events of the previous few years. It remains to be seen whether the current environment represents a new normal or if recent trends will eventually regress to previous levels.

Certain macroeconomic factors such as mineral prices have remained in an elevated range, despite falling in 2023 (Figure 7). Since peaking in 2022, mineral prices have dropped by 28%, yet they are still 32% higher than since the start of the pandemic and their trajectory stabilized heading into 2024. Similarly, exploration spending also stalled, but not enough to suggest the mining industry is retreating from its torrent pace in 2022 (Figure 8). Capital expenditures in *Mining and Quarrying (NAICS 212)* increased by 21% in 2023 from the previous year (Figure 8).

These factors show that the mining industry is invested in growth and development, which is often the main catalyst for exposing labour market pressures.

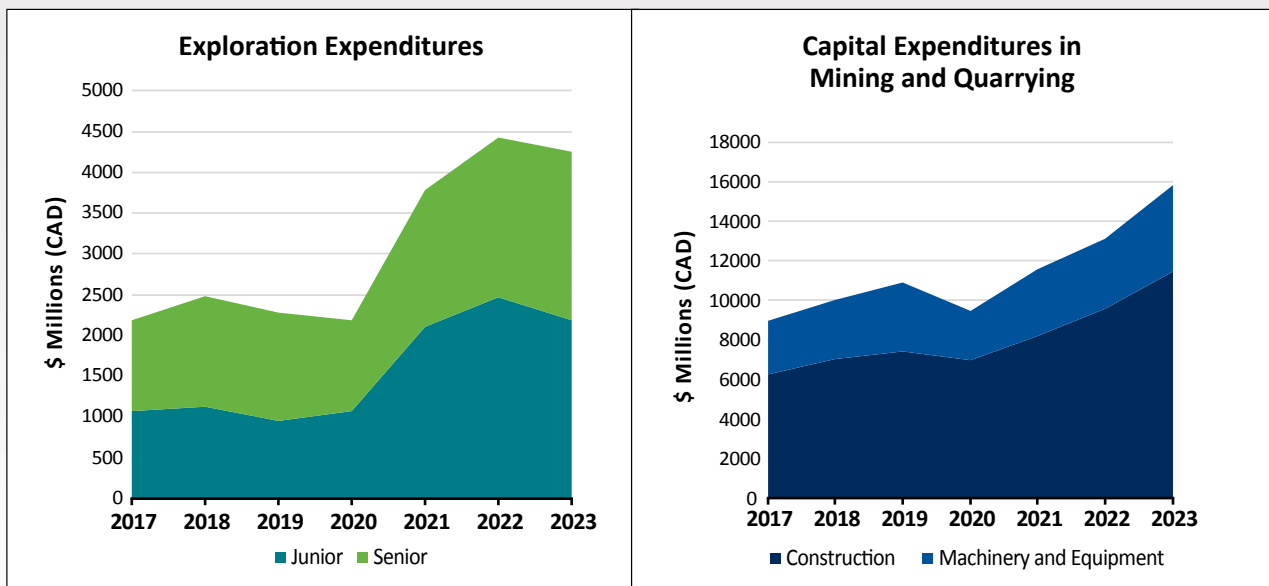


**FIGURE 7** *Metals and Minerals Price Index (2018 – 2023)*



Source: Mining Industry Human Resources Council, Canadian Mining Outlook, 2024; World Bank, Metals & Minerals Price Index (accessed via Ycharts), 2024.

**FIGURE 8** *Exploration Expenditures and Capital Expenditures, Mining and Quarrying (NAICS 212) (2017 – 2023)*



Source: Mining Industry Human Resources Council, Canadian Mining Outlook, 2024; Natural Resources Canada, Survey of Mineral Exploration, Deposit Appraisal and Mine Complex Development Expenditures (2023 denotes revised spending intentions), 2023; Statistics Canada, Annual Capital and Repair Expenditures Survey: Actual, Preliminary Actual and Intentions, 2023.

# Shifting Focus to Long-Term Labour Market Challenges

Long-term labour tightness means the labour market will be continually vulnerable to periods of growth, as was the case in the 2022 to present day cycle. Listed are three emerging themes for the next several years:

## 1. Investment in new mining developments

**persists:** Natural Resources Canada (NRCan) cites 129 mining-related projects (e.g., mine constructions, redevelopments, expansions and processing facilities) planned for 2023 (totalling \$93.6B in potential investment).<sup>4</sup> These projects highlight the momentum of the past few years while also representing a potential point of stress for the labour market, which is already struggling to respond to current labour demands.



## 2. Critical minerals will add labour market pressures:

Canada is well-positioned to be a producer of key critical minerals that are anticipated to increase in demand— including Zinc, Copper, Cobalt, Nickel, among several others. A shift to critical minerals will require increasing investment in mining development and mining employment. These projects are likely to contend with critical labour bottlenecks that could ultimately compromise the scale of Canada’s critical minerals development.

## 3. Labour supply constraints are the problem (not short-term demand spikes):

MiHR’s outlook on long-term tightness in 2024 remains consistent:

“Of greater concern are longer-term forces that continue to undermine the mining labour supply’s ability to effectively respond to periods of growth. These are factors that are comparatively persistent and are unlikely to be resolved without intervention. For example, unfavourable demographics in the mining industry (including the rising percentage of workers who are nearing retirement age, and the lack of young workers entering the industry), dwindling post-secondary enrolment in important mining-related programs, the continued underperformance in attracting key underrepresented groups, among other related issues.”

– *Canadian Mining Outlook (2023)*

The next section aims to diagnose longer term labour market tightness by developing a forecast for Canada’s mining labour market.

<sup>4</sup> <https://mmsd.nrcan-rncan.gc.ca/expl-expl/ExploTable-eng.aspx?FileT=c&Year=2022&Cycle=A>

# Labour Market Outlook and Forecast

## 3

MiHR's labour market projections aim to identify key areas where the mining industry will face labour challenges, particularly in ensuring there is a sustainable labour source that can meet the competitive demands of the industry.

MiHR's forecasting is centered on three main research questions:

**a. What will mining industry labour demand be in the future?**

MiHR's industry employment forecast provides an estimate of the demand for labour in the mining industry (i.e., the optimal employment level) over the next decade (2024–2034).

**b. What workforce adjustments will be required to achieve the optimal level of industry employment?** The industry's employment level, at any given time, is sustained by ongoing recruitment efforts. MiHR's forecast of hiring requirements estimates the cumulative workforce adjustments that will be necessary to maintain the optimal level of employment over the next decade.

**c. How difficult will it be to meet the required workforce adjustments?** The industry's ability to satisfy its hiring requirements will depend on whether there are enough new workers (i.e., graduates, migrants, etc.) entering mining-related occupations. A healthy labour market will draw enough entrants to offset future hiring needs.



## a) Future Labour Demand

Central to MiHR’s analysis of the mining labour market is a forecast of industry employment over a 10-year horizon. MiHR uses a time-series econometric model, which considers historic patterns and various leading explanatory factors to predict future employment levels in three mining sub-sectors. For each sub-sector, the best fitted model with the lowest prediction error was selected.

MiHR developed the following three economic scenarios for employment projections to capture the industry’s underlying volatility relative to changes in economic conditions:

- 1. Baseline scenario:** The mean forecasted values serve as the baseline benchmark for MiHR’s labour market forecast. The forecast considers the employment trend in each sub-sector since 1999<sup>5</sup> and the impact on employment of key predictive variables such as World Bank commodity prices of metals and minerals, which is a strong indicator of the industry’s vitality.<sup>6</sup> Future values of indicators were based on consensus estimates from reliable sources. For instance, World Bank’s revised projected commodity prices were used, anticipating prices will stabilize at a higher price scheme compared to pre-pandemic levels.<sup>7</sup> MiHR’s baseline employment projection reflects this commodity price outlook.
- 2. Expansionary scenario:** MiHR’s expansionary scenario is estimated from the *upper bound 20% prediction interval*, relative to the baseline benchmark forecasted values. A prediction interval is the estimated interval within which the forecasted value is expected to fall, given a margin of error. This scenario captures the possibility of an alternative environment where future employment levels trend upward (relative to the baseline benchmark) due to, for instance, commodity prices following an even higher price regime, or interest rates remaining low.

- 3. Contractionary scenario:** MiHR’s contractionary scenario is estimated from the *lower bound 20% prediction interval*, relative to the baseline benchmark forecasted values. This scenario poses a contrarian scenario to the expansionary whereby future employment levels trend downwards (relative to the baseline benchmark) due to, for example, commodity prices being lower than World Bank’s projected estimates.

MiHR’s forecast implicitly assumes that the future will somewhat resemble the past. While the different scenarios capture some inherent uncertainties, there are still limitations to projections. The model does not account for unexpected or unpredictable events that may occur during the time horizon analyzed.

### How This Year’s Forecast Differs from Last Year

Forecasting in *MiHR’s Canadian Mining Outlook (2024)* may differ from previous versions due to adjustments in underlying methodology, industry definition and data sources. The highly uncertain economic environment of the past few years has especially challenged economic forecasting models. MiHR has made certain adjustments for key data inputs in 2024:

- Historic mining employment has been adjusted by Statistics Canada for the pandemic period. Mining employment for 2023 is estimated using historic employment from Statistics Canada’s System of National Accounts instead of the monthly Labour Force Survey used in the 2023 forecast for survey consistency.
- Key data inputs have been adjusted to reflect new realities in 2024, including an interest rate forecast (now obtained from the congressional budget office’s 10-year real treasury yield rates) and an imports/exports forecast (now estimated by MiHR).

5 Historic employment data is from Statistics Canada’s System of National Accounts (SNA) (Table: 36-10-0489-01). Employment levels cited in Section 3 differ from those in Section 1 due to use of different data sources (i.e., labour force survey versus SNA), and the use of a robust set of NAICS codes in Section 3 (see Appendix A for details).

6 Other predictive indicators include Congressional Budget Office (CBO) database inflation-adjusted interest rates, Statistics Canada import and export of metal ores and non-metallic minerals. Both one year lag and coincident values were considered for all indicators.

7 World Bank. (2024). Pink Sheet Data Commodity Prices. <https://www.worldbank.org/en/research/commodity-markets#1>

■ Commodity price forecasts from the World Bank have also been adjusted, now showing an elevated price scheme relative to pre-pandemic levels. This change reflects the current long-term outlook for increasing global mineral demand and the dependence on several critical minerals to support the green economy in the coming years and decades.

Collectively, these changes are meaningful to the forecast. They highlight the uncertainty and instability of several economic indicators in the post-pandemic economic era. The 2023 baseline forecast anticipated short-term volatility in the forecast, starting with advancing employment growth through 2023-2024, followed by a sharp correction in 2025 and stability thereafter.

Based on revised inputs, the 2024 forecast tempers short-term instability as much of the underlying uncertainty of 2023 (i.e., expectations of inflation and an impending recession) has since subsided. Nevertheless, the long-term forecast, and its projected destination for mining employment in 2034 remains in a comparable range with last year's forecast.

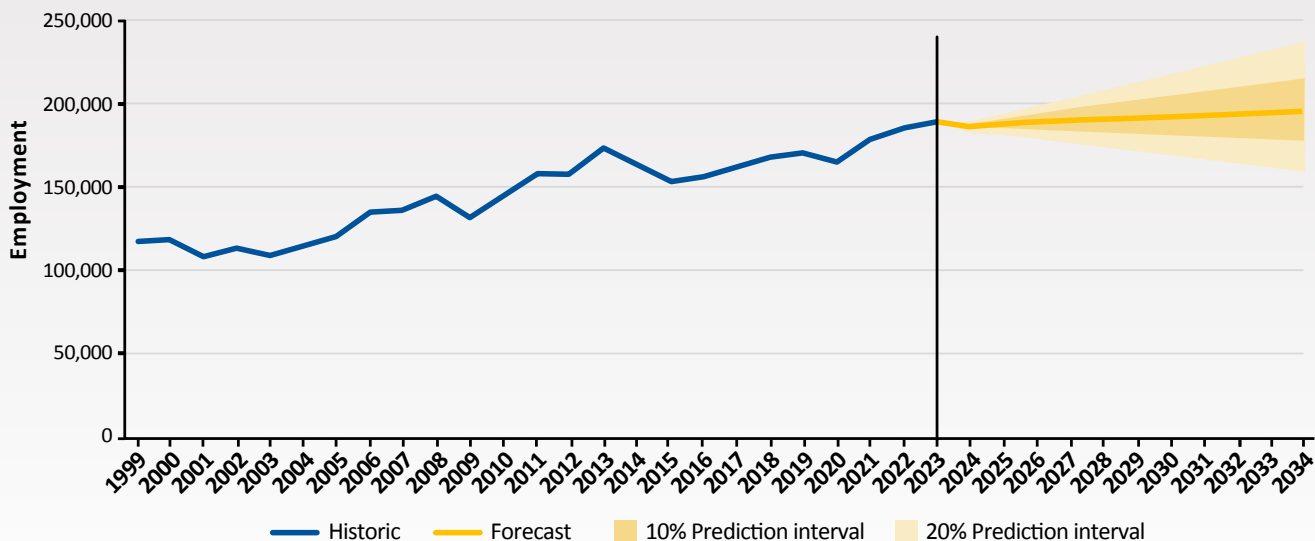
## Mining Employment Outlook

Figure 9 illustrates the overall mining industry employment outlook (historical and forecasted).

Mining employment has maintained an upward trend, expanding from 115,655 in 1999 to 189,062 in 2023 (a 64% increase in over two decades).

MiHR's baseline forecast to 2034 anticipates the mining workforce will continue to grow in the long-term to 194,739 workers (a 3% increase). Under the expansionary scenario, employment is projected to increase to 237,456 workers (a 26% increase), whereas under the contractionary scenario, employment is projected to decrease to 159,280 workers (a 16% decrease). The updated 2024 forecast shows minimal volatility in the short-term and illustrates a conservative picture of growth for the industry based on relatively strong economic conditions and elevated commodity prices.

**FIGURE 9** *Historical and Forecasted Employment in the Mining Industry (1999 – 2034)*

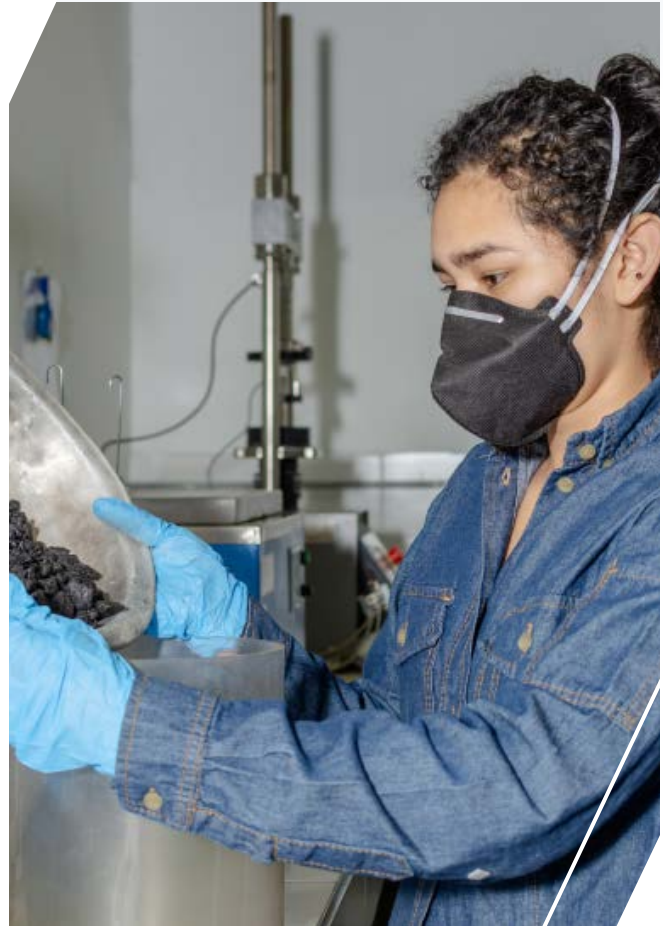


Source: Mining Industry Human Resources Council, Canadian Mining Outlook, 2024.

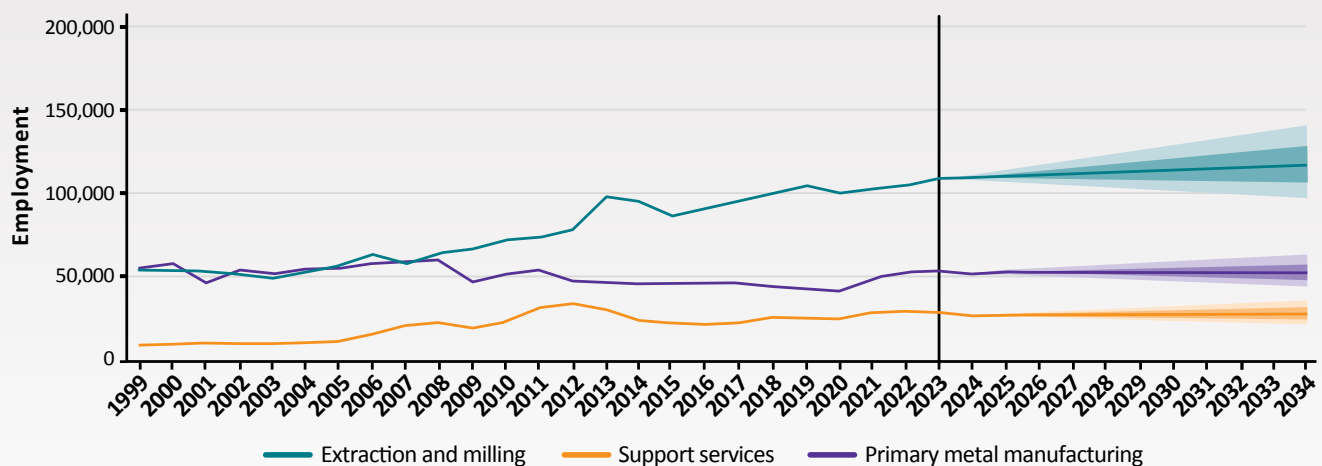
## Employment Outlook by Mining Sub-Sector

Figure 10 illustrates the employment outlook for the mining industry broken down by its three main sub-sectors: *Extraction and Milling*, *Support Services* and *Primary Metal Manufacturing*. *Extraction and Milling* workers make up most of the mining industry (about 57% in 2023), followed by *Primary Metal Manufacturing* workers (about 28% in 2023) and *Support Services* workers (about 15% in 2023). Historically, employment in *Extraction and Milling* has been trending upwards while *Support Services* and *Primary Metal Manufacturing* employment has remained relatively flat. Employment projections for the sub-sectors are as follows under the baseline scenario:

1. *Extraction and Milling* is estimated to moderately increase by about 7% from 108,097 workers in 2023 to 116,167 workers in 2034.
2. *Support Services* is estimated to decrease by roughly 5% from 28,179 workers in 2023 to 26,656 workers in 2034.
3. *Primary Metal Manufacturing* is estimated to decrease slightly by 2% from 52,786 workers in 2023 to 51,916 workers in 2034.



**FIGURE 10** *Historical and Forecasted Employment in Mining Sub-Sectors (1999 – 2034)*

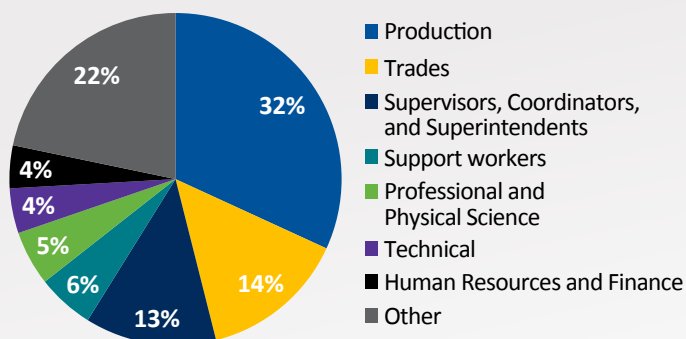


Source: Mining Industry Human Resources Council, Canadian Mining Outlook, 2024.

## Occupational Mix

Forecasting for specific occupations depends on the mining industry's 'occupational mix', which describes the combination of critical jobs that are expected to comprise future labour demand.

**FIGURE 11** Share of Employment by Broad Occupational Category (2021)



Source: Mining Industry Human Resources Council, *Canadian Mining Outlook*, 2024; Statistics Canada, *Census of Population*, 2021.

MiHR has identified 100 occupations aligned with the *National Occupational Classification (NOC) 2021* system considered to be the most relevant to the mining industry. These are then grouped into one of seven broad occupational categories ranging from occupations in production and operations, such as *Heavy equipment operators [NOC 73400]*, to occupations in professional and physical sciences, such as *Geoscientists and oceanographers [NOC 21102]* (see *Appendix A* for the full list).

As reported by the 2021 Census, the largest segment is *Production Occupations*, which comprises about 32% of all mining labour demand, followed by *Trades Occupations* (14%) and *Supervisors, Coordinators, and Superintendents* (13%) (Figure 11). Table 3 reports the top 10 occupations in each mining-sub sector by share of employment. For the purposes of this analysis, MiHR assumes the occupational mix will reflect the historical data and remain consistent over the forecasting period.<sup>8</sup>

**TABLE 3** Top 10 Occupations by Share of Employment in Mining Sub-Sectors (2021)

Rank	Extraction And Milling		Support Services		Primary Metal Manufacturing	
	Position	Share of Total	Position	Share of Total	Position	Share of Total
1	Underground production and development miners	11.6%	Contractors and supervisors, oil and gas drilling and services	6.6%	Machine operators, mineral and metal processing	9.3%
2	Heavy equipment operators	9.9%	Transport truck drivers	6.4%	Construction millwrights and industrial mechanics	6.7%
3	Supervisors, mining and quarrying	6.4%	Oil and gas drilling, servicing and related labourers	5.0%	Labourers in mineral and metal processing	5.3%
4	Construction millwrights and industrial mechanics	5.2%	Oil and gas well drillers, servicers, testers and related workers	4.1%	Manufacturing managers	4.2%
5	Transport truck drivers	4.5%	Underground production and development miners	3.7%	Supervisors, mineral and metal processing	4.2%
6	Heavy-duty equipment mechanics	4.4%	Heavy equipment operators	3.5%	Crane operators	3.4%
7	Underground mine service and support workers	3.2%	Oil and gas well drilling and related workers and services operators	3.0%	Welders and related machine operators	3.4%
8	Managers in natural resources production and fishing	2.7%	Managers in natural resources production and fishing	2.9%	Industrial electricians	2.9%
9	Industrial electricians	2.5%	Supervisors, mining and quarrying	2.4%	Metalworking and forging machine operators	2.6%
10	Geological and mineral technologists and technicians	2.3%	Central control and process operators, petroleum, gas and chemical processing	2.3%	Material handlers	2.2%

Source: Mining Industry Human Resources Council, *Canadian Mining Outlook*, 2024; Statistics Canada, *Census of Population*, 2021.

<sup>8</sup> Note that the occupational mix is constantly in flux as demand for different occupations will rise and fall depending on where mining projects are in the mining life cycle and macroeconomic conditions. In addition, this could change radically with new technology and increased demand for critical minerals. The baseline forecast assumes that operations are more likely to adhere to the status quo.

## b) Workforce Adjustments

MiHR considers two main factors that contribute to mining workforce adjustments: *net change in employment and expected exits*. Net change in employment describes changes in labour demand due to industry expansion or contraction. Expected exits refer to individuals leaving Canada’s mining industry, either through retirement, industry-migration or other avenues.

### Adjustments from Net Change in Employment

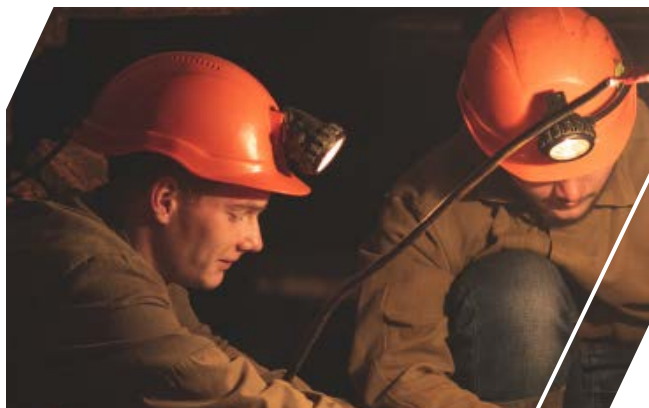
Using MiHR’s employment forecast, the cumulative net change in employment is calculated for mining sub-sectors and broad occupational categories across the three economic scenarios – contractionary, baseline and expansionary.

#### Net Change in Employment by Sub-sector

Table 4 shows the cumulative net change in employment for each mining sub-sector over the forecasted 10-year horizon (2024 – 2034). Under the baseline scenario, the mining industry is expected to employ 5,677 additional workers (about a 3% increase from 2023) over the forecast period.<sup>9</sup>

Among the three sub-sectors, only *Extraction and Milling* is expected to grow over the next decade with an addition of 8,070 workers (about a 7% growth from 2023), under the baseline scenario. *Primary Metal Manufacturing* and *Support Services* are both projected to slightly contract from their 2023 levels.

Differences from the 2023 forecast are due to recent volatility in several variables, which greatly impact cumulative net change in employment in the near-term part of the forecast. This forecast reduces short-term instability, in the form of advancing employment growth in 2023/24 followed by a sharp correction in successive years. Nevertheless, the long-term forecast and its projected destination for mining employment in 2034 remains in a comparable range with last year’s forecast.



**TABLE 4** Forecast Scenarios of Cumulative Net Change in Employment by Sub-sectors (2024 – 2034)

	Contractionary	Baseline	Expansionary
Extraction and Milling	-12,037	8,070	31,933
Support Services	-8,115	-1,523	6,983
Primary Metal Manufacturing	-9,630	-870	9,478
<b>All Sub-sectors</b>	<b>-29,782</b>	<b>5,677</b>	<b>48,394</b>

Source: Mining Industry Human Resources Council, Canadian Mining Outlook, 2024.

<sup>9</sup> Appendix B further explore the adjustments from cumulative net change in employment across three time periods – short term, medium term and long term. This makes it possible to parse out the volatility of the employment levels across the 10-year time horizon.



### Net Change in Employment by Occupation

Table 5 shows the cumulative net change in employment for each broad occupational category over the forecasted 10-year horizon (2024 – 2034). *Production occupations* are expected to experience the largest increase under the baseline and expansionary scenarios, but also the greatest reduction under the contractionary scenario, mainly due to its size and sensitivity to mining workforce developments. Under the baseline scenario, the industry is anticipated to increase 1,808 workers (a 3% increase from 2023) in this occupational category.



**TABLE 5** Forecast Scenarios of Cumulative Net Change in Employment by Mining Occupations (2024 – 2034)

	Contractionary	Baseline	Expansionary
Human Resources and Finance	-1,240	236	2,015
Production	-9,486	1,808	15,414
Professional and Physical Science	-1,587	303	2,579
Supervisors, Coordinators and Superintendents	-3,810	726	6,190
Support Workers	-1,652	315	2,685
Technical	-1,302	248	2,115
Trades	-4,234	807	6,881
Others <sup>10</sup>	-6,471	1,234	10,515
<b>All Occupations</b>	<b>-29,782</b>	<b>5,677</b>	<b>48,394</b>

Source: Mining Industry Human Resources Council, Canadian Mining Outlook, 2024.

<sup>10</sup> *Other Occupations* refers to a large group of occupations not necessarily exclusive to mining operations and outside the critical occupations targeted in this analysis, but employed by the industry nonetheless (e.g., registered nurses, light duty cleaners, security guards, etc.)



## Adjustments from Exits

Employee exits are a common and ongoing occurrence for all industries and the mining industry is no exception. Workers exit the mining labour force for various reasons. MiHR’s forecasting captures two main categories of exits: (1) Mining labour force exits (retirements) and (2) Mining industry exits.

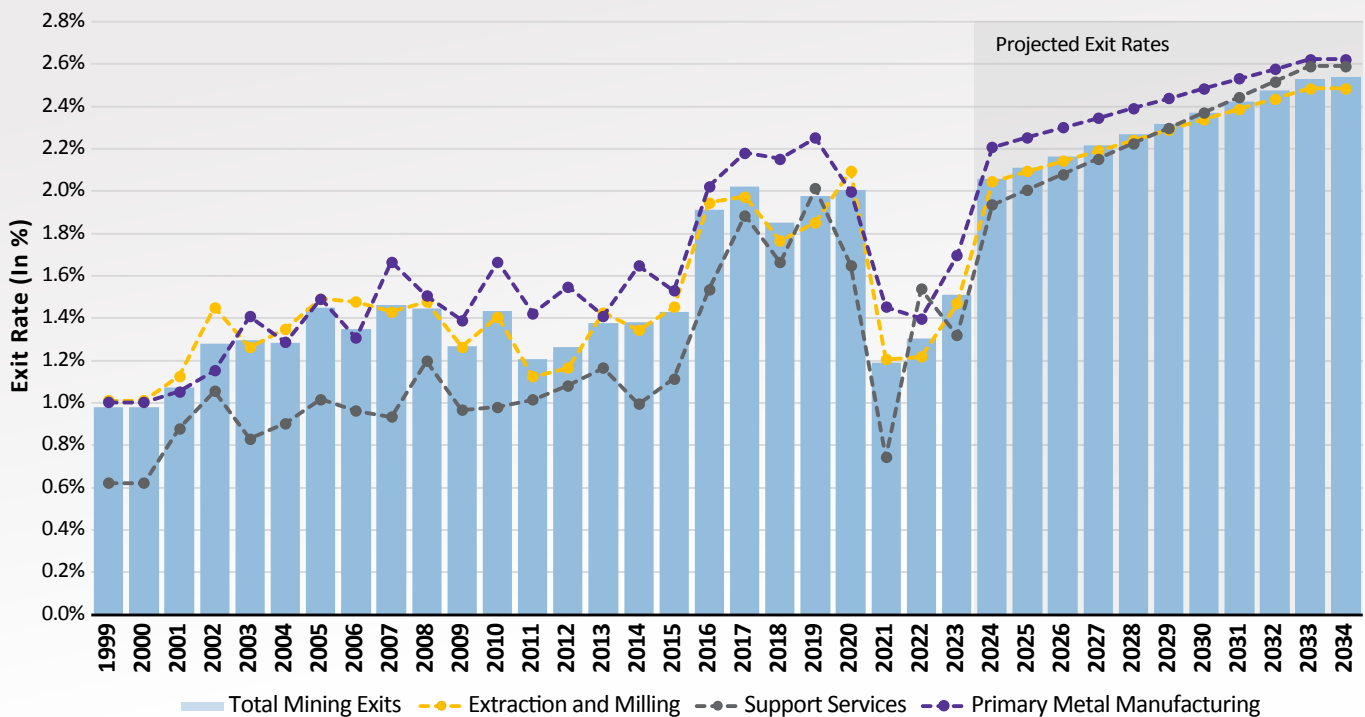
**Mining labour force exits (retirements)** estimates the number of individuals exiting the labour force altogether. Most labour force exits are primarily due to retirement, but may also include other reasons such as going back to school, starting maternity/paternity leave, etc. Labour force exits describe former mining industry participants who are no longer in the labour force.

MiHR’s model of labour force exits considers demographic characteristics (such as age and educational attainment) to estimate the share of workers anticipated to withdraw from the mining labour force over time. Labour force exits in mining sub-sectors have risen as the demographics of

the mining industry have continued to follow an aging trend. From 2024 to 2034, the average labour force exit rate is expected to be 2.3% per year in the mining industry (Figure 12). Among mining sub-sectors, *Primary Metal Manufacturing* exhibits the highest exit rate, followed by *Support Services* and *Extraction and Milling*.



**FIGURE 12** *Historic and Forecasted Labour Force Exit Rates by Total Mining and Mining Sub-Sectors (1999 – 2034)*



Source: Mining Industry Human Resources Council, Canadian Mining Outlook, 2024.

**Mining industry exits** estimates the number of individuals leaving the mining industry to work in another industry. Although cross-industry mobility is a normal and ongoing reality, every exit generates hiring pressures for employers.

Given that information related to industry exits is rather sparse, MiHR has relied on limited available literature to estimate a reasonable industry exit rate over the forecast period. Notable information includes historical turnover data previously collected by MiHR, the US Bureau of Labour Statistics and historical data from the Survey of Labour and Income Dynamics (SLID).<sup>11</sup>

MiHR’s forecast assumes the annual industry exit rate will range between 6%-7% in the three mining sub-sectors. For occupational categories, the forecast assumes a couple of deviations: 8% for *Production occupations* and 5% for *Human Resources and Financial Occupations, Professional and Physical Science occupations* and *Supervisors, Coordinators and Superintendents*.

## Hiring Requirements

MiHR’s forecast of hiring requirements gauges the human resources efforts (i.e., hiring effort) required to ensure that, over time, the forecasted mining industry employment (Figure 9) is attained. The hiring requirement is estimated as the sum of net change in employment, mining labour force exits and mining industry exits – each of which create hiring pressures for the industry.

Table 6 presents industry-wide cumulative hiring requirements for the forecast period, under the three economic scenarios. The projected 10-year cumulative hiring requirements are as follows: 191,385 workers for the baseline scenario; 255,968 workers for the expansionary scenario; and 136,636 workers for the contractionary scenario. The majority of hiring requirements are expected to come from replacing exiting workers.

**TABLE 6 Forecast Scenarios of Cumulative Hiring Requirements in Mining (2024 – 2034)**

		Contractionary	Baseline	Expansionary
Cumulative Net Change in Employment		-29,782	5,677	48,394
Replacement Requirements	Cumulative Labour Force Exits	43,705	48,910	54,821
	Cumulative Industry Exits	122,713	136,797	152,753
<b>Cumulative Hiring Requirements</b>		<b>136,636</b>	<b>191,385</b>	<b>255,968</b>

Source: Mining Industry Human Resources Council, *Canadian Mining Outlook*, 2024.

<sup>11</sup> Notable resources consulted include: Xuyang Chen and Maxime Fougère (2009) *Inter-provincial and Inter-industry Labour Mobility in Canada, 1994-2005*, the Survey of Labour and Income Dynamics (SLID). (Note that SLID has since been discontinued in 2011) and the US Bureau of Labour Statistics forecast of “occupational separations (2021-2031)” (<https://www.bls.gov/emp/documentation/separations.htm>).

### Hiring Requirements by Sub-Sector

Table 7 provides the cumulative hiring requirements for the forecast period for each sub-sectors, under the three economic scenarios. *Extraction and Milling* is expected to make up the vast majority of the hiring requirements with 117,582 additional workers needed under the baseline scenario.

**TABLE 7 Forecast Scenarios of Cumulative Hiring Requirements by Mining Sub-sectors (2024 – 2034)**

	Contractionary	Baseline	Expansionary
Extraction and Milling	86,640	117,582	153,607
Support Services	13,204	23,343	36,060
Primary Metal Manufacturing	36,828	50,460	66,254
<b>All Mining Sub-sectors</b>	<b>136,636</b>	<b>191,385</b>	<b>255,968</b>

Source: Mining Industry Human Resources Council, Canadian Mining Outlook, 2024.

### Hiring Requirements by Occupation

Table 8 provides the cumulative hiring requirements for the forecast period for each broad occupational category, under the three economic scenarios. *Production occupations* is expected to constitute the bulk of hiring requirements with a requirement of 71,385 additional workers under the baseline scenario.

**TABLE 8 Forecast Scenarios of Cumulative Hiring Requirements by Mining Occupations (2024 – 2034)**

	Contractionary	Baseline	Expansionary
Human Resources and Finance	4,530	6,677	9,216
Production	52,877	71,385	93,168
Professional and Physical Science	5,797	8,544	11,792
Supervisors, Coordinators and Superintendents	13,934	20,530	28,331
Support Workers	7,101	10,084	13,605
Technical	6,425	8,869	11,750
Trades	18,216	25,859	34,882
Others	27,756	39,436	53,223
<b>All Occupations</b>	<b>136,636</b>	<b>191,385</b>	<b>255,968</b>

Source: Mining Industry Human Resources Council, Canadian Mining Outlook, 2024.

## c) Relative Difficulty of Workforce Adjustments

MiHR’s gap analysis investigates whether new entrants to mining-related occupations can adequately offset future hiring requirements. A shortfall of new entrants points to potential risks for mining operations; a thin labour supply can derail projects, drive up the cost of finding workers and ultimately undermine an operation’s ability to continue to run competitively.

### Expected Entries

Entries represent the opportunity to neutralize the pressures and costs associated with hiring; that is, the burden of replacing a worker lessens if there is an abundant availability of qualified candidates. MiHR’s model of expected entrants provides a forecast of new entrants to the mining labour market. Counter to the expected exits, MiHR considers two parallel categories of entries: (1) Mining labour force entries and (2) Mining industry entries.

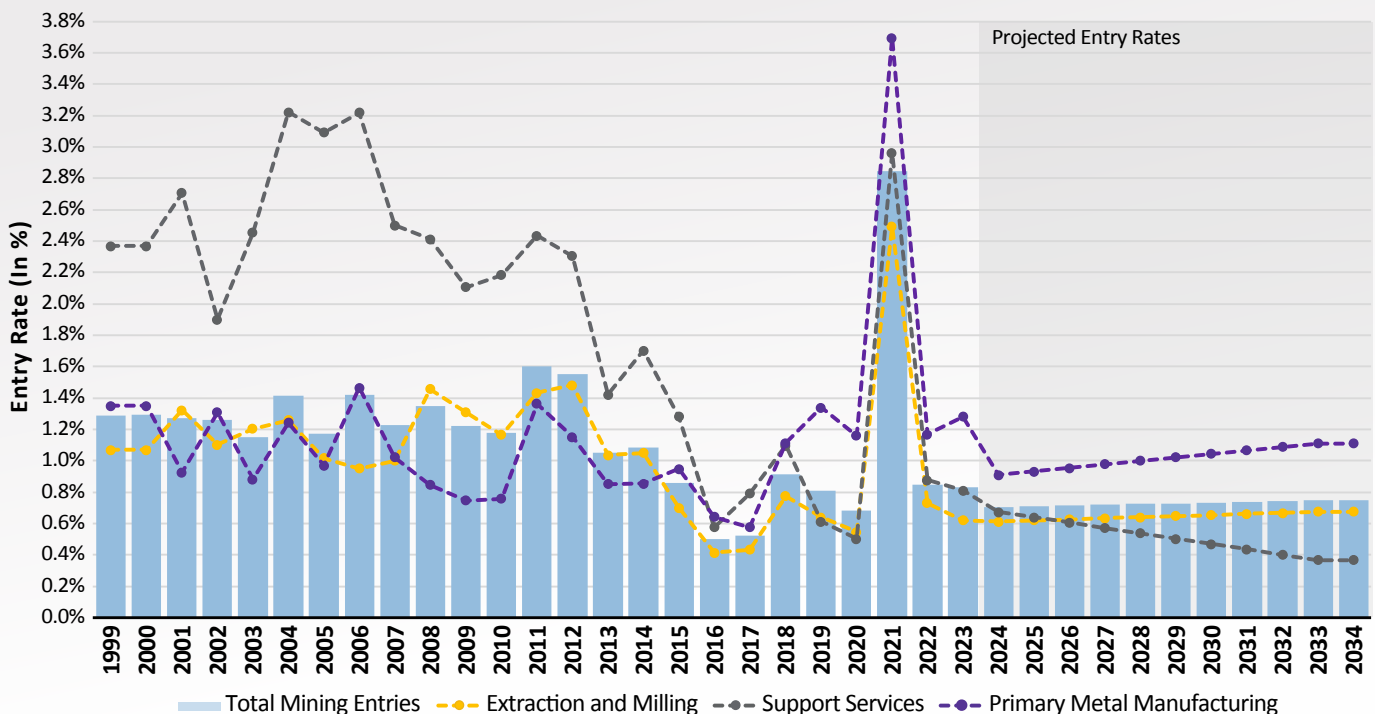
### Mining Labour Force Entries

A model of labour force entries covers a variety of entry points. Firstly, students transitioning from school into the labour force comprise most new entrants, but labour force entries are inclusive of all cases of people joining the labour force (i.e., non-students who were previously not in the labour force for any reason).

The method for estimating labour force entries is the same as labour force exits (See “Adjustments from Exits”), except the focus is on individuals’ likelihood of entering the mining labour force, based on historical trends and their key demographic characteristics.

From 2023 to 2034, the average labour force entry rate is expected to be 0.7% per year in the mining industry (Figure 13). Among mining sub-sectors, *Support Services* shows the lowest expected entry rates, suggesting that this group will face the greatest pressure to obtain new entrants for its workforce.

**FIGURE 13** *Historic and Forecasted Labour Force Entry Rates by Total Mining and Mining Sub-sectors (1999 – 2034)*



Source: Mining Industry Human Resources Council, Canadian Mining Outlook, 2024.

### Mining Industry Entries

Mining industry entries are parallel to the previously derived mining industry exits. As workers continually switch roles throughout their working life, one industry’s entry also represents another’s exit. The key question is whether transfers between industries are in balance. If exits to other industries consistently surpass entries, the mining workforce will experience attrition over time.

This balance of industry exits and entries will depend on the economic push and pull of different industries through their cycles over time. Therefore, MiHR considers three scenarios of mining industry entries based on their degree of balance with mining industry exits. To cover the range of possibilities in the forecast, three scenarios describe industry entries as follows:

1. **Balanced scenario:** Industry entries equal industry exits.
2. **Inflow Scenario:** Industry entries exceed industry exits (+2%).
3. **Outflow Scenario:** Industry entries fall behind industry exits (-2%).

### Gap Analysis and Labour Market Tightness

MiHR’s gap analysis combines hiring requirements with forecasts of entries into one comparative analysis of sub-sector and broad occupational categories. A hiring gap occurs when expected entries are unable to cover the forecasted hiring needs. Hires that stretch beyond the obtainable labour supply represent an additional burden to employers to increase their effort to meet their labour demand.

A hiring gap further provides a signal of labour market tightness in the long-term view. Unlike short term tightness, where certain economic factors are cyclical and likely to resolve over time, long-term tightness anticipates an un-reversing trend led by long-term demographic and economic factors.

#### Gap Analysis for the Mining Industry

A gap-sensitivity analysis for the mining industry is presented in Table 9. The table highlights a range of outcomes for the projected gap (i.e., expected entrants minus hiring requirements) depending on three scenarios for mining employment (baseline, contractionary and expansionary) and three scenarios of balance between industry exits and entrants (balanced, industry inflow and industry outflow). The scenario with the largest gap is shown to be the *expansionary employment scenario* and *industry outflow* scenario, meaning industry employment is projected to grow at the same time industry exits will surpass industry entries by 2%.

**TABLE 9** Forecast Scenarios of Hiring Gap in Mining (2024–2034)

	Contractionary	Baseline	Expansionary
Industry Inflow	37,487	2,743	-39,178
Balanced	-199	-39,269	-86,090
Industry Outflow	-37,886	-81,281	-133,002

Source: Mining Industry Human Resources Council, Canadian Mining Outlook, 2024.

### Gap Analysis by Sub-Sectors

Table 10 shows the gap analysis for mining sub-sectors. Selected scenarios provide a range of possible hiring gaps/surpluses over the forecast period. The gap is especially prevalent in *Extraction and Milling* under the scenario where industry exits exceed entrants (Industry outflow) and labour demand follows the expansionary path. The baseline-balanced scenario finds gaps in each mining subsector, *Extraction and Milling* (-28,389) and *Support Services* (-3,687) and *Primary Metal Manufacturing* (-7,193).

**TABLE 10 Selected Forecast Scenarios of Hiring Gap Analysis by Mining Sub-sectors (2024–2034)**

	Contractionary - Industry Inflow	Baseline - Balanced	Expansionary - Industry Outflow
Extraction and Milling	16,136	-28,389	-82,086
Support Services	8,714	-3,687	-19,953
Primary Metal Manufacturing	12,679	-7,193	-31,019
<b>All Sub-sectors</b>	<b>37,487</b>	<b>-39,269</b>	<b>-133,002</b>

Source: Mining Industry Human Resources Council, Canadian Mining Outlook, 2024.

Table 11 further highlights how each gap is derived under the baseline-balanced scenario:

$Net\ change\ in\ employment + expected\ exits - expected\ entries = projected\ hiring\ gaps$ . The gap is coming primarily from *Extraction and Milling* exits; 109,512 workers are projected to exit the mining workforce, causing a significant hiring pressure over the forecast period.

**TABLE 11 Breakdown of Baseline-Balanced Hiring Gap Analysis by Mining Sub-Sectors (2024–2034)**

	Net Change in Employment	Exits	Total Hiring Requirements	Expected Entries	Gap Analysis
Extraction and Milling	8,070	109,512	117,582	89,193	-28,389
Support Services	-1,523	24,866	23,343	19,656	-3,687
Primary Metal Manufacturing	-870	51,329	50,460	43,267	-7,193
<b>All Sub-sectors</b>	<b>5,677</b>	<b>185,707</b>	<b>191,385</b>	<b>152,116</b>	<b>-39,269</b>

Source: Mining Industry Human Resources Council, Canadian Mining Outlook, 2024.

### Gap Analysis by Occupations

Table 12 shows the gap analysis for broad occupational category. Selected scenarios provide a range of possible hiring gaps/surpluses over the forecast period. The gap is especially prevalent in *Production Occupations* under the scenario where industry exits exceed entrants (Industry outflow) and labour demand follows the expansionary path. Given its relative size, the gap in this category becomes a surplus under the contractionary scenario, highlighting the high sensitivity of the gaps (and surpluses) projected in this forecast.

**TABLE 12 Selected Forecast Scenarios of Hiring Gap Analysis by Occupations (2024–2034)**

	Contractionary - Industry Inflow	Baseline - Balanced	Expansionary - Industry Outflow
Human Resources and Finance	1,539	-1,664	-5,578
Production	12,075	-12,325	-42,103
Professional and Physical Science	1,998	-2,095	-7,096
Supervisors, Coordinators and Superintendents	4,814	-5,010	-17,013
Support Workers	2,072	-2,189	-7,394
Technical	1,649	-1,702	-5,794
Trades	5,427	-5,472	-18,786
Others	7,912	-8,812	-29,238
<b>All Occupations</b>	<b>37,487</b>	<b>-39,269</b>	<b>-133,002</b>

Source: Mining Industry Human Resources Council, Canadian Mining Outlook, 2024.

Table 13 further highlights how each gap is derived under the baseline-balanced scenario:

$Net\ change\ in\ employment + expected\ exits - expected\ entries = projected\ hiring\ gaps$ . The gap is coming primarily from *Production Occupations* exits; 69,577 workers are projected to exit the mining workforce, causing significant hiring pressure over the forecast.

**TABLE 13 Breakdown of Baseline-Balanced Hiring Gap Analysis by Mining Occupations (2024–2034)**

	Net Change in Employment	Exits	Total Hiring Requirements	Expected Entries	Gap Analysis
Human Resources and Financial Occupations	236	6,440	6,677	5,013	-1,664
Production Occupations	1,808	69,577	71,385	59,060	-12,325
Professional and Physical Science Occupations	303	8,241	8,544	6,449	-2,095
Supervisors, Coordinators and Superintendents	726	19,804	20,530	15,521	-5,010
Support Workers	315	9,769	10,084	7,895	-2,189
Technical Occupations	248	8,621	8,869	7,167	-1,702
Trades Occupations	807	25,052	25,859	20,387	-5,472
Other Occupations	1,234	38,202	39,436	30,623	-8,812
<b>All Occupations</b>	<b>5,677</b>	<b>185,707</b>	<b>191,385</b>	<b>152,116</b>	<b>-39,269</b>

Source: Mining Industry Human Resources Council, Canadian Mining Outlook, 2024.



## Hiring Gap Intensity

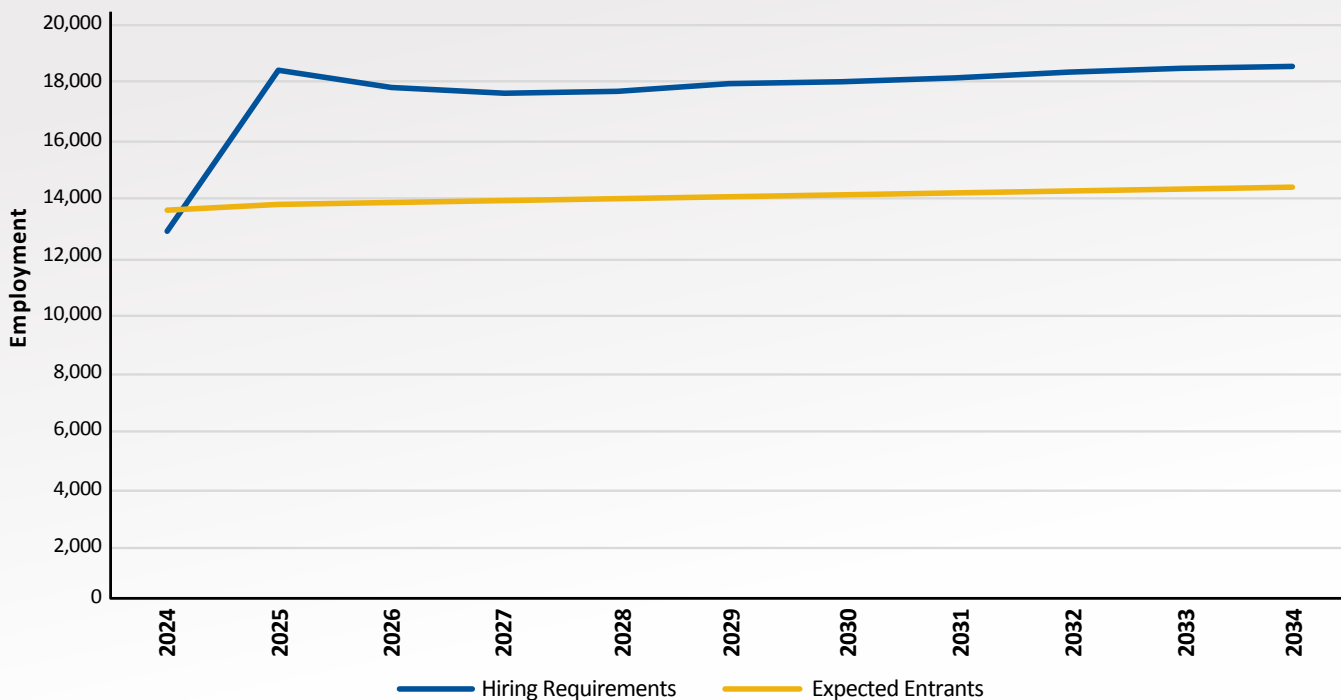
Figure 14 overlays baseline hiring requirements with expected entries over the forecast period. After a balanced opening year, hiring requirements are expected to exceed expected entrants for the remainder of the forecast, indicating a hiring gap in the long-term. This result is mostly consistent with the 2023 forecast, except the updated forecast avoids short-term volatility leading to early-stage surpluses in 2025/2026.

MiHR reports the “hiring gap intensity” – the share of hiring needs that is projected to remain unsatisfied under the status quo state. Hiring requirements become more gap intensive as the proportion of unmet hiring needs increases. In other words, the higher the gap intensity, the greater the number of vacancies that are expected to remain unfilled (or relatively difficult to fill) given the forecast of new entrants. Therefore, a high gap intensity is a sign of labour market tightness.

Hiring gap intensity, expressed as the hiring gap divided by the hiring requirements, is shown for overall mining for the forecast period (Figure 15). This predicts that by 2034, close to a quarter of hires will be difficult to acquire as they are unaccounted for by the entries under the baseline-balanced scenario. This also provides a measure of the additional effort and expense to compensate for the lack of expected entries.

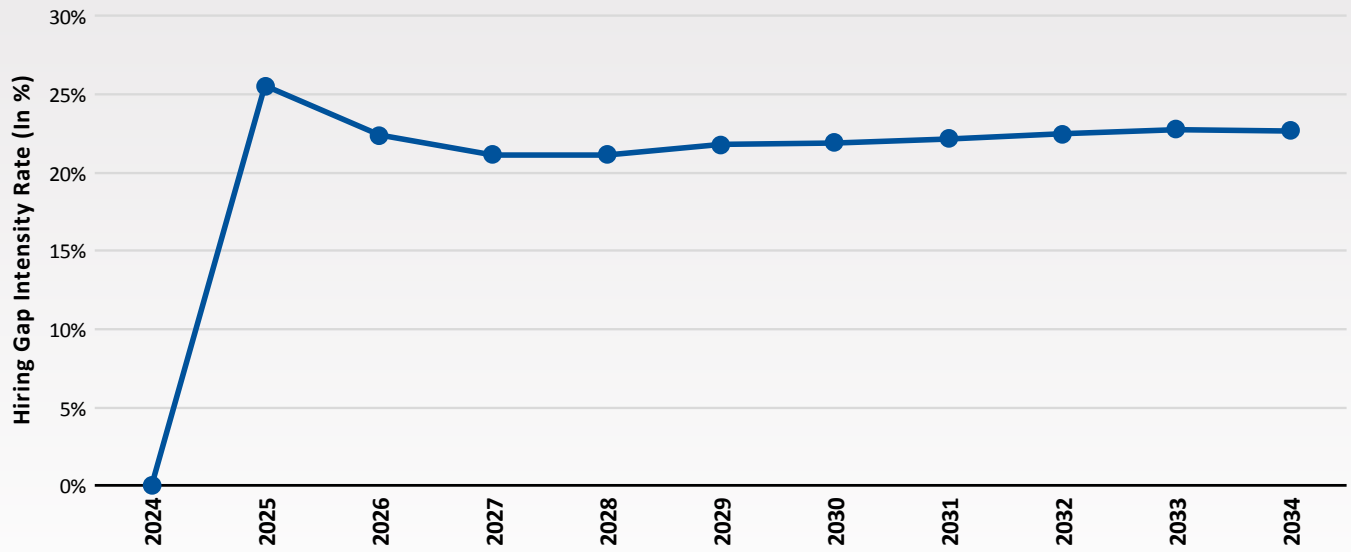


**FIGURE 14** *Baseline-Balanced Scenario Hiring Gap/Surplus in Mining (2024–2034)*



Source: Mining Industry Human Resources Council, Canadian Mining Outlook, 2024.

**FIGURE 15** *Baseline-Balanced Scenario Hiring Gap Intensity in Mining (2024–2034)*



Source: Mining Industry Human Resources Council, Canadian Mining Outlook, 2024.



# Concluding Thoughts

This outlook report detects and measures tightness in Canada's mining labour market. A tight labour market can result from a shortfall of available workers or from a robust demand for workers – or a combination of both factors. In either case, employers' demand for workers outpaces supply, likely causing wages to rise and unemployment to fall as employers become more willing to pay for labour inputs.

MiHR's labour market tightness checklist finds five out of six indicators showing signals of a tight labour market environment, mostly a carry-over from post-pandemic era disruption. At the same time, this report finds that several indicators have cooled down from 2023 levels, yet not enough to alleviate short-term labour tightness concerns. While the disruptions of the past few years have begun to level, the long-term stability of Canada's mining labour market remains a concern.

Long-term labour tightness issues have the potential to endure based on MiHR's labour forecasts for hiring gaps in mining sub-sectors and broad occupational categories. Consistent with the findings from 2023, *Extraction and Milling* and *Production Occupations* are particularly susceptible to labour tightness under certain scenarios. In these cases, forecast entries are not expected to be sufficient to completely alleviate the hiring pressures generated by new labour demand and exiting workers.

Overall, hiring gaps are indicative of the potential costs associated with hiring new workers and replacing exiting workers. This commonly involves a combination of advertising, interviewing, selecting, onboarding and training individuals to meet both company standards and regulatory requirements. The process can be time-consuming, especially in tight labour supply situations.

# Appendices



# Appendix A

## North American Industry Classification System (NAICS)

MiHR has aligned its definition of the industry to a set of NAICS codes.<sup>12</sup> NAICS codes are used by statistical agencies throughout North America to describe economic and business activity at the industry level.

MiHR uses the following NAICS codes to define the mining industry in Section 3: Labour market outlook and forecast:

### Extraction & Milling

**NAICS 2121 (Coal mining):** This industry group comprises establishments primarily engaged in mining bituminous coal, anthracite and lignite by underground mining, and auger mining, strip mining, culm bank mining and other surface mining.

**NAICS 2122 (Metal ore mining):** This industry group comprises establishments primarily engaged in mining metallic minerals (ores). Also included are establishments engaged in ore dressing and beneficiating operations, whether performed at mills operated in conjunction with the mines served, or at mills, such as custom mills, operated separately.

**NAICS 2123 (Non-metallic mineral mining and quarrying):** This industry group comprises establishments primarily engaged in mining or quarrying non-metallic minerals, except coal. Primary preparation plants, such as those engaged in crushing, grinding and washing, are included.

**NAICS 211114 (Non-conventional oil extraction):** This industry group comprises establishments primarily engaged in producing crude oil from surface shales or oil sands or from reservoirs in which the hydrocarbons are semisolids and conventional production methods are not possible.<sup>13</sup>

### Support Services

**NAICS 21311B (Support activities for mining):** This industry group comprises establishments primarily engaged in providing support services, on a contract or fee basis, required for the mining and quarrying of minerals. Establishments engaged in the exploration for minerals are included. Exploration includes traditional prospecting methods, such as taking ore samples and making geological observations at prospective sites. Note that this NAICS code combines NAICS codes 213117 (Contract drilling (except oil and gas)) and 213119 (Other support activities for mining).

### Primary Metal Manufacturing

**NAICS 3311 (Iron and steel mills and ferro-alloy manufacturing):** This industry group comprises establishments primarily engaged in smelting iron ore and steel scrap to produce pig iron in molten or solid form.

**NAICS 3313 (Alumina and aluminum production and processing):** This industry group comprises establishments primarily engaged in extracting alumina.

**NAICS 3314 (Non-ferrous metal (except aluminum) production and processing):** This industry group comprises establishments primarily engaged in smelting, refining, rolling, drawing, extruding and alloying non-ferrous metal (except aluminum).

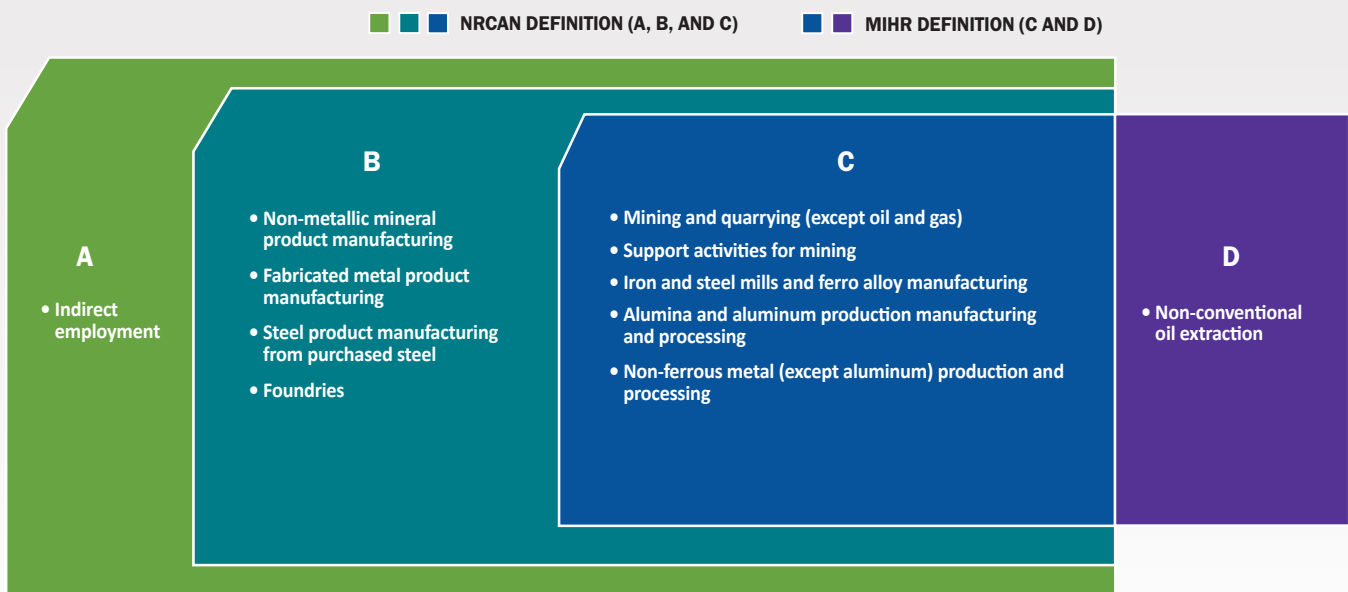
<sup>12</sup> For more information on NAICS codes, see the Statistics Canada website: <https://www23.statcan.gc.ca/imdb/p3VD.pl?Function=getVD&TVD=1181553>

<sup>13</sup> Currently, MiHR considers non-conventional oil extraction (NAICS 211114) to account for oil sands mining activities. This NAICS code likely includes other activities that are not relevant to mining (e.g., offshore drilling and shale oil production).

### How MiHR's Industry Definition is Different

MiHR's definition of the mining industry does not perfectly align with definitions used by Natural Resources Canada (NRCan), the Mining Association of Canada (MAC) and other organizations that produce labour market and employment information related to mining. In contrast to NRCan, MiHR excludes certain aspects of downstream manufacturing and indirect employment from its definition (Figure A - 1). Consequently, MiHR's employment estimates tend to be lower compared to NRCan's estimate.

**FIGURE A-1 Comparison of MiHR and NRCan Definitions of the Mining Industry**



Source: Mining Industry Human Resources Council, Canadian Mining Outlook, 2024.

### National Occupational Classification (NOC) System

Occupational analysis in this report follows the NOC system to report on labour market activity. The NOC system is the nationally accepted taxonomy and organizational framework of occupations in the Canadian labour market.<sup>14</sup>

From the hundreds of occupations under the NOC system, MiHR has identified and tracked 100 “selected occupations” considered the most relevant to the mining industry (Table A - 1). These range from occupations in production and operations, such as heavy equipment operators, to occupations in professional and physical sciences, such as geologists.

<sup>14</sup> For more information on NOC codes, see the Government of Canada website: <https://noc.esdc.gc.ca/>.

## Occupation Classification

**TABLE A-1** List of Mihr's Top 100 Mining-Centric Occupations and Categories

NOC	Categories	Title	NOC	Categories	Title	
10010	Human Resources and Financial	Financial managers	22233	Supervisors, Coordinators, and Superintendents	Construction inspectors	
10011		Human resources managers	70010		Construction managers	
11100		Financial auditors and accountants	70012		Facility operation and maintenance managers	
11101		Financial and investment analysts	72010		Contractors and supervisors, machining, metal forming, shaping and erecting trades and related occupations	
11200		Human resources professionals	72011		Contractors and supervisors, electrical trades and telecommunications occupations	
12101		Human resources and recruitment officers	72012		Contractors and supervisors, pipefitting trades	
12200		Accounting technicians and bookkeepers	72020		Contractors and supervisors, mechanic trades	
14200		Accounting and related clerks	72021		Contractors and supervisors, heavy equipment operator crews	
72500	Production	Crane operators	90010		Manufacturing managers	
73300		Transport truck drivers	92011		Supervisors, petroleum, gas and chemical processing and utilities	
73400		Heavy equipment operators	92023		Supervisors, other mechanical and metal products manufacturing	
73402		Drillers and blasters - surface mining, quarrying and construction	12102		Support workers	Procurement and purchasing agents and officers
75101		Material handlers	13100			Administrative officers
83100		Underground production and development miners	13110			Administrative assistants
84100		Underground mine service and support workers	14100	General office support workers		
85110		Mine labourers	14400	Shippers and receivers		
93100		Central control and process operators, mineral and metal processing	14401	Storekeepers and partspersons		
94100		Machine operators, mineral and metal processing	14402	Production logistics workers		
95100		Labourers in mineral and metal processing	14403	Purchasing and inventory control workers		
13201		Production and transportation logistics coordinators	21120	Public and environmental health and safety professionals		
75110		Construction trades helpers and labourers	22230	Non-destructive testers and inspectors		
75119		Other trades helpers and labourers	22231	Engineering inspectors and regulatory officers		
92100		Power engineers and power systems operators	22232	Occupational health and safety specialists		
94101		Foundry workers	41210	College and other vocational instructors		
94105		Metalworking and forging machine operators	94104	Inspectors and testers, mineral and metal processing		
94106		Machining tool operators	22101	Technical		Geological and mineral technologists and technicians
94107		Machine operators of other metal products	22312			Industrial instrument technicians and mechanics
95101		Labourers in metal fabrication	21203		Land surveyors	
95109	Other labourers in processing, manufacturing and utilities	21222	Information systems specialists			
21102	Professional and Physical Science	Geoscientists and oceanographers	22100		Chemical technologists and technicians	
21322		Metallurgical and materials engineers	22212		Drafting technologists and technicians	
21330		Mining engineers	22213		Land survey technologists and technicians	
21331		Geological engineers	22214		Technical occupations in geomatics and meteorology	

NOC	Categories	Title	NOC	Categories	Title
21101	Professional and Physical Science	Chemists	22300	Technical	Civil engineering technologists and technicians
21202		Urban and land use planners	22301		Mechanical engineering technologists and technicians
21231		Software engineers and designers	22302		Industrial engineering and manufacturing technologists and technicians
21300		Civil engineers	22310		Electrical and electronics engineering technologists and technicians
21301		Mechanical engineers	72100	Trades	Machinists and machining and tooling inspectors
21310		Electrical and electronics engineers	72106		Welders and related machine operators
21320		Chemical engineers	72201		Industrial electricians
21321		Industrial and manufacturing engineers	72400		Construction millwrights and industrial mechanics
21399		Other professional engineers	72401		Heavy-duty equipment mechanics
41400		Natural and applied science policy researchers, consultants and program officers	72104		Structural metal and platework fabricators and fitters
80010	Supervisors, Coordinators, and Superintendents	Managers in natural resources production and fishing	72105		Ironworkers
82020		Supervisors, mining and quarrying	72200		Electricians (except industrial and power system)
92010		Supervisors, mineral and metal processing	72301		Steamfitters, pipefitters and sprinkler system installers
00018		Seniors managers - public and private sector	72410		Automotive service technicians, truck and bus mechanics and mechanical repairers
10012		Purchasing managers	73201	General building maintenance workers and building superintendents	
12013		Supervisors, supply chain, tracking and scheduling coordination occupations	74203	Automotive and heavy truck and equipment parts installers and servicers	
20010		Engineering managers	74204	Utility maintenance workers	

Source: Mining Industry Human Resources Council, Equity Deserving Groups Report, 2024.

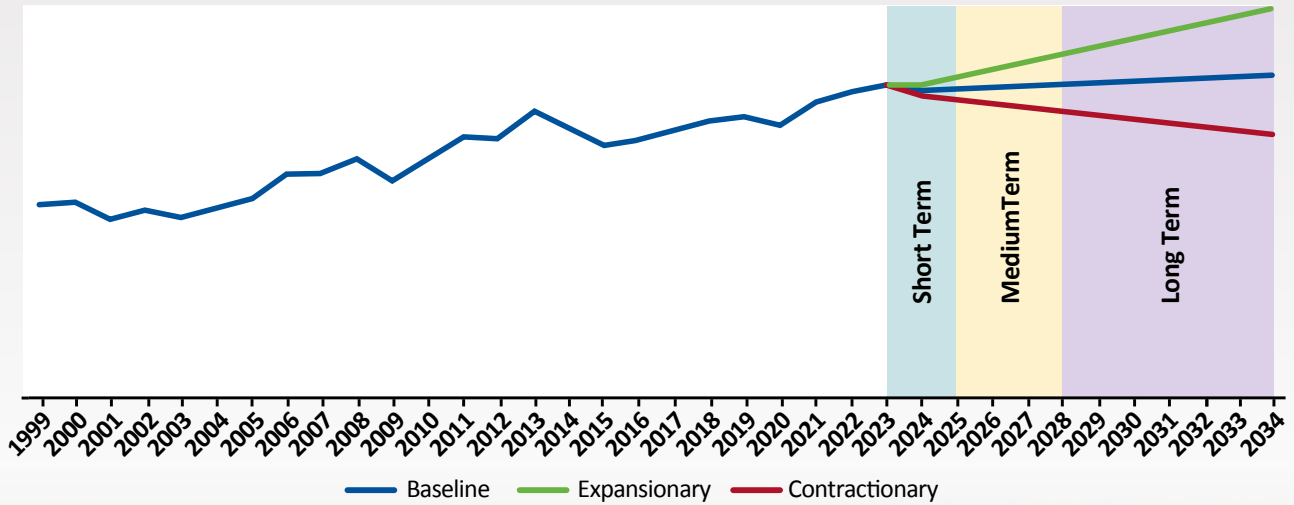




# Appendix B

## Employment Forecast by Time Periods

**FIGURE B-1** Short Term (2024 – 2025), Medium Term (2026 – 2028), and Long Term (2029 – 2034)  
Forecasted Employment in Mining (1999 – 2034)



Source: Mining Industry Human Resources Council, Canadian Mining Outlook, 2024.



### Net Change in Employment by Sub-Sectors

Table B - 1 shows that in the short term, *Extraction and Milling* employment is expected to see a growth while *Support Services* declines considerably and *Primary Metal Manufacturing* declines slightly. *Extraction and Milling* continues to grow further into the medium term, *Support Services* employment is expected to recover in the medium run while the decline in *Primary Metal Manufacturing* slows down. In the long term, *Extraction and Milling* employment is expected to see modest growth while the growth in *Support Services* and the decline in *Primary Metal Manufacturing* slows down.

**TABLE B-1** Forecast Scenarios of Cumulative Net Change in Employment by Mining Sub-Sectors, Across Short Term (2024 – 2025), Medium Term (2026 – 2028), and Long Term (2029 – 2034)

Short Term											
2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	
					Contractionary		Baseline		Expansionary		
Extraction and Milling					-2,198		1,523		5,309		
Support Services					-3,407		-2,110		-779		
Primary Metal Manufacturing					-2,405		-748		936		
<b>All Sub-sectors</b>					<b>-8,010</b>		<b>-1,334</b>		<b>5,466</b>		

		Medium Term									
2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	
					Contractionary		Baseline		Expansionary		
Extraction and Milling					-3,239		2,299		8,428		
Support Services					-1,377		530		2,745		
Primary Metal Manufacturing					-2,599		-112		2,630		
<b>All Sub-sectors</b>					<b>-7,215</b>		<b>2,716</b>		<b>13,803</b>		

					Long Term					
2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
					Contractionary		Baseline		Expansionary	
Extraction and Milling					-6,600		4,248		18,196	
Support Services					-3,332		57		5,017	
Primary Metal Manufacturing					-4,626		-10		5,911	
<b>All Sub-sectors</b>					<b>-14,557</b>		<b>4,295</b>		<b>29,124</b>	

Source: Mining Industry Human Resources Council, Canadian Mining Outlook, 2024.

### Net Change in Employment by Occupation

Table B - 2 shows that in the short term, all occupations are expected to decline under the baseline scenario. Modest growth in employment is expected across all occupations in the medium term, continuing into the long term. *Production Occupations* are expected to grow the most in the long term with 1,368 additional employees under the baseline scenario.

**TABLE B-2** Forecast Scenarios of Cumulative Net Change in Employment by Mining Occupations, across Short Term (2024 – 2025), Medium Term (2026 – 2028) and Long Term (2029 – 2034)

Short Term											
2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	
					Contractionary		Baseline		Expansionary		
Human Resources and Financial Occupations					-334		-56		228		
Production Occupations					-2,551		-425		1,741		
Professional and Physical Science Occupations					-427		-71		291		
Supervisors, Coordinators and Superintendents					-1,025		-171		699		
Support Workers					-444		-74		303		
Technical Occupations					-350		-58		239		
Trades Occupations					-1,139		-190		777		
Other Occupations					-1,740		-290		1,188		
<b>All Occupations</b>					<b>-8,010</b>		<b>-1,334</b>		<b>5,466</b>		

		Medium Term									
2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	
					Contractionary		Baseline		Expansionary		
Human Resources and Financial Occupations					-300		113		575		
Production Occupations					-2,298		865		4,396		
Professional and Physical Science Occupations					-384		145		736		
Supervisors, Coordinators and Superintendents					-923		347		1,766		
Support Workers					-400		151		766		
Technical Occupations					-315		119		603		
Trades Occupations					-1,026		386		1,963		
Other Occupations					-1,568		590		2,999		
<b>All Occupations</b>					<b>-7,215</b>		<b>2,716</b>		<b>13,803</b>		

						Long Term				
2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
					Contractionary		Baseline		Expansionary	
Human Resources and Financial Occupations					-606		179		1,213	
Production Occupations					-4,636		1,368		9,276	
Professional and Physical Science Occupations					-776		229		1,552	
Supervisors, Coordinators and Superintendents					-1,862		549		3,726	
Support Workers					-808		238		1,616	
Technical Occupations					-636		188		1,273	
Trades Occupations					-2,070		611		4,141	
Other Occupations					-3,163		933		6,328	
<b>All Occupations</b>					<b>-14,557</b>		<b>4,295</b>		<b>29,124</b>	

Source: Mining Industry Human Resources Council, Canadian Mining Outlook, 2024.