



MINING INDUSTRY
HUMAN RESOURCES COUNCIL

EQUITY DESERVING GROUPS IN CANADA'S MINING INDUSTRY

2024





Copyright © 2024 Mining Industry Human Resources Council (MiHR)

All rights reserved. The use of any part of this publication, whether it is reproduced, stored in a retrieval system, or transmitted in any form or by any means (including electronic, mechanical, photographic, photocopying or recording), without the prior written permission of MiHR is an infringement of copyright law.

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

Or visit the website at:

www.mihr.ca

Published March 2024



This project is funded in part by the Government of Canada.

The opinions and interpretations in this publication are those of the author and do not necessarily reflect those of the Government of Canada.



Table of Contents

INTRODUCTION.....	3
Equity Deserving Groups	4
Report Objective	4
Key Data Sources.....	5
MiHR’s Definition of Canada’s Mining Industry.....	5
MiHR’s Mining Relevant Occupations.....	5
1) WOMEN IN MINING	7
1.1. Representation of Women in Mining	7
Share of Women in Mining Remains Stagnant	7
Representation of Women Differs by Occupational Choice.....	8
Systemic Barriers to Women’s Representation	11
1.2. Labour Market Outcomes of Women in Mining.....	12
Unemployment Rates Higher for Women in Mining Occupations	12
Lack of Women in Trades Programs.....	16
Women Are More Prevalent in Part-Time Positions	20
1.3. Estimating the Labour Pool of Women in Mining.....	22
Model Overview and Assumptions	22
LMA Model Results	22
Case Study 1: Mechanics	24
Case Study 2: Welders.....	27
Evaluating the Canadian Minerals and Metals Plan.....	29
1.4. Women in Mining: Key Takeaways	29
2) IMMIGRANTS IN MINING.....	30
Population Growth Is Driven by Immigrants.....	30
Immigrants have Geographical Barriers	31
2.1. Representation of Immigrants in Mining	33
Share of Immigrants in Mining Underperforming Significantly....	33
Mining Underperforms with Immigrants.....	34
Systemic Barriers to Immigrant Representation	36

- 2.2. Labour Market Outcomes of Immigrants in Mining** 37
 - Immigrants Exhibit Lower Unemployment Rates..... 37
 - Roughly Half of Immigrants Hold a Bachelor’s Degree or Higher 38
- 2.3. Labour Pool of Immigrants in Mining**..... 40
 - Model Overview and Assumptions 40
 - LMA Model Results 41
 - Case Study 1: Underground Miners..... 44
 - Case Study 2: Equipment Operators 46
- 2.4. Immigrants in Mining: Key Takeaways**..... 48
- 3) INDIGENOUS PEOPLES IN MINING** **49**
 - Indigenous Worker’s Have a Geographical Connection 49
- 3.1. Representation of Indigenous Peoples in Mining** 51
 - Share of Indigenous Peoples in Mining Outperforming 51
 - Indigenous Peoples Outperforming across Occupational Categories..... 51
 - Systemic Barriers to Indigenous Representation..... 54
- 3.2. Labour Market Outcomes of Indigenous Peoples in Mining**..... 54
 - Unemployment Rates Higher and More Volatile for Indigenous 54
 - Indigenous Workers More Likely to Be in Jobs Not Requiring Formal Education 56
- 3.3. Labour Pool of Indigenous Peoples in Mining**..... 57
 - Model Overview and Assumptions 57
 - LMA Model Results 58
 - Case Study 1: Technicians..... 60
 - Case Study 2: Welders..... 63
- 3.4. Indigenous Peoples in Mining: Key Takeaways**..... 65
- CONCLUSION** **66**
- APPENDICES** **67**
 - Appendix A: MiHR’s Top 100 Mining-Centric Occupations 68
 - Appendix B: Methodology..... 70
 - MiHR’s Labour Market Analysis Framework..... 70
 - LMA Model Objectives 71
 - LMA Model Key Assumptions 72

Introduction

Advancing equity, diversity and inclusion is a strategic objective and a core principle for Canada's mining industry. Beyond the social responsibility to ensure workplaces are equitable and free of discrimination, there are clear economic benefits. A diverse workforce brings varied experiences and perspectives, facilitating fresh ideas and innovation that are essential to a company's competitive edge. Moreover, establishing a respectful environment, where employees feel valued for who they are, significantly boosts morale, job satisfaction and employee retention.

Against the backdrop of an aging workforce and the surging demand for metals and minerals, the mining industry's ability to attract and retain workers from diverse backgrounds will be crucial for its sustainable growth in the coming years.

In short, supporting diversity is not only a moral imperative; it is a strategic commitment to advance both individual and organizational success in the mining industry.



Equity Deserving Groups

In the context of the mining labour market, *equity deserving groups* refers to people who, because of systemic discrimination, face barriers that prevent them from having the same access to the resources and employment opportunities that are available to other members of society, and that are necessary for them to attain comparable outcomes. This may vary based on factors such as geography and sociocultural context.

The Mining Industry Human Resources Council's (MiHR) definition of equity deserving groups includes (but is not limited to) the following:

- **Women:** Defined as people who identify as women¹.
- **Immigrants:** Defined as people who were not born in Canada but who have obtained landed immigrant or permanent resident status. This encompasses newcomers, recent immigrants, and established immigrants.
- **Indigenous peoples:** Defined as people who identify themselves as First Nations, Métis, or Inuit.
- **Youth:** Defined as people between the ages of 15 and 30.
- **Persons with disabilities:** Defined as people with any form of physical, learning, or mental-health related disability.
- **Persons who identify as 2SLGBTQIA:** Defined as people who identify themselves as Two-Spirit, lesbian, gay, bisexual, transgender, queer, questioning, intersex, or asexual.
- **Racialized persons/visible minorities:** Defined as people categorized according to ethnic or racial characteristics and subjected to discrimination on that basis².

Report Objective

This report examines Canada's mining labour force to understand how various equity deserving groups are represented in the industry. It further highlights key trends and employment outcomes for these groups and estimates evidence-based representation targets in critical mining occupations.

The scope of this report will focus primarily on three equity deserving groups of interest. These three groups have been selected for quantitative analysis due to data availability and quality:

- Women in mining
- Immigrants in mining
- Indigenous peoples in mining

For each group, the report investigates three key themes and research questions:

- **Representation:** is the equity deserving group's representation within the mining industry on par with all other industries in Canada?
- **Labour Market Outcomes:** are the labour market outcomes (i.e., unemployment rate, educational attainment, hours worked) for the equity deserving group in question different compared to their counterparts?
- **Labour Pool:** is the future labour supply of the equity deserving group sufficient to sustain future labour demand?

¹ Includes ciswomen and trans women. Please see Statistics Canada's *Age, Sex at Birth and Gender Reference Guide, Census of Population, 2021*.

² The term 'visible minority' is a government of Canada definition; while it corresponds to the *Employment Act*, it may be outdated and can be imprecise in a general context.

MiHR follows specific methodologies that can be found in Appendix A.

It is important to note that certain demographics—such as youths, persons with disabilities, individuals identifying as 2SLGBTQIA, and racialized persons and/or visible minorities—have not been specifically addressed in this report. This omission stems from data constraints, as these groups are often small and underreported in publicly available datasets, making a comprehensive analysis challenging. While there continues to be much to learn about their participation in the mining labour market, the scarcity of data on their labour market experiences has led to their exclusion in the current study.

Additionally, a cross sectional analysis (e.g., examining the experiences of Indigenous women) adds complexity due to similar data constraints and has not been included in this study. Given the importance of these marginalized communities, future studies should consider conducting primary research to circumvent data limitations.

Key Data Sources

Data presented in this report rely primarily on industry-level data gathered and aggregated through Statistics Canada:

- **Statistics Canada’s Census:** releases a wide range of information on Canada’s population, including topics related to labour market activities. While it is published once every five years (with the latest iteration in 2021), the census offers more detail where other data sources are less able. Census data is based on place of residence.
- **Statistics Canada’s Labour Force Survey (LFS):** covers topics related to labour market activities in Canada for the population 15 years of age and over (e.g., employment, unemployment, labour force participation, wages, etc.). This survey is conducted monthly and therefore provides the timeliest data. The LFS collects household data at the national, provincial, and regional level.

³ For more information on NAICS codes, visit the [Statistics Canada website](#).

⁴ For more information on NOC codes, visit the [Government of Canada website](#).

MiHR’s Definition of Canada’s Mining Industry

The analysis in this report uses data and information that adheres to MiHR’s definition of the mining industry based on the *North American Industry Classification System (NAICS) 2017*³. MiHR defines the mining industry as inclusive of activities that fall within the following three sub-sectors:

- **Mining and Quarrying [NAICS 212]:** describes the activities at operating mines across Canada, including both surface and underground mining operations; includes on-site processing activities.
- **Support Services [NAICS 213]:** includes the activities of organizations providing support services for a wide range of mining activities, usually on a contract or fee basis.
- **Primary Metal Manufacturing [NAICS 3311, 3313, 3314]:** consists of activities that are directly downstream from extraction and milling, including smelting, and refining of ferrous and non-ferrous metals.

MiHR’s Mining Relevant Occupations

Occupational data presented in this report are aligned with the *National Occupational Classification (NOC) 2021*⁴ system to define relevant occupations of interest.

MiHR has identified 100 occupations aligned with the NOC 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).

For instances that required further occupational specificity, this report highlights eight critical mining occupations:

- *Geoscientists and oceanographers [NOC 21102] (Geologists)*
- *Mining engineers [NOC 21330] (Mining engineers)*
- *Geological and mineral technologists and technicians [NOC 22101] (Technicians)*
- *Welders and related machine operators [NOC 72106] (Welders)*
- *Industrial electricians [NOC 72201] (Electricians)*
- *Heavy-duty equipment mechanics [NOC 72401] (Mechanics)*
- *Heavy equipment operators [NOC 73400] (Equipment operators)*
- *Underground production and development miners [NOC 83100] (Underground miners)*



Women in Mining

1

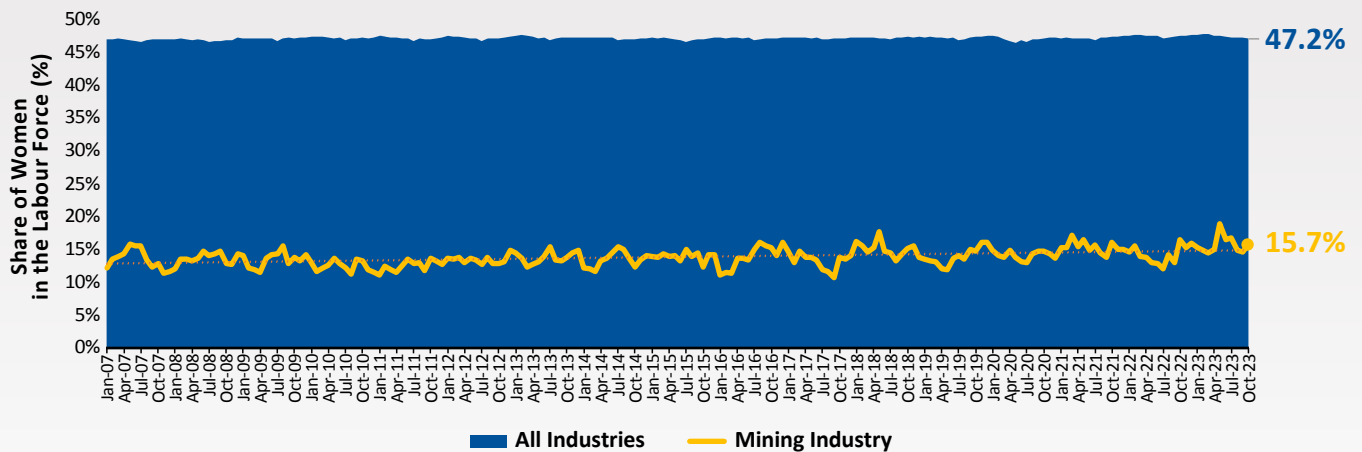
1.1. Representation of Women in Mining

Share of Women in Mining Remains Stagnant

Improving women's representation has been an ongoing challenge for Canada's mining industry. While there has been a notable push for the inclusion of women over the last decade, the sector has struggled to achieve significant progress.

As of October 2023, women comprised 15.7% of the mining industry's workforce, far lower than the 47.2% seen across all industries (Figure 1). Seasonal fluctuations aside, women's representation has remained stagnant, lingering between 14% and 16% for the better part of the last two decades.

FIGURE 1 WOMEN'S SHARE OF THE LABOUR FORCE, ALL INDUSTRIES AND MINING INDUSTRY (JAN 2007 – OCT 2023)



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry*, 2024; Statistics Canada, Labour Force Survey (Custom Data).

This flat trend underscores the lack of traction in attracting and retaining women workers. On the surface the problem seems specific to mining, but the question remains: why is it so difficult to move the needle? Several factors are frequently cited⁵, including competition for talent from rival industries, isolated work sites, and inhospitable working conditions that pose significant challenges for women's participation.

Representation of Women Differs by Occupational Choice

Women's presence in the mining industry is strongly influenced by their career choices and trajectories, a key factor that is sometimes overlooked. Their representation varies widely depending on the occupation. Certain fields such as geology, finance, and human resources have a higher percentage of women in their ranks, whereas others like trades occupations are historically male dominated. The mining industry has a unique occupational mix, with a prevalence of roles where women are less likely to be employed. For most mining-centric occupations, the labour pool for women is relatively limited, with 72% of jobs having less than 30% representation.

Given the distinct challenges associated with different job roles, MiHR's analysis takes an occupational perspective. The goal is to shed light on positions in the mining sector that should be prioritized for attention and resources to advance women's representation.

General Tendency for Mining to Underperform

Figure 2a compares women's representation in the mining sector with their representation across all industries, for 100 mining-centric occupations⁶. In most cases, the percentage of women in mining closely aligns with the percentage in other sectors. However, there is a tendency for many of these occupations to have a lower representation in mining than in other industries. In the figure, these occupations are shown below the parity (45 degree) line.



⁵ Mining Industry Human Resources Council. (2023). *From Classroom to Mine Site: A review of Canada's Postsecondary Education Pipeline for the Mining Sector*.

⁶ Refer to Appendix A for the complete list of occupations and categories.

Figure 2b shows there are some occupational categories where mining significantly underperforms other industries, suggesting mining-specific problems in recruiting or retaining women employees. Only 8% of *Supervisors, coordinators & superintendents* in mining are women, compared to 21% across all industries. This indicates there may be some barriers specific to the mining industry preventing women taking up leadership roles.

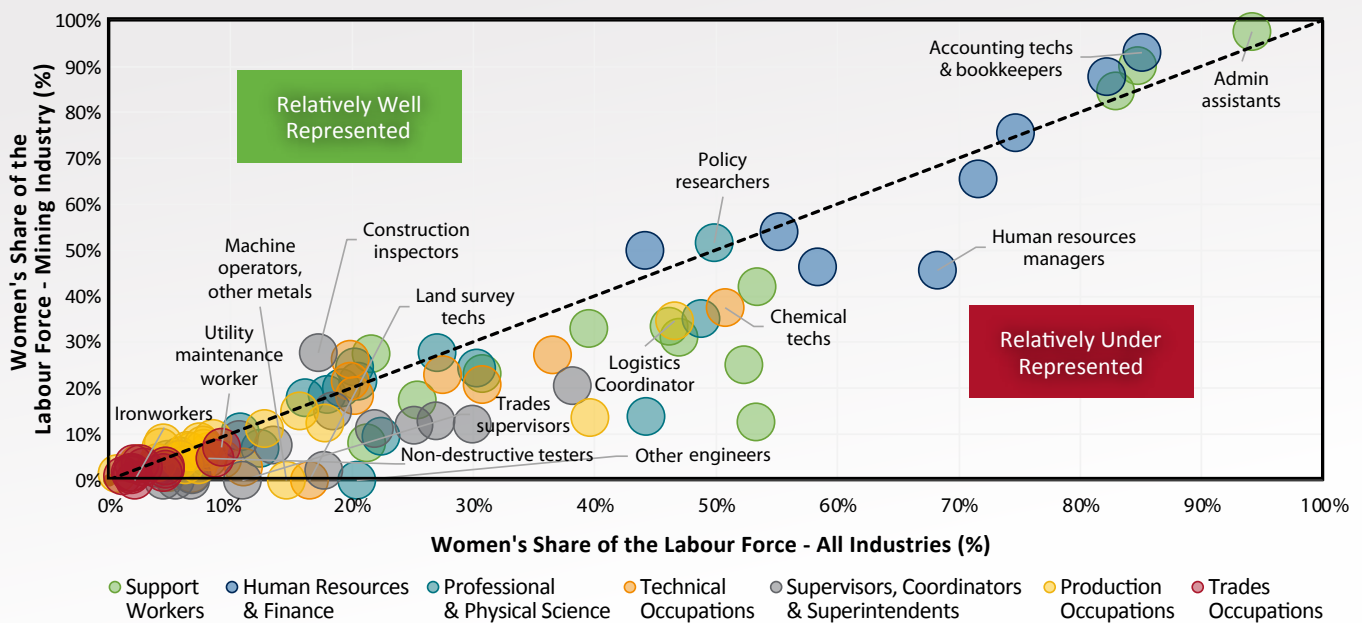
Certain Occupational Categories Have Low Representation Regardless of Industry

In addition, there are types of occupations where women are broadly underrepresented regardless of industry. For example, in 2021 women held only 3.6% of positions in skilled *Trades* across Canada (Figure 2b). In the mining industry, the share of women in *Trades* was similarly low, at only 1.9%. Since *Trades* account for roughly 13% of all mining employment, this has a large impact on the overall representation of women in mining.

The key takeaway is that in many instances the challenge lies with the specific occupations, not the mining industry as a whole. To address this issue, an effective strategy would focus on encouraging women entering the labour force to pursue careers in skilled *Trades* as well as eliminating barriers to their successful participation in the role. This approach would require collaboration with other industries to encourage investments in workforce and skills development.

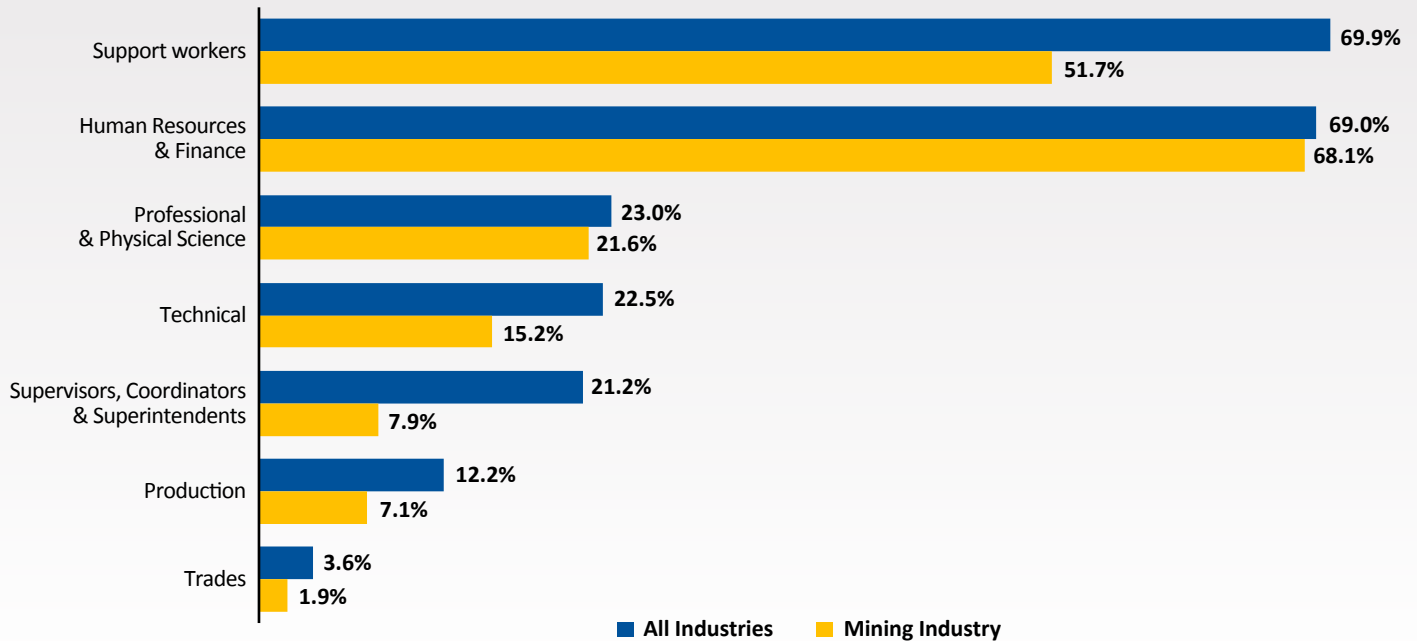


FIGURE 2a WOMEN'S SHARE OF THE LABOUR FORCE BY MINING OCCUPATION, ALL INDUSTRIES AND MINING INDUSTRY (2021)



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry, 2024*; Statistics Canada, *Census of Population (Custom Data), 2021*.

FIGURE 2b WOMEN'S SHARE OF THE LABOUR FORCE BY BROAD OCCUPATIONAL CATEGORY, ALL INDUSTRIES AND MINING INDUSTRY (2021)



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry, 2024*; Statistics Canada, *Census of Population (Custom Data), 2021*.

Figure 3 compares women's representation in the mining industry with mining's share of women's labour force, for occupations of interest.

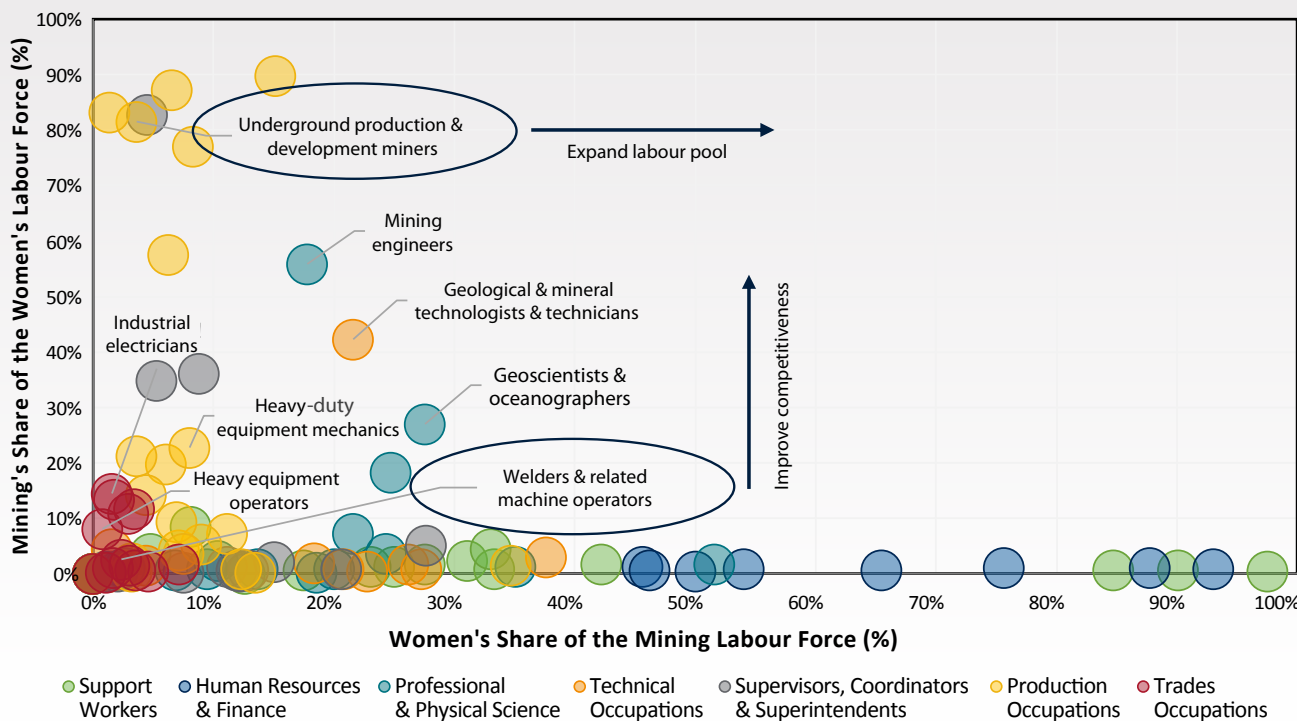
Occupations higher on the vertical axis will have difficulty increasing women's representation by competing with other industries (i.e., taking a larger share of the pie), since these women workers are already predominantly employed in the mining industry. For example, the mining industry employs 82% of *Underground production & development miners (Underground miners)* who are women, yet women make up only 3.7% of *Underground miners*. Therefore, if the mining industry wants to hire more women in this occupation, it needs to train and develop new workers to expand the labour pool (i.e., expand the size of the pie).

Conversely, occupations lower on the vertical axis have a relatively deeper labour pool from which to recruit. Women make up only 2.3% of the mining workforce among *Welders & related machine operators*, yet the mining industry has only managed

to employ 2.6% of all available women *Welders*. In these cases, the mining industry has an opportunity to draw from the existing labour pool and to improve its competitiveness to attract more women workers into the mining industry.



FIGURE 3 WOMEN'S SHARE OF THE MINING LABOUR FORCE VS. MINING'S SHARE OF THE WOMEN'S LABOUR FORCE, MINING OCCUPATIONS (2021)



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry*, 2024; Statistics Canada, *Census of Population (Custom Data)*, 2021.

For recruiters, it is important to understand the depth of the available labour pool and tailor a strategy accordingly. Strategies for improving representation vary by occupation.

Occupations with a shallow labour pool (e.g., *Underground miners*) will need to emphasize workforce development. Competing with other industries over these workers is less likely to move the needle; a more effective (albeit long-term) strategy might involve collaborating with other companies, industry associations, and government bodies, as there is a shared interest in ensuring the labour pool is large enough to sustain the needs of all industries.

For occupations with a sufficiently deep labour pool, prioritizing competition can be an effective strategy. This can include campaigns to recruit women from other sectors, and identifying and eliminating systemic barriers that may hinder the attraction and retention of women workers.

Systemic Barriers to Women's Representation

Systemic barriers are those that result from seemingly neutral systems, practices, policies, traditions or cultures, and that disadvantage certain individuals or groups of people. Because mining has historically been a male-dominated sector, extensive research has been conducted over the years to explore the obstacles women face when entering or working in the sector.

For example, mining facilities and equipment are often not ergonomically adapted for women, and the fly-in, fly-out (FIFO) work model poses a challenge for women trying to balance home and work responsibilities. While there is a trend towards more equitable sharing of family responsibilities within households, the bulk of household duties often fall to women. Moreover, childcare and elder care obligations are often a barrier to women's employment in mining operations, particularly in remote areas.

A Lack of Role Models

Limited representation can in itself be a structural barrier to women entering the mining industry or mining-related jobs. As younger generations of women make career choices, a lack of role models may discourage the pursuit of certain occupations.

Without the guidance of previous generations, women venturing into male-dominated fields assume the role of pioneers, a situation that can be discouraging for many. This is particularly problematic in occupations with extremely low representation such as skilled *Trades*, where women make up only 3.6% of the workforce.

An Unwelcoming Workplace Culture

MiHR's recent publication *Integrating EDI: Addressing Systemic Employment Barriers in Canadian Mining* presents findings from primary and secondary sources on this topic. The presence of hostile conditions or toxic workplace cultures can be a major deterrent for women to enter the industry and to develop their careers in mining. Evidence suggests that women in mining have continued to face workplace barriers over the past five years:

■ **Discrimination:** Among respondents to the *Workplace Experiences Survey*, 86% witnessed or experienced negative comments, treatment or actions; 68% witnessed or experienced harassment; 64% witnessed or experienced discrimination.

■ **Lack of inclusivity:** One respondent highlighted the challenges they faced when raising concerns about their experiences of exclusion: *"Watching so many bad behaviours from male management be tolerated and women terminated for bringing concerns forward. The industry is far from friendly for anyone other than white men."*

■ **Sexual harassment:** A 2021 global study found that 37% of women in mining reported experiencing sexual harassment in the workplace⁷.

1.2. Labour Market Outcomes of Women in Mining

Beyond workforce representation, there are several other indicators that can provide insight on women's experiences in the mining sector. This section discusses other labour market outcomes such as unemployment rates, educational attainment, and part-time work.

Unemployment Rates Higher for Women in Mining Occupations

Unemployment rates are important not only as a signal of labour market tightness but also as a measure of job stability for workers.

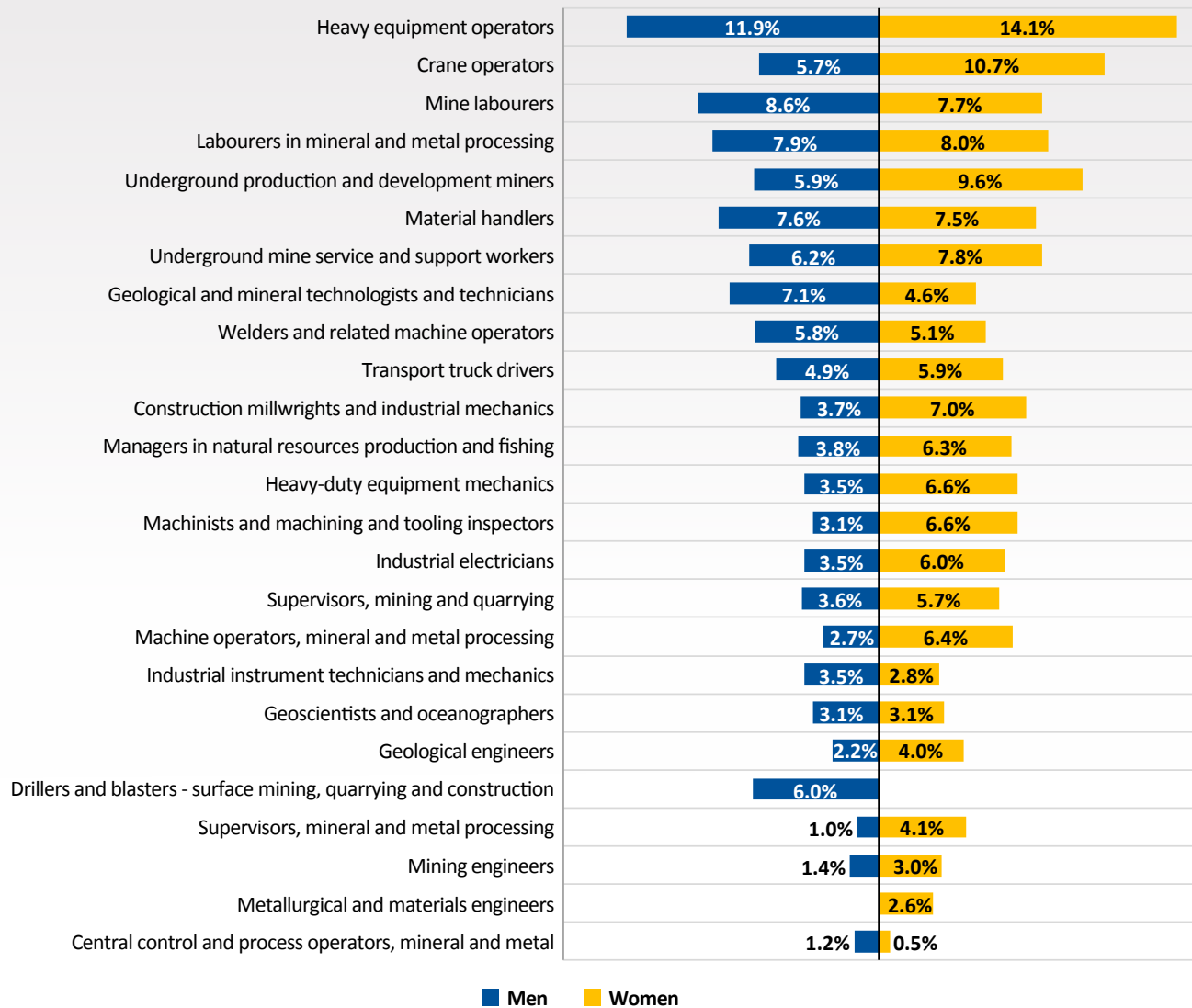
Figure 4 contrasts the unemployment rates of men and women in mining-centric occupations across all industries. For many occupations, women exhibit comparatively higher rates of unemployment. Notably, many trades occupations such as *Construction millwrights and industrial mechanics* and *Heavy-duty equipment mechanics* have unemployment rates for women that are nearly twice as high as those for men.

In some cases, higher unemployment rates for women may be a natural consequence of their relatively smaller workforce numbers⁸. On the other hand, this finding could also suggest that, owing to various reasons, it takes women longer to secure employment in these particular occupations.

7 Kansake, B. A., G. B. Sakyi-Addo N.K. DumakorDupey. (2021). *Creating a gender-inclusive mining industry: Uncovering the challenges of female mining stakeholders. Resources Policy, 70, 101962.*

8 When the number of women in a particular occupation is relatively small compared to men, any changes in the number of unemployed women can lead to larger percentage fluctuations, highlighting the sensitivity of percentages to variations in smaller denominators.

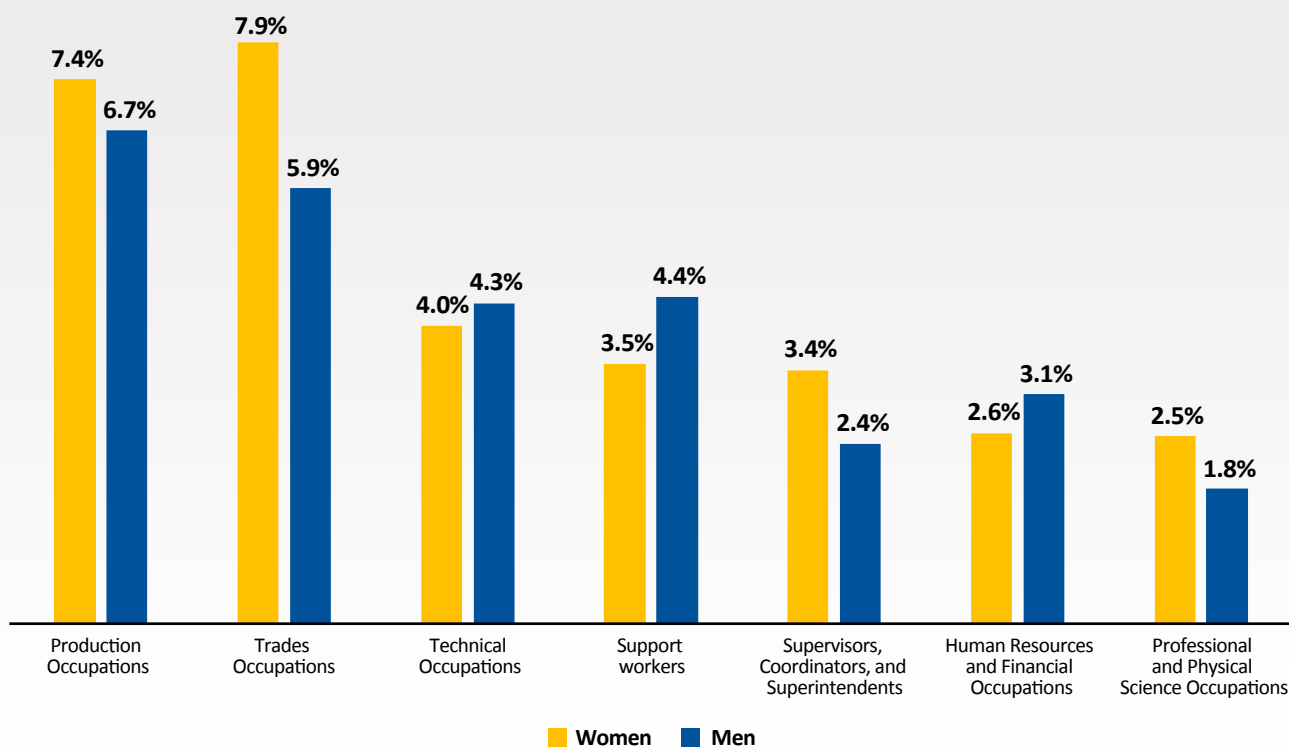
FIGURE 4 *UNEMPLOYMENT RATES BY GENDER, MINING-CENTRIC OCCUPATIONS
(AVERAGE FROM JAN 2018 - JUL 2023)*



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry, 2024*; Statistics Canada, *Labour Force Survey (Custom Data)*.

Figure 5 highlights how there are marked differences in women’s unemployment rates between broad occupational categories. For example, in *Trades Occupations*, women have a 7.9% unemployment rate compared to 5.9% for men. Conversely, *Support Workers* have a higher unemployment rate for men (at 4.4%) compared to women (at 3.5%).

FIGURE 5 *UNEMPLOYMENT RATES BY GENDER, BROAD OCCUPATIONAL CATEGORIES (AVERAGE FROM JAN 2018 - JUL 2023)*



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada’s Mining Industry, 2024*; Statistics Canada, *Labour Force Survey (Custom Data)*.

It is not only important to look at discrepancies in unemployment rates, but also to examine the representation of women among the unemployed. An outsized percentage of women in the ranks of the unemployed points to structural differences in job security and labour attachment between the genders.

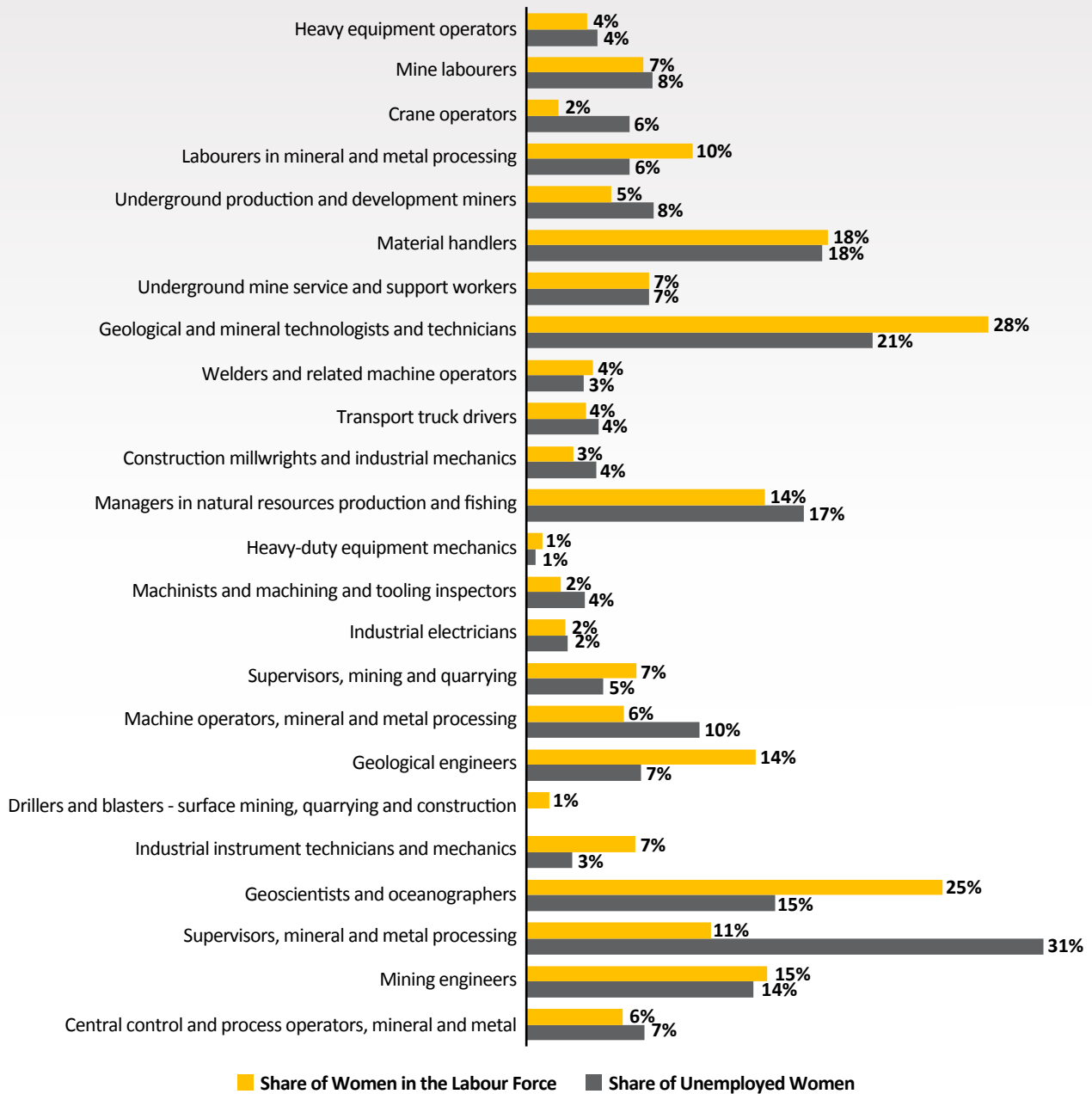
Figure 6 compares women’s share of the labour force with their share of the unemployed population, for mining-centric occupations. For many roles, women’s representation is roughly equal among the unemployed and the overall labour force, while for others there is a large divergence. For example, among *Supervisors, mineral and metal processing* the representation of women is nearly three times higher among the unemployed (31%) than in the

overall labour force (11%). In this instance, barriers in leadership for women in the mining sector may contribute to their overrepresentation among the unemployed.

Figure 7 compares unemployment rates for women and men in *Mining and quarrying (NAICS 212)* over the past decade. Overall, the unemployment rate for women workers is more volatile (showing larger swings), is less predictable, and less driven by seasonality. In the post-pandemic period, unemployment rates have trended lower due to tightening labour market conditions.

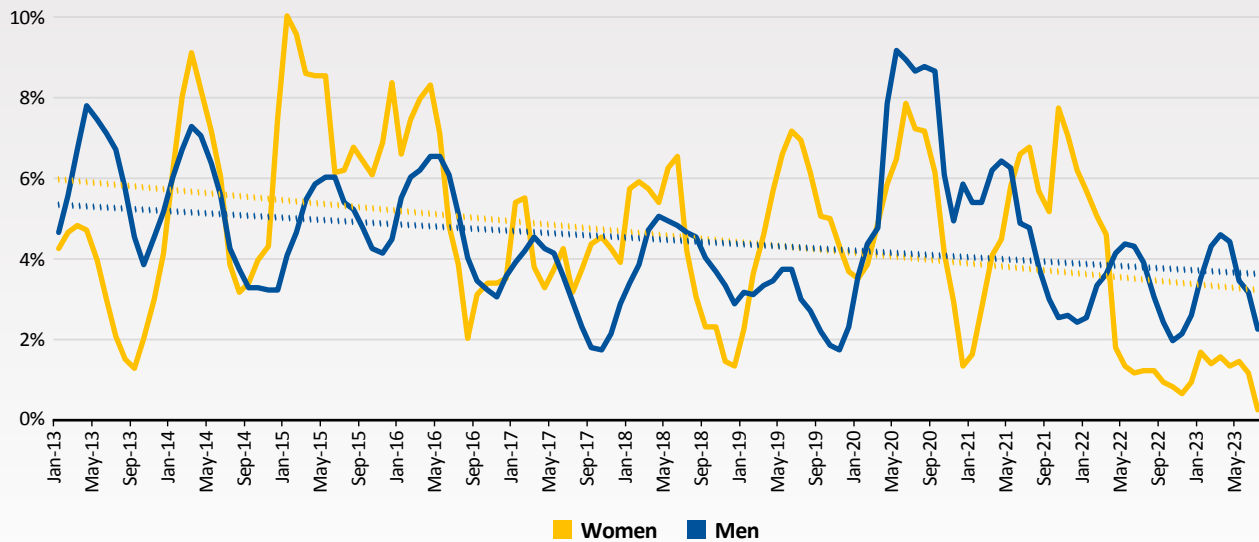
FIGURE 6

WOMEN'S SHARE OF THE MINING LABOUR FORCE AND WOMEN'S SHARE OF THE UNEMPLOYED POPULATION, MINING-CENTRIC OCCUPATIONS (JAN 2018 – JUL 2023)



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry, 2024*; Statistics Canada, *Labour Force Survey (Custom Data)*.

FIGURE 7 *WOMEN'S UNEMPLOYMENT RATE, MINING AND QUARRYING (NAICS 212)*
(SIX-MONTH MOVING AVERAGE FROM JAN 2018 - JUL 2023)



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry, 2024*; Statistics Canada, *Labour Force Survey (Custom Data)*.

Lack of Women in Trades Programs

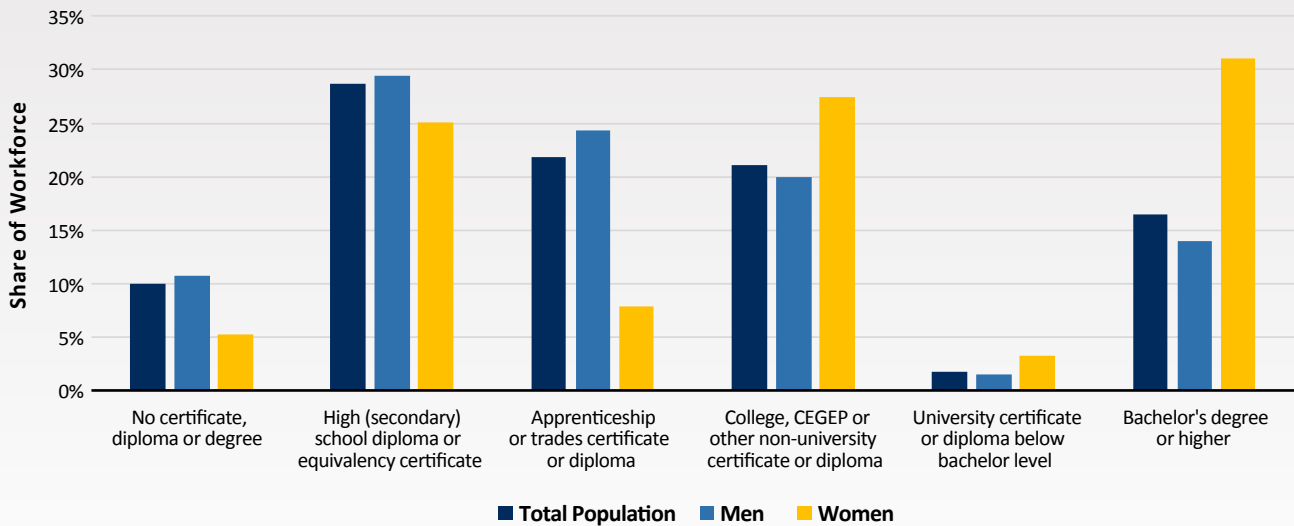
Students' educational backgrounds and program choices play a pivotal role in shaping the diversity of the mining workforce⁹. Figure 8a contrasts the educational attainment of men and women working in the mining industry, whereas Figure 8b shows a similar comparison by Training, Education, Experience and Responsibilities (TEER) categories¹⁰. Both figures support the conclusion that women are not entering key apprenticeship and trades roles, and that these career choices are established in the formative school years. Rather, the educational attainment of women in mining is skewed towards roles requiring a university education.



⁹ Mining Industry Human Resources Council. (2023). *From Classroom to Mine Site: A review of Canada's Postsecondary Education Pipeline for the Mining Sector*.

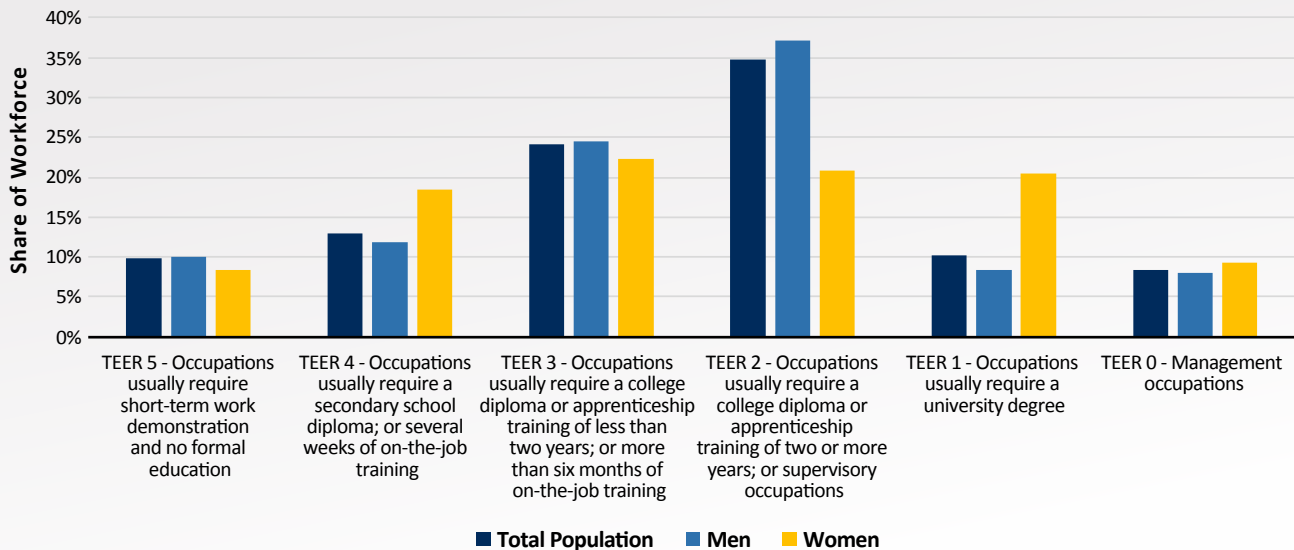
¹⁰ A TEER category is defined by the amount and type of training and education required to enter and perform the duties of an occupation. For more information visit <https://www.statcan.gc.ca/en/subjects/standard/noc/2021/introductionV1>.

FIGURE 8a DISTRIBUTION OF EDUCATIONAL ATTAINMENT BY GENDER, MINING INDUSTRY (2021)



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry, 2024*; Statistics Canada, *Census of Population (Custom Data), 2021*.

FIGURE 8b DISTRIBUTION OF TEER CATEGORIES BY GENDER, MINING INDUSTRY (2021)

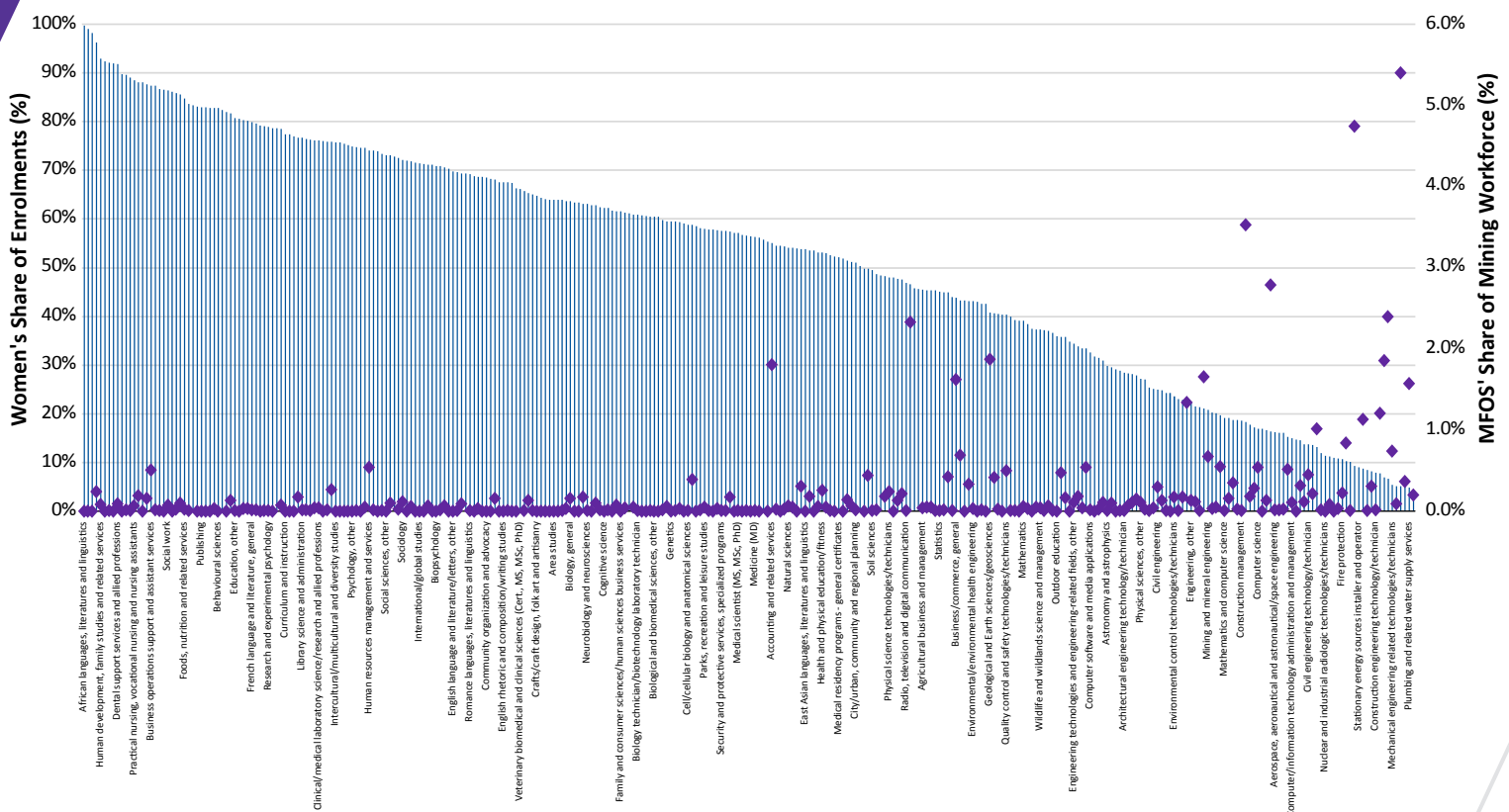


Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry, 2024*; Statistics Canada, *Census of Population (Custom Data), 2021*.

Women have shown a tendency to enter disciplines that are less centric to the mining industry. Figure 9 ranks women’s representation across 427 fields of study, ranking them from highest to lowest, and marking each discipline’s prevalence in the mining sector in the same chart. A negative correlation pattern emerges—as mining relevance drifts upward, women’s share of enrolments decreases. For example, with about 5% of the workforce, the most prevalent field of study in mining is *Heavy/industrial equipment maintenance technologies/technicians (CIP 47.03)*; yet women make up only 5% of this category, highlighting the potential for educational bottlenecks in the most common mining sector roles. Table 1 shows the most important major fields of study for the mining industry and their corresponding share of women.

The data highlights the importance of career development initiatives, underscoring the need to empower young women to envision diverse roles and to assist them in recognizing the broad range of possibilities within the mining industry. This will require family, school, and other key career influencers to shift the narrative beyond conventional gendered roles. By fostering an inclusive environment and challenging traditional stereotypes, greater representation can be achieved across various disciplines within the mining sector, working towards a more balanced and diversified workforce.

FIGURE 9 COMPARISON OF WOMEN’S REPRESENTATION IN POSTSECONDARY ENROLMENTS (LEFT AXIS) BY MAJOR FIELD OF STUDY (MFOS) AND THAT FIELD’S PREVALENCE IN THE MINING INDUSTRY (RIGHT AXIS)



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry, 2024*; Statistics Canada, *Postsecondary Information System (Table 37-10-0011-01), 2022*; Statistics Canada, *Census of Population (Custom Data), 2021*.

TABLE 1 MOST COMMON MAJOR FIELD OF STUDY CATEGORIES IN THE MINING INDUSTRY AND WOMEN'S REPRESENTATION (2021)

Major Field of Study	Prevalence in the Mining Industry (i.e., % of the Mining Industry)	Specificity to the Mining Industry (i.e., Mining's Share of the Labour Pool)	Women's Representation in the Mining Industry
Natural resources conservation and research	0%	2%	59%
Physical science technologies/technicians	0%	6%	48%
Chemistry	0%	2%	45%
Geological and Earth sciences/geosciences	2%	12%	41%
Quality control and safety technologies/technicians	0%	5%	40%
Chemical engineering	0%	3%	36%
Geological/geophysical engineering	0%	12%	36%
Precision systems maintenance and repair technologies/technicians	0%	3%	34%
Forestry	1%	3%	33%
Mechanics and repairers, general	1%	4%	23%
General engineering	2%	2%	21%
Mining and mineral engineering	1%	29%	21%
Industrial production technologies/technicians	1%	5%	20%
Mining and petroleum technologies/technicians	4%	28%	18%
Petroleum engineering	0%	8%	18%
General engineering technologies/technicians	0%	2%	17%
Ground transportation	3%	5%	16%
Civil engineering technology/technician	0%	2%	14%
Mechanical engineering	1%	2%	13%
Carpentry/carpenter	1%	1%	10%
Precision metal working	5%	5%	9%
Electromechanical technologies/technicians	1%	6%	9%
Electrical/electronic engineering technologies/technicians	1%	2%	8%
Vehicle maintenance and repair technologies/technicians	2%	2%	7%
Electrical and power transmission installers	2%	3%	7%
Mechanical engineering related technologies/technicians	1%	3%	5%
Heavy/industrial equipment maintenance technologies/technicians	5%	11%	5%
Electrical/electronics maintenance and repair technologies/technicians	0%	2%	5%
Plumbing and related water supply services	2%	3%	5%
Energy systems technologies/technicians	1%	5%	-

Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry, 2024*; Statistics Canada, *Census of Population (Custom Data), 2021*.

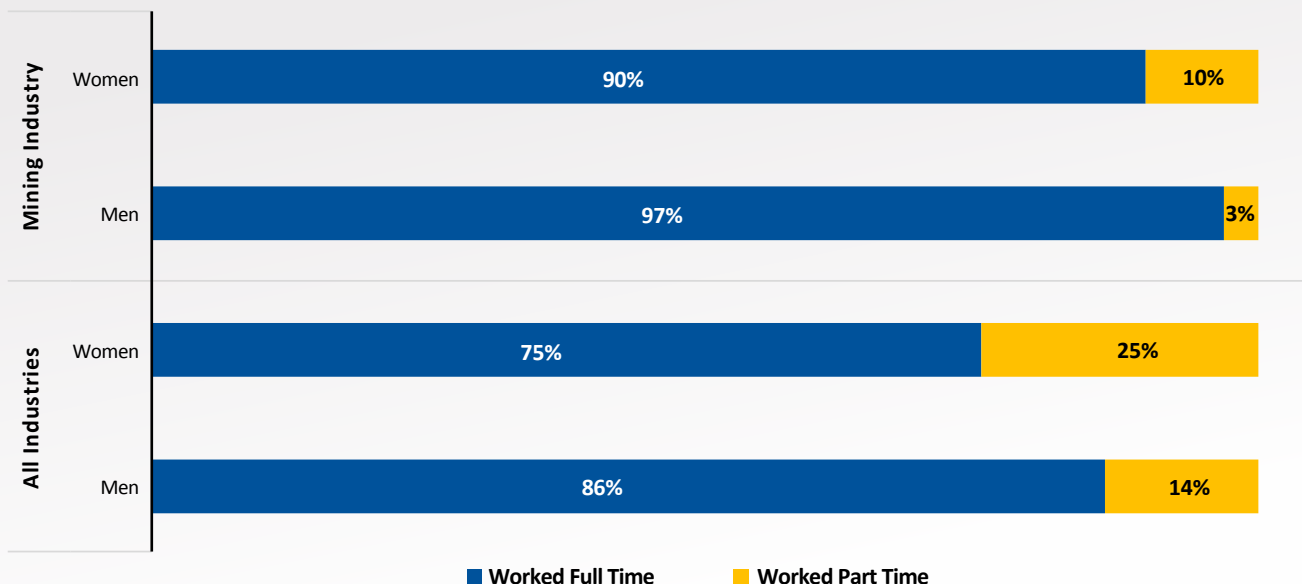
Women Are More Prevalent in Part-Time Positions

Due to the nature of mining work (i.e., its remoteness, scheduling, and occupational mix), mining operations often require more of their employees to work lengthy shifts in a full-time capacity. Part-time workers make up 4% of the mining industry, compared to 19% across all industries in Canada. A lack of part-time opportunities may act as a barrier to women’s representation in the mining workforce. Across all industries, women have a greater propensity to

participate in part-time work relative to men. In mining, roughly 10% of women engage in part-time work compared to only 3% of men (Figure 10).

One plausible explanation for this trend might be the higher share of women engaging in unpaid work (including elder- and childcare) and consequently opting for part-time roles.

FIGURE 10 SHARE OF LABOUR FORCE ENGAGED IN FULL TIME AND PART TIME WORK BY GENDER, ALL INDUSTRIES AND MINING INDUSTRY (2021)



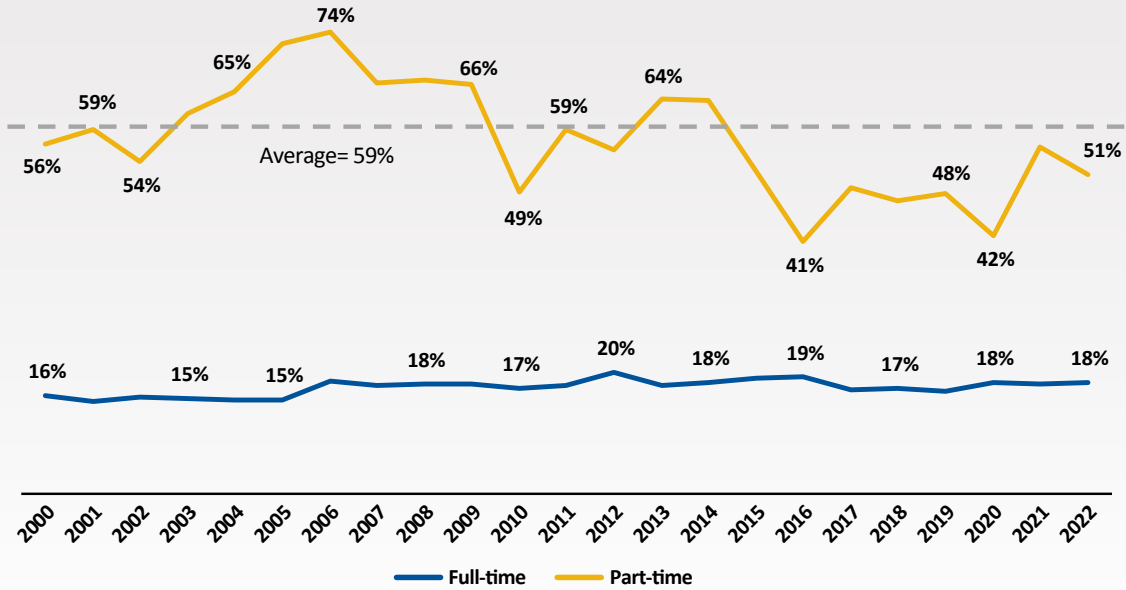
Full-time = worked 30 hours or more per week; Part-time = worked 30 hours or less per week.

Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada’s Mining Industry, 2024*; Statistics Canada, *Census of Population (Custom Data), 2021*.

This tendency has persisted over the last two decades. Since the year 2000, women made up roughly 17% of full-time employees, but averaged 59% of part-time employees in *Mining, quarrying and oil and gas extraction (NAICS 21)* (Figure 11). The mining industry’s reliance on full-time positions may be a limiting factor in its ability to capitalize on the women’s labour pool.

Part-time work can be seen as an opportunity to recruit more women. However, in the top 25 most mining-centric occupations, men tend to dominate part-time positions. This is because women are largely absent from these occupations and are not able to take advantage of these part-time opportunities (Figure 12).

FIGURE 11 HISTORICAL SHARE OF WOMEN IN FULL-TIME AND PART-TIME EMPLOYMENT, MINING, QUARRYING, AND OIL AND GAS EXTRACTION (NAICS 21, 2100) (2000 - 2022)



Source: Mining Industry Human Resources Council, Equity Deserving Groups in Canada's Mining Industry, 2024; Statistics Canada, Labour Force Survey.

FIGURE 12 SHARE OF PART TIME WORK WITHIN OCCUPATIONS BY GENDER, MINING-CENTRIC OCCUPATIONS (2021)



Source: Mining Industry Human Resources Council, Equity Deserving Groups in Canada's Mining Industry, 2024; Statistics Canada, Census of Population (Custom Data), 2021

1.3. Estimating the Labour Pool of Women in Mining

Labour supply is a complex subject, given that measuring potential sources of labour can be abstract and difficult to define. MiHR's Labour Market Analysis (LMA) model estimates the size of the labour pool for women in eight critical mining occupations.

Model Overview and Assumptions

This section shares results from MiHR's LMA model. The main objective of this model is to assess the availability of labour for women in mining occupations and to identify the factors that influence that availability. The findings from this model help determine whether the projected labour supply for women is expected to lead to favourable labour market outcomes in the coming years.

MiHR's LMA model follows several key assumptions, including population growth, labour force participation, unemployment rates and occupational choices. Each assumption represents a conservative status quo scenario based on recent historical trends (Refer to Appendix A for more details).

LMA Model Results

Table 2 provides MiHR's baseline expectations for women's representation in critical mining occupations over the next decade. These estimates are based on historical trends and thus represent a realistic baseline estimate for evaluating future performance.¹¹

Table 2a calculates *mining's current share of the women's labour supply*. This percentage is expected to be difficult to change, considering that efforts to increase mining's share will be countered by competition from other industries.

Mining's current share underpins the *current representation* of women in the mining industry. Assuming mining's share of the labour supply remains consistent with past performance, Table 2b provides a forecast for the *projected representation* of women in 2034.

The outlook differs widely by occupation—some occupations are expected to increase women's representation significantly (e.g., *Geologists*), whereas others will continue to struggle to boost their numbers (e.g., *Mechanics* and *Underground miners*). For underperforming occupations, long-term trends (such as population growth and career choice) are persistent obstacles to raising women's representation.

¹¹ This model is not a prediction of the future, rather it gives us a sense of the change that will need to happen from the status quo. Because of mining's particular skills requirements, MiHR's model assumes that labour supply is largely inelastic to wages and is principally driven by population size, demographics and geography.

TABLE 2a CALCULATING MINING'S SHARE OF THE WOMEN'S LABOUR SUPPLY, SELECTED OCCUPATIONS (2022)

Occupation	Women's Employment in Mining	Estimated Women's Labour Supply	Mining's Share of the Women's Labour Supply
Geologists	812	3,156	25.7%
Mining engineers	298	532	56.0%
Technicians	930	2,394	38.8%
Welders	111	4,267	2.6%
Electricians	88	612	14.5%
Heavy Duty Mechanics	40	498	8.1%
Equipment operators	759	3,804	20.0%
Underground miners	386	495	78.0%

Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry*, 2024.

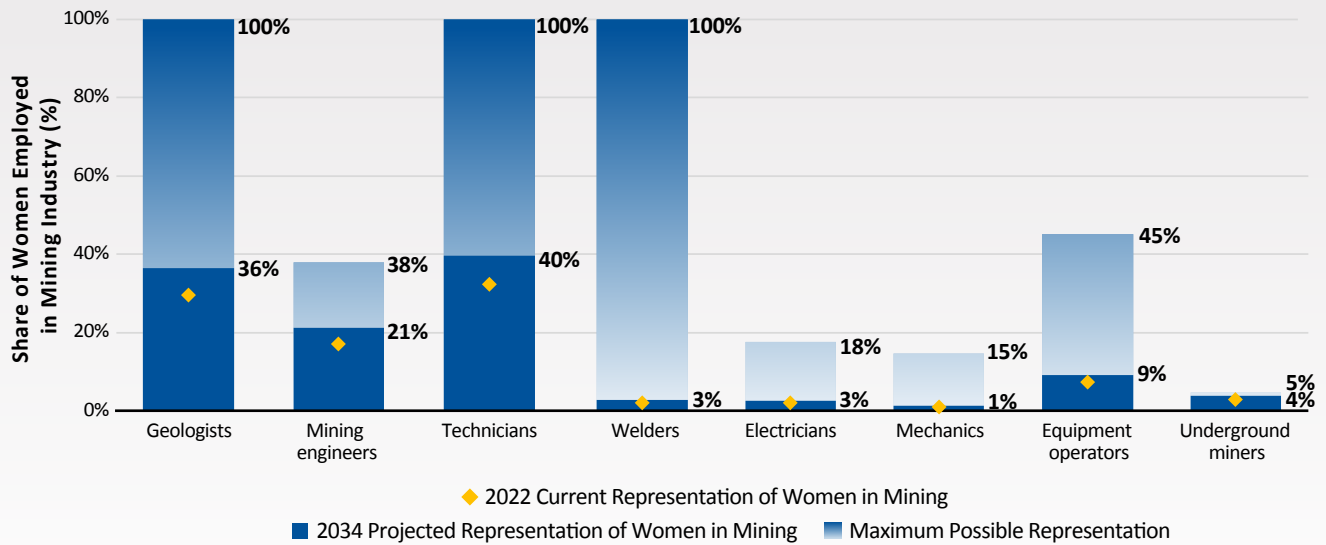
TABLE 2b MIHR'S PROJECTION FOR WOMEN'S REPRESENTATION, SELECTED OCCUPATIONS (2022 AND PROJECTION FOR 2034)

Occupation	Mining's Share of the Women's Labour Supply (2022)		Representation of Women in Mining (2022)	Projected Representation of Women in Mining (2034)
Geologists	25.7%	⇒	29.7%	36.4%
Mining engineers	56.0%	⇒	17.2%	21.2%
Technicians	38.8%	⇒	32.3%	39.6%
Welders	2.6%	⇒	2.2%	2.7%
Electricians	14.5%	⇒	2.1%	2.5%
Heavy Duty Mechanics	8.1%	⇒	1.0%	1.2%
Equipment operators	20.0%	⇒	7.3%	9.0%
Underground miners	78.0%	⇒	3.0%	3.7%

Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry*, 2024.

Figure 13 plots MiHR's baseline expectations for women's representation in critical mining occupations, projected through 2034. These occupations are considered among the most important to mining operations and represent 22% of the mining workforce. The chart also presents a hypothetical scenario (Maximum Possible Representation) in which the industry is able to recruit the entire estimated labour supply of women. Though the hypothetical scenario is unrealistic, it illustrates an important point: the key constraint for many occupations is the size of the women's labour pool. In these instances, even if the mining sector hired all available women workers, representation would remain low. It is therefore crucial to understand which occupations have a sufficiently deep labour pool, and which occupations have a relatively shallow one.

FIGURE 13 WOMEN'S LABOUR SUPPLY SUSTAINABILITY BY SELECTED OCCUPATIONS (PROJECTED YEAR: 2034)



Projected Representation = Mining's share of the women's labour supply is maintained at current (2022) levels through 2034

Maximum Possible Representation = Mining's share of the women's labour supply is 100% in 2034 (i.e., mining is able to recruit the entire women's labour force within the occupation)

Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry*, 2024.

To underscore this point, this section presents two case studies that highlight the significant differences in strategies needed to increase women's representation in two occupations that, on the surface, appear to share similar issues.

Case Study 1: Mechanics

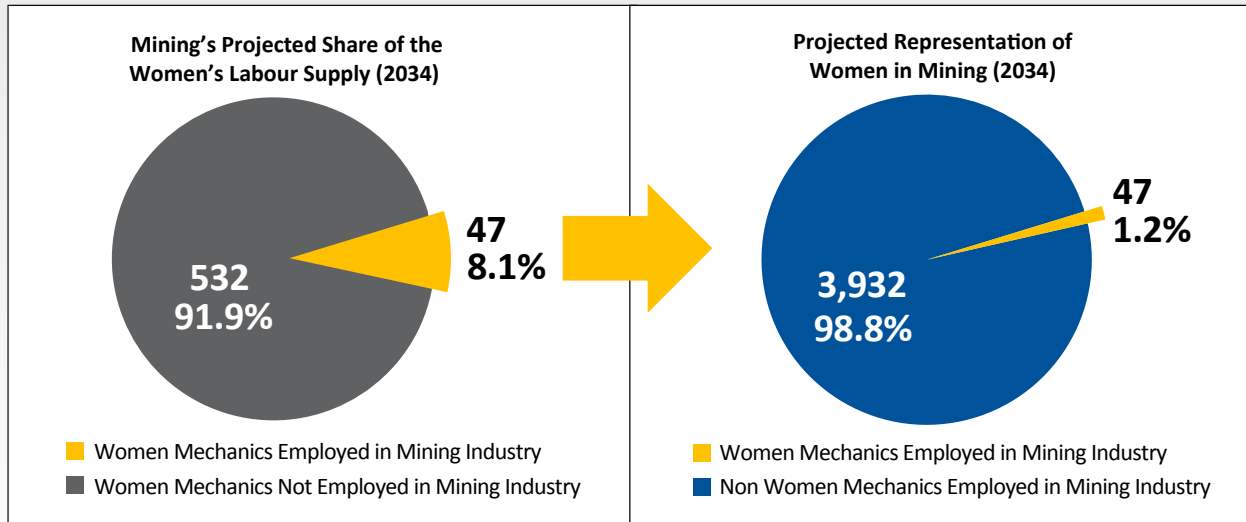
Heavy-duty equipment mechanics [NOC 72401] ranks as the 6th most prevalent job in mining, employing 2% of the mining labour force. Tackling the challenge of women's underrepresentation in mining requires addressing the most common occupations, including this one.

Assuming that mining's share of the labour supply remains at 8.1% through 2034 (Figure 14), women's representation among *Mechanics* is expected to stagnate over the next decade, increasing slightly from 1% to 1.2% (Figure 15).

Even in a hypothetical scenario in which the mining industry hired every available woman in this occupation, the best-case representation for women would range between 12.8% and 16%. This relatively restrictive upper boundary underscores the persistent challenges in achieving gender parity in this field.



FIGURE 14 *EVALUATING WOMEN'S EMPLOYMENT EXPECTATIONS, MECHANICS IN MINING (PROJECTED YEAR: 2034)*



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry*, 2024.

Recruitment May Not be Enough

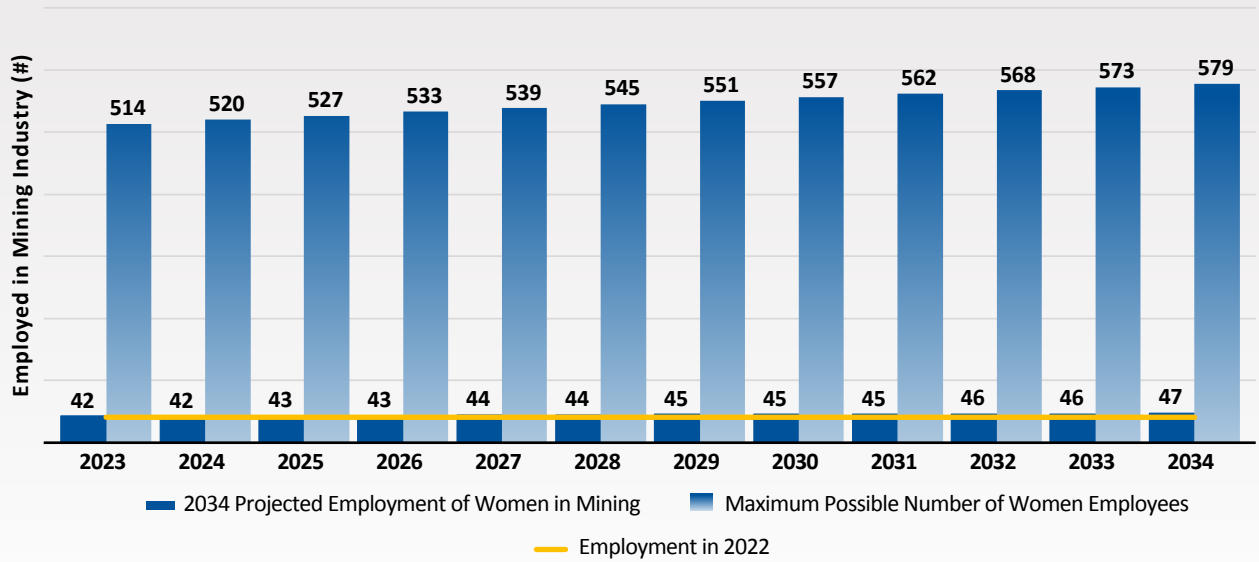
The model results indicate that there is no short-term recruitment strategy, such as wage increases or advertising, that can completely address underrepresentation. They also highlight the limited labour pool, which is too small to sustain adequate women's representation for all industries involved.

A limited labour pool means that every additional person becomes increasingly difficult to recruit. Hence, it will be imperative to look beyond the existing labour pool. Convincing individuals to pursue a career they may not have previously considered adds complexity to this challenge.

Consequently, a long-term workforce development strategy (i.e., investments in awareness, skills and training) will be necessary to significantly increase women's representation and achieve employment representation goals.



FIGURE 15a PROJECTED AND MAXIMUM POSSIBLE WOMEN'S EMPLOYMENT EXPECTATION, MECHANICS IN MINING (PROJECTED YEARS: 2023 - 2034)

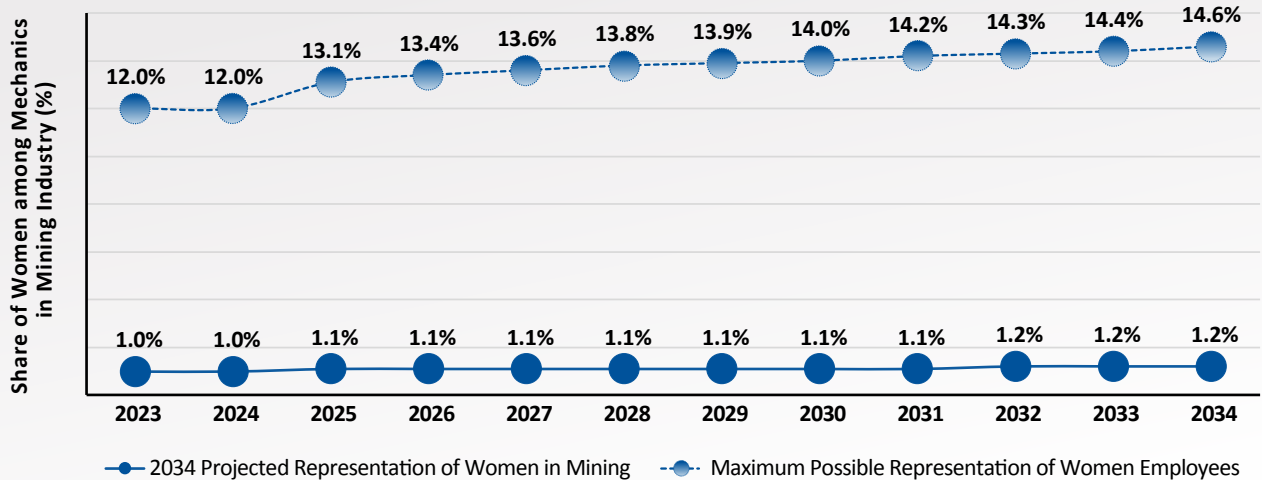


Projected Employment = Mining's share of the women's labour supply is maintained at current (2022) levels through 2034

Maximum Possible Employment = Mining's share of the women's labour supply is 100% in 2034 (i.e., mining is able to recruit the entire women's labour force within the occupation)

Source: Mining Industry Human Resources Council, Equity Deserving Groups in Canada's Mining Industry, 2024.

FIGURE 15b PROJECTED AND MAXIMUM POSSIBLE WOMEN'S REPRESENTATION, MECHANICS IN MINING (PROJECTED YEARS: 2023 - 2034)

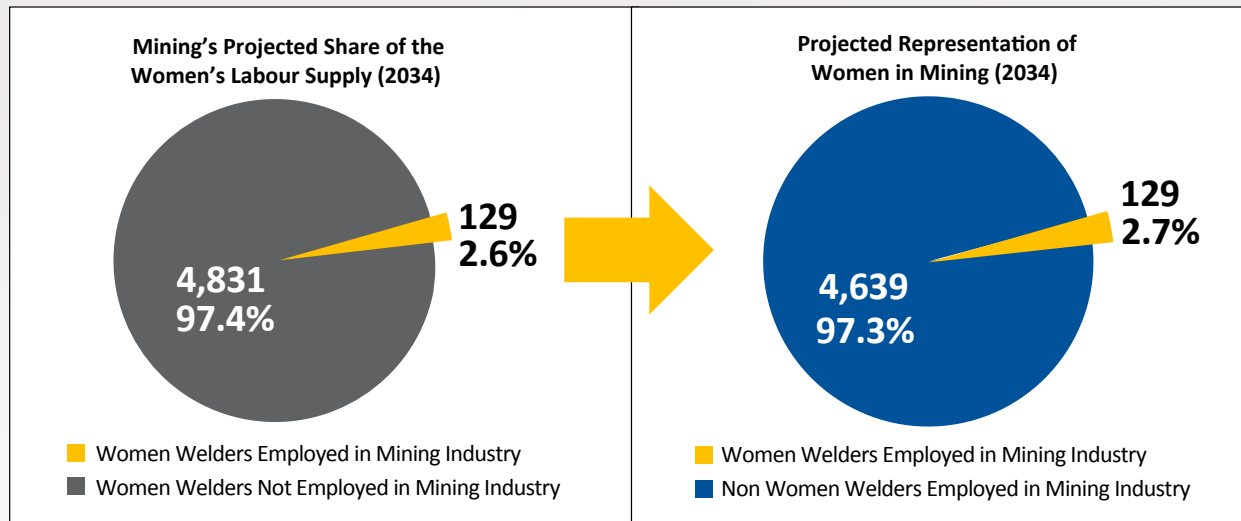


Projected Representation = Mining's share of the women's labour supply is maintained at current (2022) levels through 2034

Maximum Possible Representation = Mining's share of the women's labour supply is 100% in 2034 (i.e., mining is able to recruit the entire women's labour force within the occupation)

Source: Mining Industry Human Resources Council, Equity Deserving Groups in Canada's Mining Industry, 2024.

FIGURE 16 *EVALUATING WOMEN'S EMPLOYMENT EXPECTATIONS, WELDERS IN MINING (PROJECTED YEAR: 2034)*



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry*, 2024.

Case Study 2: Welders

Figure 16 shows the projected representation of women among *Welders and related machine operators [NOC 72106]* in mining, which is expected to increase slightly from 2.2% to 2.7% over the next ten years. At first glance, *Welders* seem to share a pattern with *Mechanics*, both displaying persistently low levels of women's representation.

However, the underlying characteristics of the labour pool for *Welders* differs significantly. In the hypothetical scenario in which the mining industry hires every available woman in this occupation (Figure 17), women's representation is projected to increase substantially to between 91.4% and 100%.

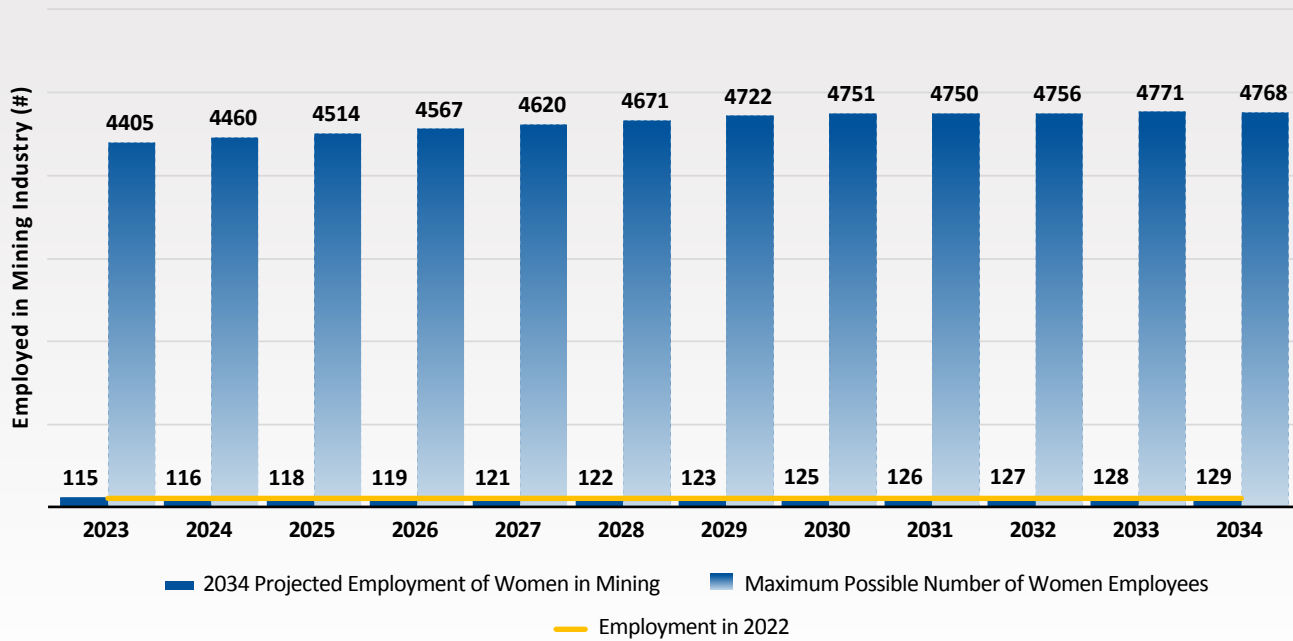
A Deeper Labour Pool Means Recruitment Is Viable

The mining industry holds a smaller share of the labour supply, employing only 2.6% of all women *Welders*. Unlike the *Mechanics* example, there is a lesser need for labour force development, given the deeper labour pool available for recruitment. Recruiters have a more favourable environment for increasing women's representation. While the competitive challenges of attaining a greater share



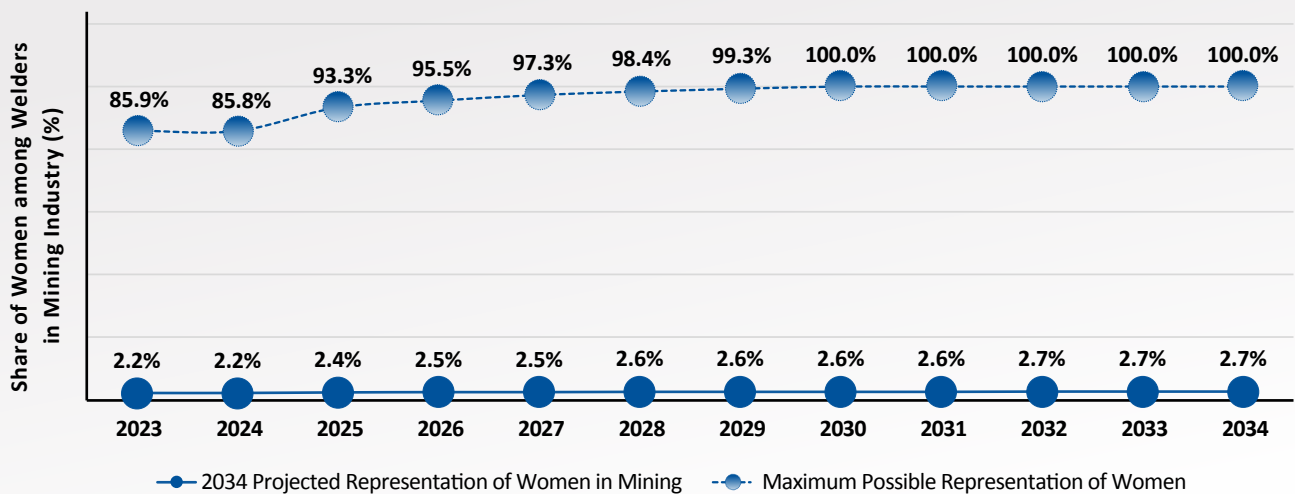
of the labour supply remain uncertain, there is a larger contingent of women *Mechanics* yet to be engaged for recruitment into the mining industry.

FIGURE 17a PROJECTED AND MAXIMUM POSSIBLE WOMEN'S EMPLOYMENT EXPECTATION, WELDERS IN MINING (PROJECTED YEARS: 2023 – 2034)



Projected Representation = Mining's share of the women's labour supply is maintained at current (2022) levels through 2034
 Maximum Possible Representation = Mining's share of the women's labour supply is 100% in 2034 (i.e., mining is able to recruit the entire women's labour force within the occupation)
 Source: Mining Industry Human Resources Council, Equity Deserving Groups in Canada's Mining Industry, 2024.

FIGURE 17b PROJECTED AND MAXIMUM POSSIBLE WOMEN'S REPRESENTATION, WELDERS IN MINING (PROJECTED YEARS: 2023 – 2034)



Projected Representation = Mining's share of the women's labour supply is maintained at current (2022) levels through 2034
 Maximum Possible Representation = Mining's share of the women's labour supply is 100% in 2034 (i.e., mining is able to recruit the entire women's labour force within the occupation)
 Source: Mining Industry Human Resources Council, Equity Deserving Groups in Canada's Mining Industry, 2024.

Evaluating the Canadian Minerals and Metals Plan

In recent years, industry and governments have adopted policies recognizing equity, diversity and inclusion as a key component of sustainable growth. In 2019, the federal government introduced the *Canadian Minerals and Metals Plan (CMMP)*, “an initiative that aims to enhance the competitiveness and sustainability of Canada’s mining sector and to position it as a global leader in sustainable and responsible mining practices.”¹² One of the plan’s stated goals is to boost women’s representation in mining to 30% of the workforce by the year 2030.

The insights presented in this section can guide the mining industry as it evaluates and reassesses its employment representation goals. MiHR’s analysis indicates that achieving the CMMP target by 2030 will pose significant challenges. A number of factors limit the growth of women’s representation in the immediate future: the labour pool of women in the most common mining occupations is severely constrained, and addressing this shortfall will require a longer-term workforce development strategy.

1.4. Women in Mining: Key Takeaways

■ **Low Representation:** Representation of women in mining continues to be a central issue. Aside from seasonal fluctuations, women’s representation in the mining industry has remained stagnant at around 14% and 16% over the last few decades.

■ **Results differ by occupation:** Certain fields such as geology, finance, and human resources have a higher percentage of women in their ranks, whereas others like the trades are historically male dominated. Still, there is a tendency for many critical mining-related occupations to have a lower representation in mining versus other industries.

■ **Higher unemployment:** For many occupations, women exhibit higher rates of unemployment compared to men, notably in many trades occupations. Though this is likely a consequence of small numbers, it could also be indicative of women facing challenges in securing employment in these occupations.

■ **More Likely to be part-time:** Across all industries and in mining, women have a greater propensity to participate in part-time work. Given that the mining industry naturally favours full time work, a lack of part-time opportunities may act as a barrier to women’s representation in the mining workforce.

■ **Not entering critical trades:** Women are not entering key apprenticeship and trades roles and disciplines that are crucial to the mining industry, and that these career choices are established in the formative school years. Rather, the educational attainment of women in mining is skewed towards roles requiring a university education.

■ **Optimal strategy for better representation may vary:**

- For some occupations (such as *Mechanics*), MiHR’s LMA findings indicate that there is no short-term recruitment strategy, such as wage increases or advertising, that can effectively address underrepresentation. This result stems from a limited labour pool, which is too small to sustain adequate women’s representation for all industries involved. Convincing individuals to pursue a career they may not have previously considered adds complexity to this challenge.
- For other occupations, such as *Welders*, MiHR’s LMA model suggests that a long-term labour force development strategy may be less effective given the deeper labour pool available for recruitment. While the competitive challenges of attaining a greater share of the labour supply remain uncertain, there is a larger contingent of women *Mechanics* yet to be engaged for recruitment into the mining industry.

■ **The Canadian Minerals and Metals Plan (CMMP):**

MiHR’s analysis indicates that achieving the CMMP target (of 30% by 2030) will pose significant challenges. Several factors limit the growth of women’s representation in the immediate future: the labour pool of women in the most common mining occupations is severely constrained, and addressing this shortfall will require a longer-term workforce development strategy.

12 MinesCanada.ca. (2020). *Action Plan*. <https://www.minescanada.ca/en/about-plan/action-plan-2020-fall-update/>

Immigrants in Mining

Population Growth Is Driven by Immigrants

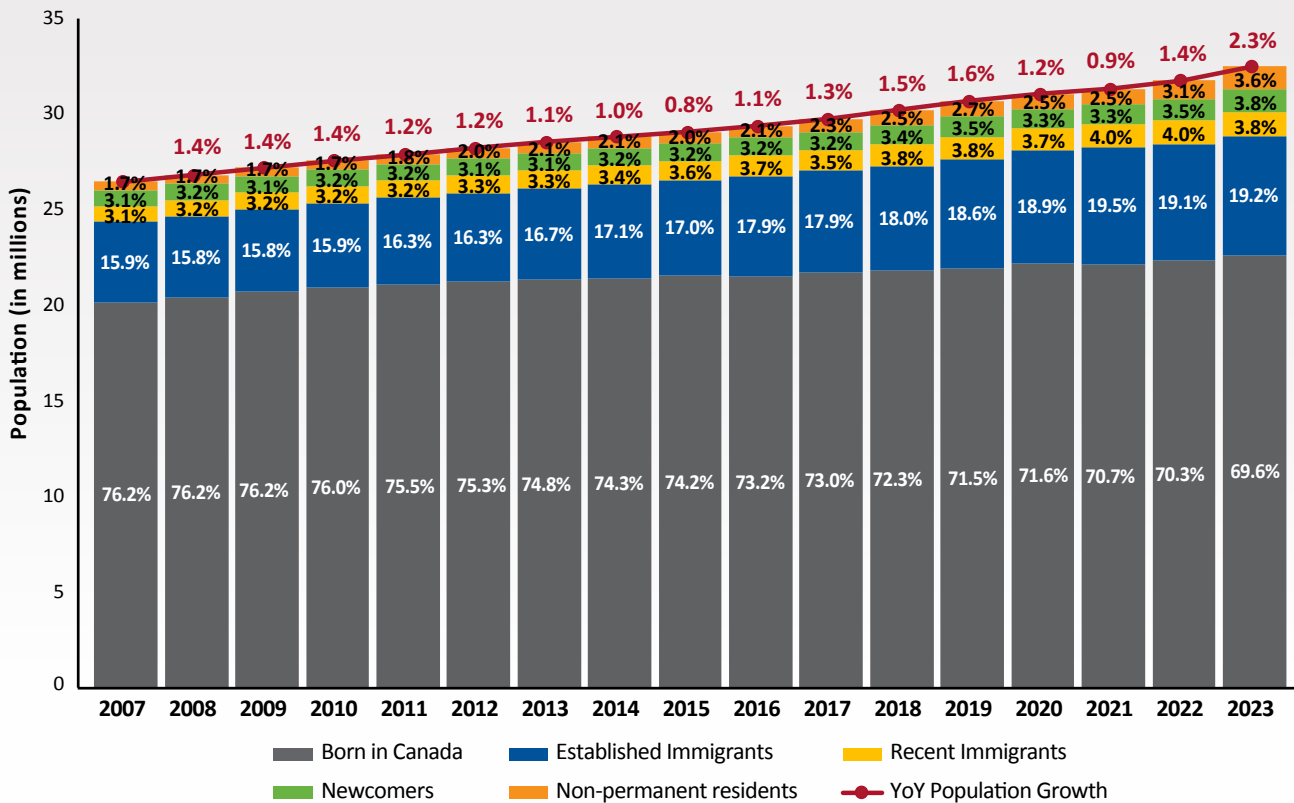
Canada has a rich history of immigration, having welcomed millions of people from diverse corners of the world who have chosen Canada as their new home. For the purposes of this analysis, immigrants are defined as individuals not born in Canada who are either *naturalized citizens* or *permanent residents*. This includes newcomers (obtained permanent residency five years ago or earlier), recent immigrants (obtained permanent residency five to 10 years ago) and established immigrants (obtained permanent residency more than 10 years ago)¹³.

As of 2023, immigrants made up approximately 30% of Canada's working population, marking the highest proportion in recorded history (Figure 18). Given Canada's aging population and declining fertility rates¹⁴, immigration stands out as the primary driver of the country's population growth. If these trends persist, immigration is expected to vastly outpace the growth rate of the rest of the population.

¹³ In this report, the *immigrant* labour force encompasses only individuals who have obtained *landed immigrant status* (including naturalized individuals) or *permanent resident status*. Conversely, it excludes *non-permanent residents* (i.e., individuals with work or study permits or who have claimed refugee status) from the analysis.

¹⁴ Statistics Canada. (2023). *Crude birth rate, age-specific fertility rates and total fertility rate (live births)*. 13-10-0418-01.

FIGURE 18 CANADA'S POPULATION AGED 15 YEARS AND OVER, BY IMMIGRANT STATUS (2007–2023)



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry*, 2024; Statistics Canada, *Labour Force Survey*, Table 14-10-0083-01.

With an increasingly aging population and tightening labour markets, the growing number of immigrants entering Canada's workforce presents a valuable opportunity for the mining industry. Tapping into this growing pool of workers has the potential to mitigate the sector's labour shortages.



Immigrants have Geographical Barriers

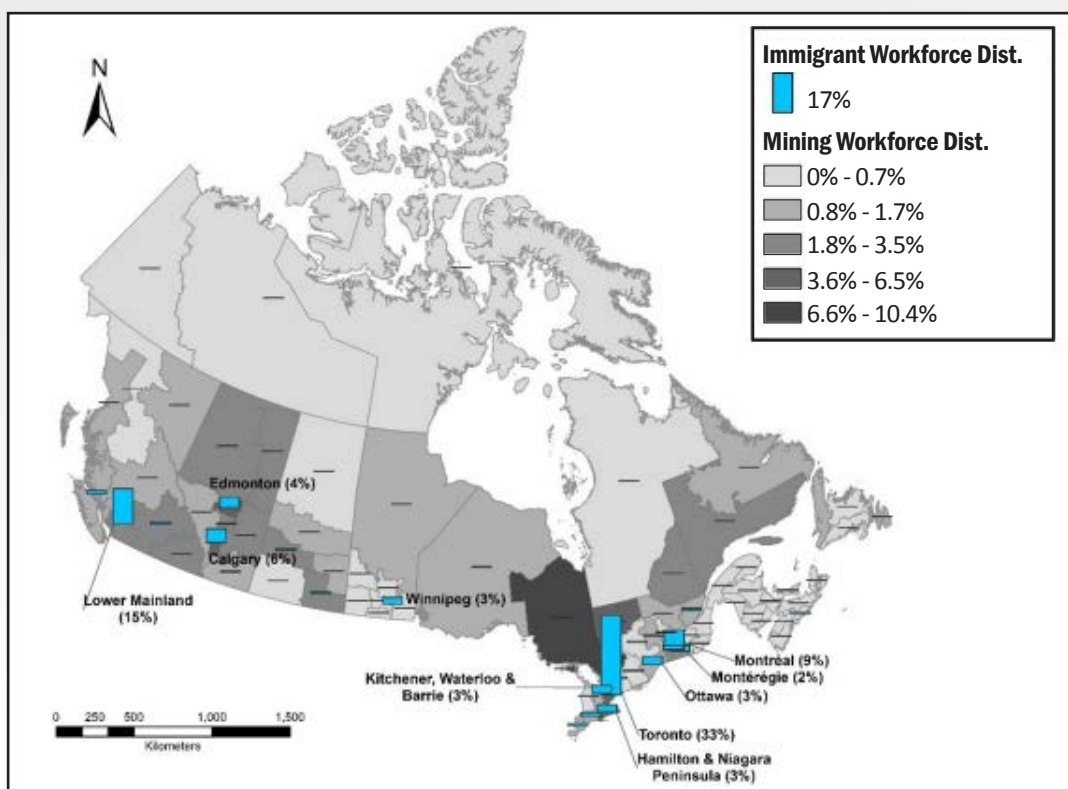
The geographical distribution of immigrants represents a limiting factor for their participation in the mining industry. Canadian newcomers tend to gravitate toward larger metropolitan areas. Table 3 shows the top 10 regions with the greatest share of Immigrant workers across the country. The list comprises Canada's most populated regions, including several of its largest cities. Overall, there were nearly 5 million Immigrant workers in Canada in 2021. Roughly 80% of the total immigrant workforce resides in these 10 regions, while 70% of the total mining workforce resides elsewhere. Figure 19 further offers a visual map of the geographical divergence that exists between the Immigrant workforce and the mining workforce.

TABLE 3 TOP 10 REGIONS WITH GREATEST SHARE OF IMMIGRANT WORKERS (ALL INDUSTRIES) vs SHARE OF ALL MINING WORKERS (2021)

Rank	Economic Region	Share of All Immigrant Workers (All Industries)	Share of All Mining Workers
1	Toronto, Ont.	1,656,645 (33%)	7,335 (4%)
2	Lower Mainland--Southwest, B.C.	729,790 (15%)	4,985 (3%)
3	Montréal, Que.	431,290 (9%)	2,150 (1%)
4	Calgary, Alta.	285,210 (6%)	10,030 (5%)
5	Edmonton, Alta.	221,845 (4%)	12,270 (6%)
6	Ottawa, Ont.	165,935 (3%)	1,415 (1%)
7	Kitchener--Waterloo--Barrie, Ont.	163,355 (3%)	2,235 (1%)
8	Hamilton--Niagara Peninsula, Ont.	150,690 (3%)	9,440 (5%)
9	Winnipeg, Man.	136,700 (3%)	790 (0%)
10	Montréal, Que.	122,280 (2%)	5,620 (3%)
Other Regions		912,515 (18%)	133,070 (70%)
Total		4,976,255 (100%)	189,340 (100%)

Source: Mining Industry Human Resources Council, Equity Deserving Groups in Canada's Mining Industry, 2024; Statistics Canada, Census of Population (Custom Data), 2021.

FIGURE 19 COMPARING THE GEOGRAPHIES OF CANADA'S IMMIGRANT WORKFORCE AND IT'S MINING WORKFORCE (2021)



Source: Mining Industry Human Resources Council, Equity Deserving Groups in Canada's Mining Industry, 2024; Statistics Canada, Census of Population (Custom Data), 2021.

2.1. Representation of Immigrants in Mining

Share of Immigrants in Mining Underperforming Significantly

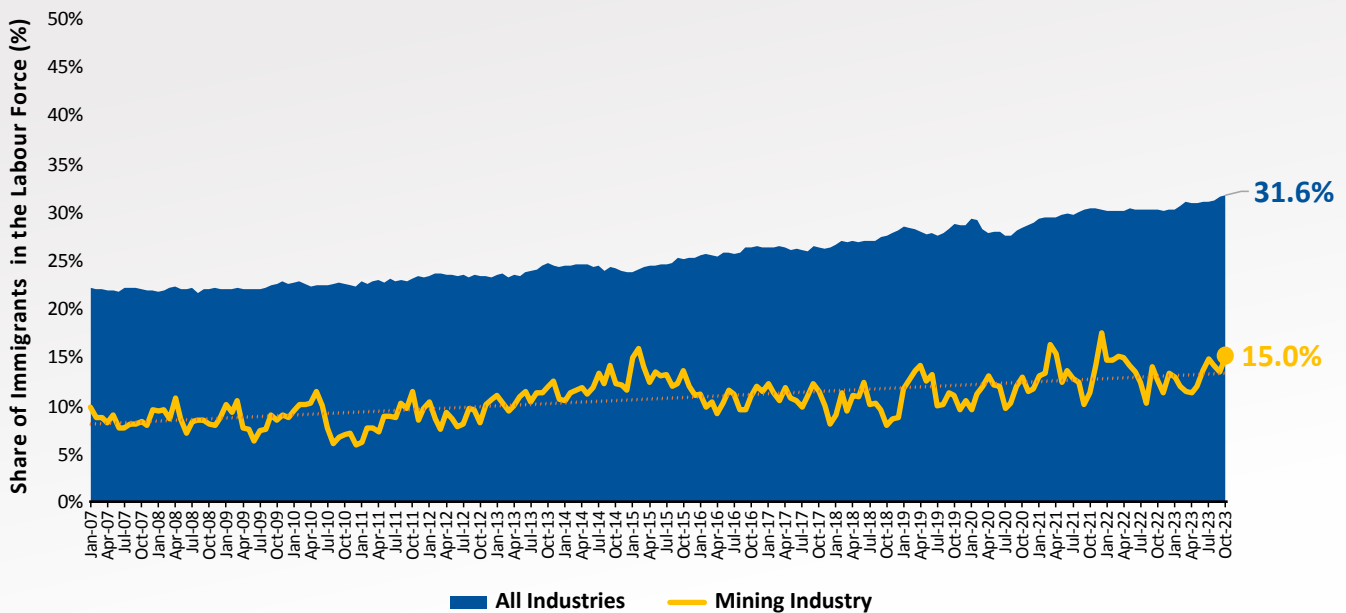
Currently, the proportion of immigrants in Canada’s mining industry is comparatively low, which offers a considerable opportunity for the industry to broaden its sources of labour, particularly in light of otherwise unfavourable demographic trends.

The share of immigrants in the mining industry was 15% in October 2023, compared to 31.6% across all industries (Figure 20). Aside from temporary spikes during periods of volatility, the growth of immigrant representation in the mining industry has been relatively flat.

Over the past two decades, other industries have been able to leverage the growing immigrant workforce; immigrants have increased their share of the overall labour force by about 10%. Nevertheless, the mining industry has lagged behind in this aspect, pointing to an untapped opportunity to address labour shortages.



FIGURE 20 IMMIGRANT SHARE OF THE LABOUR FORCE, ALL INDUSTRIES AND MINING INDUSTRY (JAN 2007 – OCT 2023)



Source: Mining Industry Human Resources Council, Equity Deserving Groups in Canada’s Mining Industry, 2024; Statistics Canada, Labour Force Survey (Custom Data).

Mining Underperforms with Immigrants

In contrast to women, the underrepresentation of immigrants in mining is not primarily driven by occupational choices. Rather than being specific to certain occupations, the problem appears to be inherent to the mining sector as a whole.

Figure 21 compares immigrant representation in the mining sector with representation across all industries, for 100 mining-centric occupations¹⁵. The low representation of immigrants in mining is consistent across most of the occupations observed. In the figure, these occupations are shown below the parity line.

Immigrants Are in Mining-centric Occupations, but not in Mining

Immigrants consistently fall below the all-industry level of representation across all seven occupational categories. This is a useful benchmark, as it is consistent with the working-age immigrant population across Canada.

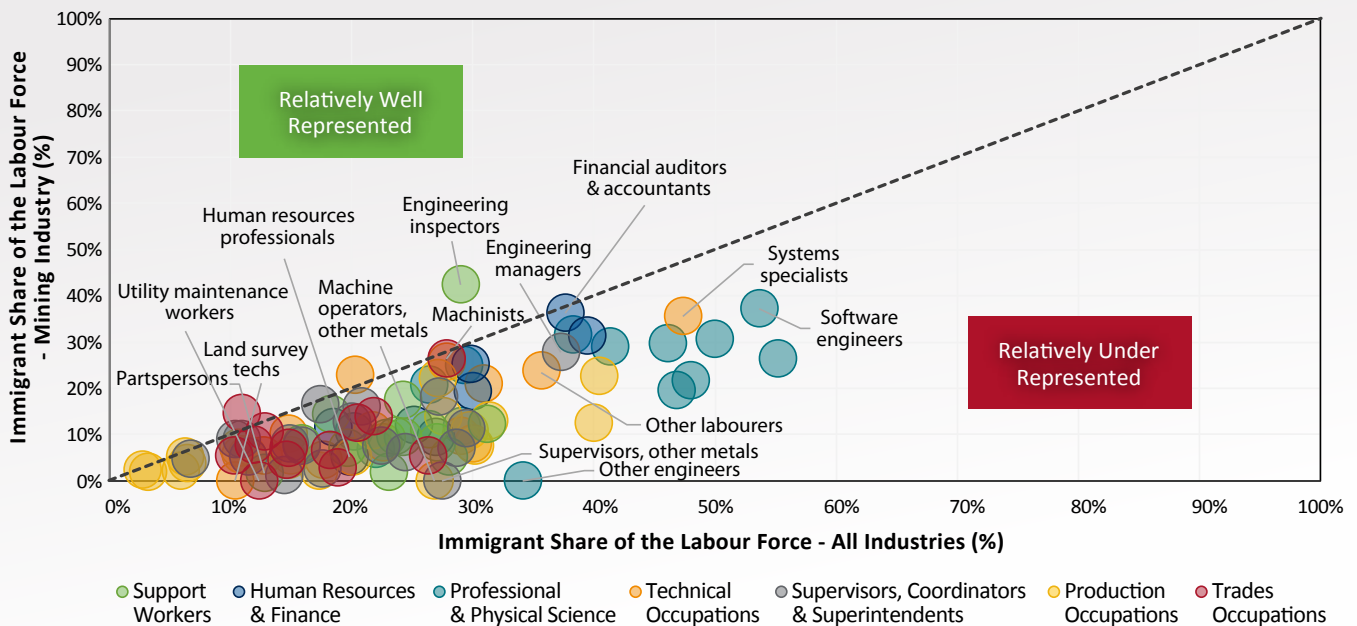
Broadly speaking, immigrants are present in mining-centric jobs in healthy numbers. However, immigrants are not choosing mining in the competitive stage of the labour market. For instance, in *Production* occupations, immigrants make up 25.6% of workers across all industries. Yet in the mining industry, this percentage is only 5.9%, suggesting that there are major barriers specific to the sector.

Immigrants are most prevalent in occupations with higher educational requirements, as evidenced by their higher presence in *Professional & Physical Science*, *Technical and Human Resources & Finance* occupations.



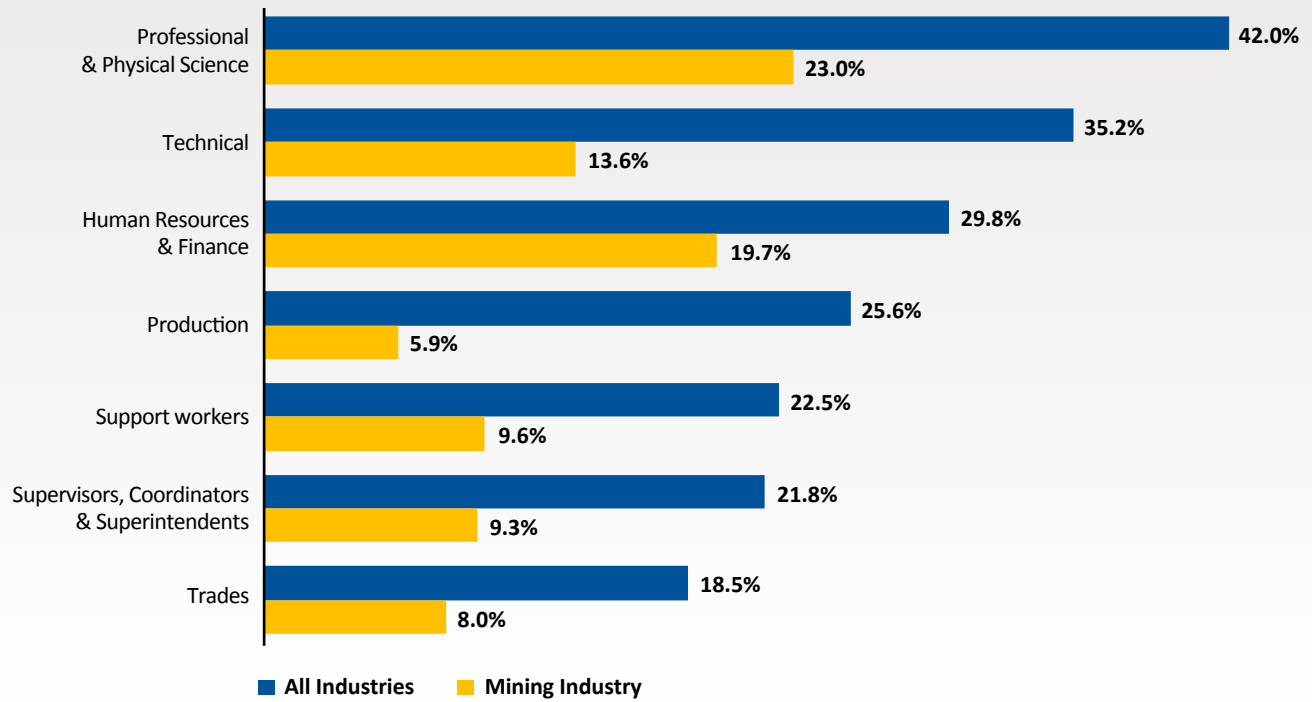
15 Please see Appendix A for the complete list of occupations and categories.

FIGURE 21a IMMIGRANT SHARE OF THE LABOUR FORCE BY MINING OCCUPATION, ALL INDUSTRIES AND MINING INDUSTRY (2021)



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry, 2024*; Statistics Canada, *Census of Population (Custom Data), 2021*.

FIGURE 21b IMMIGRANT SHARE OF THE LABOUR FORCE BY BROAD OCCUPATIONAL CATEGORY, ALL INDUSTRIES AND MINING INDUSTRY (2021)



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada’s Mining Industry, 2024*; Statistics Canada, *Census of Population (Custom Data), 2021*.

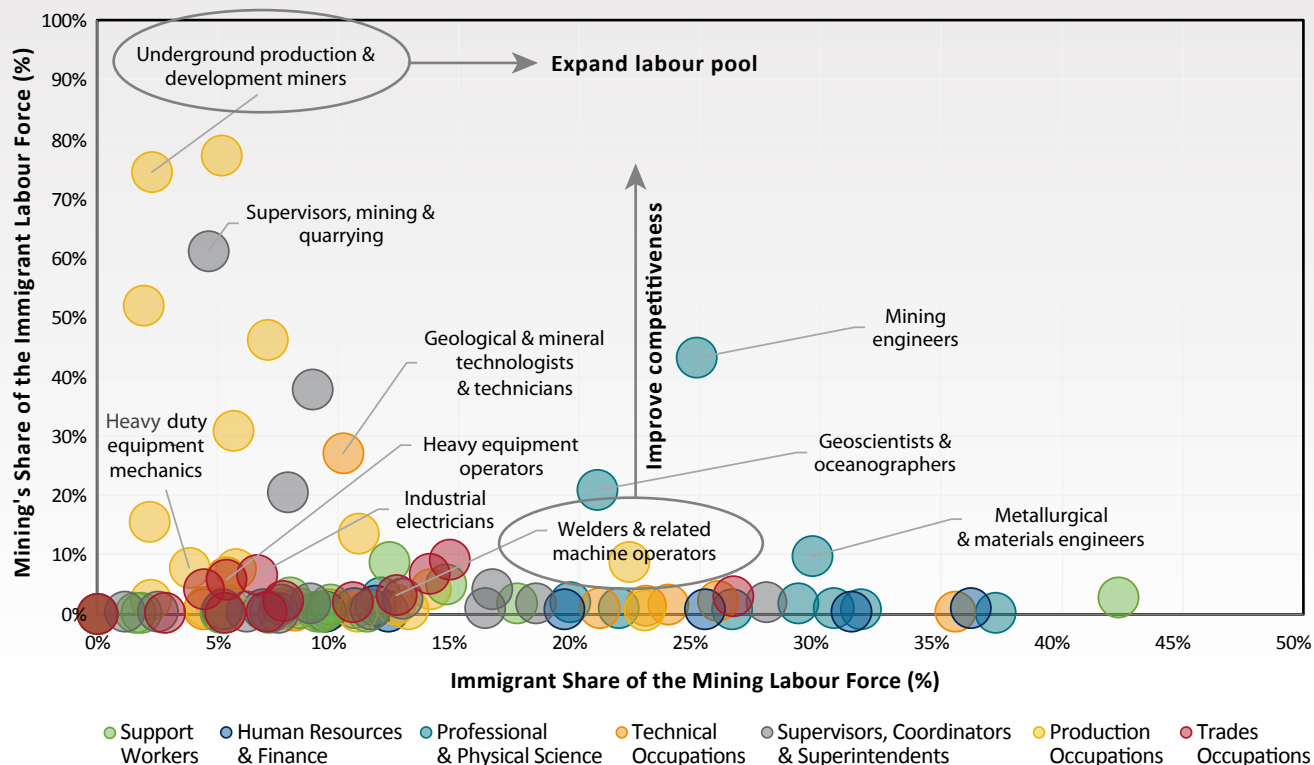
Figure 22 compares immigrant representation in the mining industry with mining’s share of the immigrant labour force, for occupations of interest.

Occupations higher on the vertical axis will have difficulty increasing immigrant representation by competing with other industries (i.e., taking a larger share of the pie), since their immigrant workers are already predominantly employed in the mining industry. For example, the mining industry (as defined by MiHR) employs 74% of *Underground production & development miners* who are immigrants, yet immigrants make up only 2% of the *Underground miners*. Therefore, if the mining industry wants to hire more immigrants in this occupation, it needs to train and develop new workers to expand the labour pool (i.e., expand the size of the pie).

Conversely, occupations lower on the vertical axis have a relatively deeper labour pool from which to recruit. Immigrants make up only 12% of the mining workforce among *Welders & related machine operators*, yet mining has only managed to employ 3% of all available immigrant *Welders*. In these cases, the mining industry has an opportunity to draw from the existing labour pool and to improve its competitiveness to attract more immigrant workers into the mining industry.



FIGURE 22 IMMIGRANT SHARE OF THE MINING LABOUR FORCE VS. MINING'S SHARE OF THE IMMIGRANT LABOUR FORCE, MINING OCCUPATIONS (2021)



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry*, 2024; Statistics Canada, *Census of Population (Custom Data)*, 2021.

Systemic Barriers to Immigrant Representation

Immigrants tend to pursue occupations that are highly relevant to mining. However, their comparatively modest representation within the mining industry suggests the existence of systemic barriers specific to the sector.

The lack of immigrant participation in mining may be due to several factors, such as their limited awareness of employment opportunities in mining, as well as the remote nature of mine sites compared to the concentration of immigrants in Canada's major metropolitan areas.

MiHR's recent publication *Integrating EDI: Addressing Systemic Employment Barriers in Canadian Mining* presents findings from primary and secondary sources on this topic. The evidence suggests that immigrants in mining have continued to face workplace barriers over the past five years:

- The majority (86%) of respondents to the *Mining Employer Survey* felt that a lack of available information about the mining sector and related careers could hinder the sector's ability to attract and retain a diverse workforce. At the same time, just over a quarter (28%) of respondents to the *Workforce Experiences Survey* reported that they had personally experienced a lack of available information about the mining sector and related careers as an employment barrier.
- More than half (56%) of *Workforce Experiences Survey* respondents reported experiencing discrimination-related barriers, including racism, ageism, sexism, gender pay gaps and homophobia. In a recent small study of workers' experiences in mining camps in Yukon and northern British Columbia, 45% of research participants reported experiencing discrimination on the basis of race or Indigeneity.

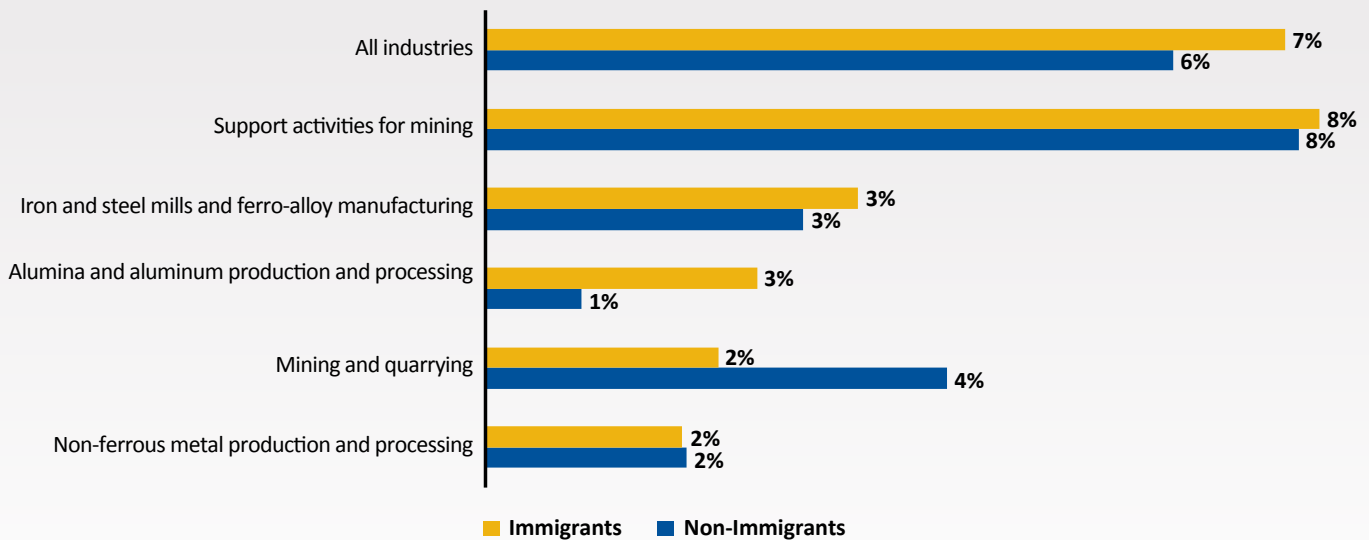
2.2. Labour Market Outcomes of Immigrants in Mining

Immigrants Exhibit Lower Unemployment Rates

Unemployment rates are important not only as a signal of labour market tightness but also as a measure of job stability for workers.

Figure 23 contrasts unemployment rates for immigrants and non-immigrants across various industries. Notably, since 2018, the unemployment rate for immigrant workers in *Mining and quarrying (NAICS 212)* has averaged only 2% compared to 4% for non-immigrant workers. This may be indicative of higher immigrant representation in jobs with higher skills and educational requirements in the mining sector. In most other industries, unemployment rates for immigrants are roughly on par with non-immigrants.

FIGURE 23 UNEMPLOYMENT RATES BY IMMIGRANT STATUS, ALL INDUSTRIES AND MINING SUBSECTORS (AVERAGE FROM JAN 2018 - JUL 2023)

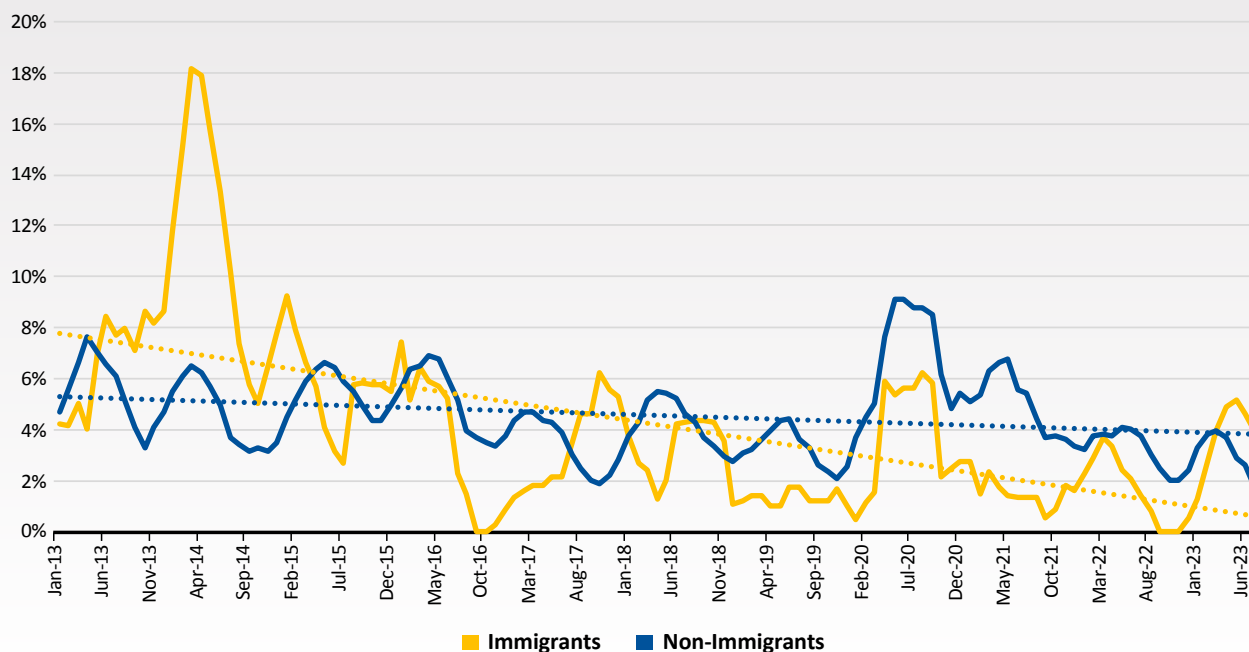


Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry*, 2024; Statistics Canada, *Labour Force Survey (Custom Data)*.

Figure 24 compares unemployment rates in *Mining and quarrying (NAICS 212)* for immigrant and non-immigrant workers over the past decade. Immigrant workers have consistently lower unemployment rates, with considerably less seasonality, than non-immigrant workers. This trend is likely due to their higher levels of educational attainment and their prevalence in high-skill and high-demand occupations, which naturally experience lower unemployment rates.



FIGURE 24 IMMIGRANT UNEMPLOYMENT RATE, MINING AND QUARRYING (NAICS 212) (SIX-MONTH MOVING AVERAGE FROM JAN 2018 - JUL 2023)



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry, 2024*; Statistics Canada, *Labour Force Survey (Custom Data)*.

Roughly Half of Immigrants Hold a Bachelor's Degree or Higher

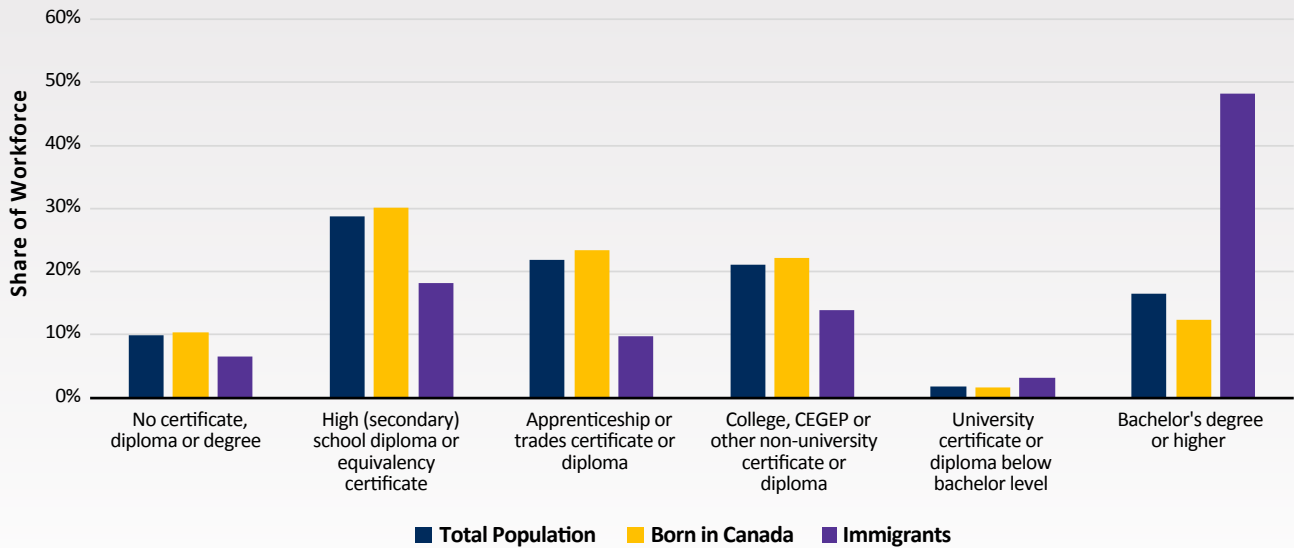
People entering Canada's labour force from other countries tend to be well-educated and highly skilled. In Canada's mining industry, the Immigrant workforce is heavily skewed towards university education, with nearly half the workforce holding a bachelor's degree or higher (Figure 25a). Likewise, a relatively large proportion of immigrants work in TEER 1 roles – occupations that typically require a university degree (Figure 25b). Conversely, for both TEER and educational attainment, immigrants are relatively absent in the apprenticeship or trades-related categories.

Immigrants represent a promising resource to the mining sector, as many newcomers participate in disciplines that are critical to the industry. However, their educational choices are not perfectly aligned with occupational outcomes observed in the labour market. For example, among those with an apprenticeship/trades diploma, immigrant workers are less likely to be in TEER 2 and 3 occupations

that require this type of educational background (at 60% for immigrants versus 77% for non-immigrants) (Figure 26). This result suggests there is a degree of underemployment for immigrants that intensifies for the most recent group of immigrants. For those who immigrated from 2016 to 2021, over half (55%) have found employment in either TEER 2 or TEER 3 occupations.

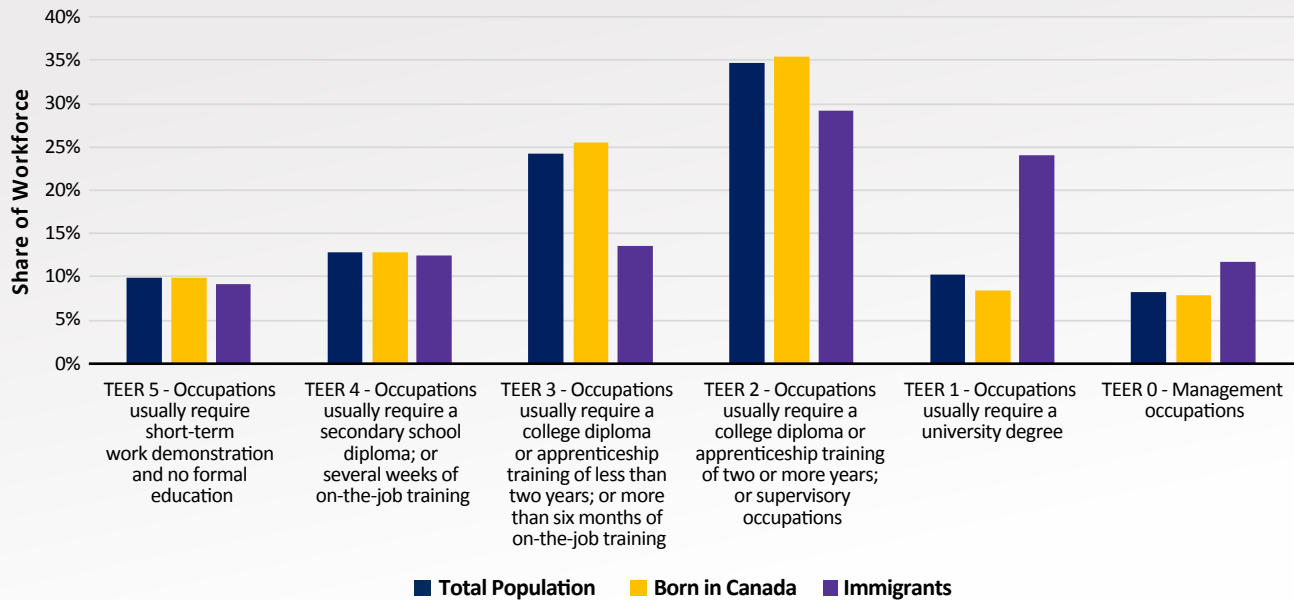


FIGURE 25a DISTRIBUTION OF EDUCATIONAL ATTAINMENT BY IMMIGRANT STATUS, MINING INDUSTRY (2021)



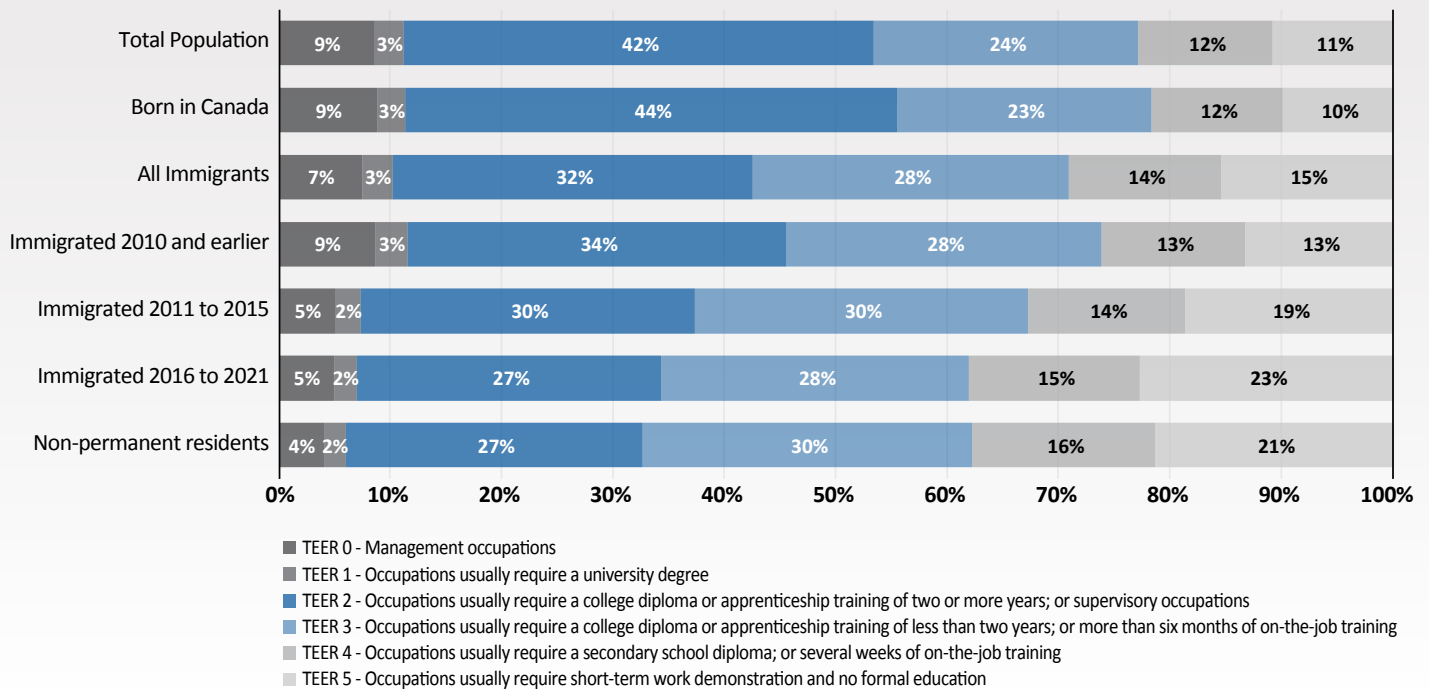
Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry*, 2024; Statistics Canada, *Census of Population (Custom Data)*, 2021.

FIGURE 25b DISTRIBUTION OF TEER CATEGORIES BY IMMIGRANT STATUS, MINING INDUSTRY (2021)



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry*, 2024; Statistics Canada, *Census of Population (Custom Data)*, 2021.

FIGURE 26 OCCUPATIONAL OUTCOMES AMONG PEOPLE WITH AN APPRENTICESHIP/TRADES DIPLOMA (2021)



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry, 2024*; Statistics Canada, *Census of Population (Custom Data), 2021*.

Note: Immigrants include only those who have obtained permanent residency. This excludes non-permanent residents (i.e., individuals with work or study permits or who have claimed refugee status) from the immigrant category.

2.3. Labour Pool of Immigrants in Mining

Labour supply is a complex subject, given that measuring potential sources of labour can be abstract and difficult to define. MiHR's LMA model estimates the size of the labour pool for immigrants in critical mining occupations.

Model Overview and Assumptions

This section shares results from MiHR's Labour Market Analysis (LMA) model. The main objective of this model is to assess the availability of labour for immigrants in mining relevant occupations and to identify the factors that influence that availability. The findings from this model help determine whether the projected labour supply for immigrants is expected to lead to favourable labour market outcomes in the coming years.



MiHR's LMA model follows several key assumptions (described in Appendix B), including population growth, labour force participation, demographic factors, and occupational choices. Each assumption represents a conservative status quo scenario based on recent historical trends.

LMA Model Results

Table 4 provides MiHR’s baseline expectations for immigrant representation in critical mining occupations over the next decade. These estimates are based on historical trends, and thus represent a realistic baseline estimate for evaluating future performance.¹⁶

Table 4a calculates *mining’s current share of the immigrant labour supply*. This percentage is expected to be difficult to change, considering that efforts to increase mining’s share will be countered by competition from other industries.

Mining’s current share underpins the *current representation* of immigrants in the mining industry. Assuming mining’s share of the labour supply remains consistent with past performance, Table 4b provides a forecast for the *projected representation* of immigrants in 2034.

The outlook differs widely by occupation—some occupations are expected to increase immigrant representation significantly (e.g., mining engineers),

whereas others will continue to struggle to boost their numbers (e.g., *Equipment operators* and *Underground miners*). For underperforming occupations, long-term trends (such as career choice, industry choice and geography) are persistent obstacles to raising immigrant representation.



TABLE 4a CALCULATING MINING’S SHARE OF THE IMMIGRANT LABOUR SUPPLY, SELECTED OCCUPATIONS (2022)

Occupation	Immigrant Employment in Mining	Estimated Immigrant Labour Supply	Mining’s Share of the Immigrant Labour Supply
Geologists	651	3,217	20.2%
Mining engineers	450	1,081	41.6%
Technicians	350	1,437	24.3%
Welders	610	20,528	3.0%
Electricians	320	5,100	6.3%
Heavy Duty Mechanics	231	4,343	5.3%
Equipment operators	434	6,289	6.9%
Underground miners	355	477	74.3%

Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada’s Mining Industry*, 2024.

16 This model is not a prediction of the future, rather it gives us a sense of the change that will need to happen from the status quo. Because of mining’s particular skills requirements, MiHR’s model assumes that labour supply is largely inelastic to wages and is principally driven by population size, demographics and geography.

TABLE 4b MIHR'S PROJECTION FOR IMMIGRANT REPRESENTATION, SELECTED OCCUPATIONS
(2022 AND PROJECTION FOR 2034)

Occupation	Mining's Share of the Immigrant Labour Supply (2022)		Immigrant Representation in Mining (2022)	Projected Immigrant Representation in Mining (2034)
Geologists	20.2%	⇒	23.8%	30.3%
Mining engineers	41.6%	⇒	26.0%	33.2%
Technicians	24.3%	⇒	12.1%	15.5%
Welders	3.0%	⇒	12.1%	15.4%
Electricians	6.3%	⇒	7.5%	9.5%
Heavy Duty Mechanics	5.3%	⇒	5.5%	7.0%
Equipment operators	6.9%	⇒	4.2%	5.3%
Underground miners	74.3%	⇒	2.8%	3.5%

Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry*, 2024.

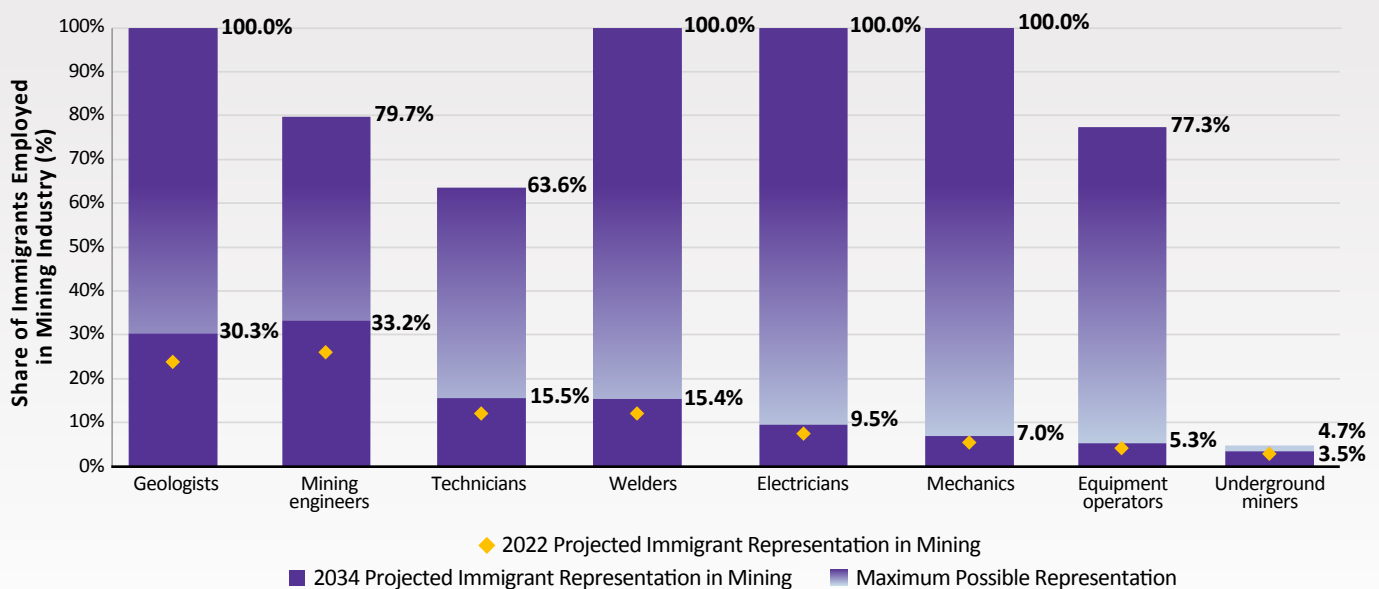


Figure 27 plots MiHR’s baseline expectations for immigrant representation in critical mining occupations, projected through 2034. These occupations are considered among the most important to mining operations and represent 22% of the mining workforce. The chart also presents a hypothetical scenario (Maximum Possible Representation) in which the industry is able to recruit the entire estimated labour supply of immigrants. Though the hypothetical scenario is unrealistic, it illustrates an important point: the primary limitation affecting immigrant employment in mining is not their choice of occupation. The immigrant labour pool seems to be relatively deep in the selected mining-centric occupations (with the exception of *Underground miners*). Consequently, their lower levels of representation result from other obstacles, such as competition from alternative industries, a lack of awareness of employment opportunities in mining, or geographic barriers, among others. Nevertheless, it is important to understand when recruiting candidates from other industries is a viable strategy, and when it is futile.

For most of these occupations, outreach and recruitment campaigns targeting immigrant workers appear to be an effective approach.



FIGURE 27 IMMIGRANT LABOUR SUPPLY SUSTAINABILITY BY SELECTED OCCUPATIONS (PROJECTED YEAR: 2034)



Projected Representation = Mining’s share of the immigrant labour supply is maintained at current (2022) levels through 2034

Maximum Possible Representation = Mining’s share of the immigrant labour supply is 100% in 2034 (i.e., mining is able to recruit the entire immigrant labour force within the occupation)

Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada’s Mining Industry*, 2024.

This section presents two case studies that highlight the significant differences in strategies needed to increase immigrant representation in two occupations that, on the surface, appear to share similar issues.

Case Study 1: Underground Miners

Underground production and development miners [NOC 83100] ranks as the most prevalent job in mining, employing 6% of the mining labour force. Therefore, improving performance in this occupation will have a greater relative impact given its prevalence in the mining industry.

Assuming that mining’s share of the labour supply remains at 74.3% through 2034, immigrant representation among *Underground miners* is expected to stagnate over the next decade, increasing slightly from 2.7% to 3.5% (Figure 28).

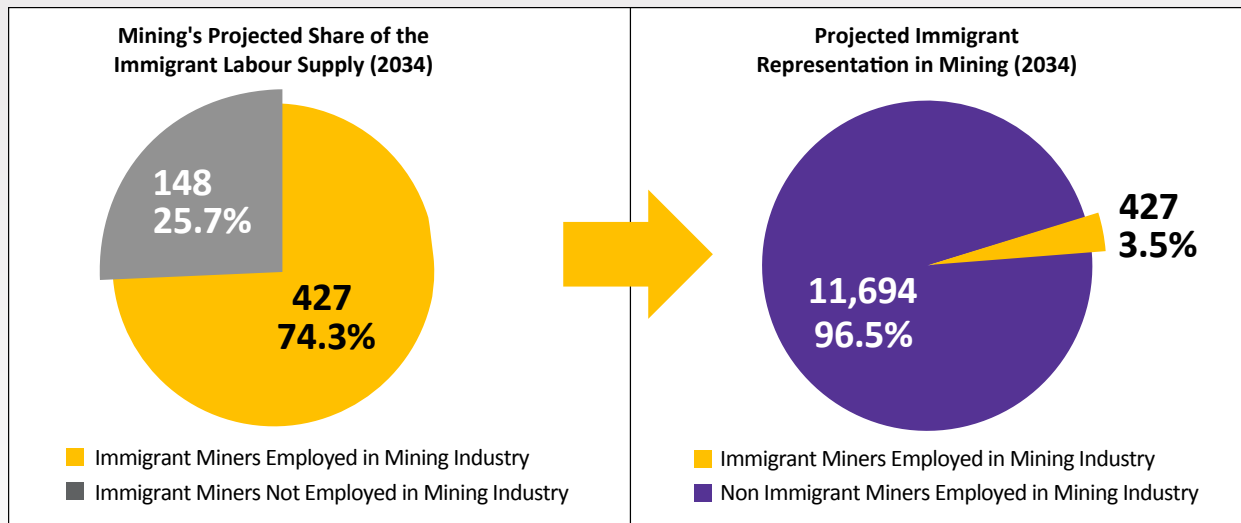
Even in a hypothetical scenario in which the mining industry hired every available immigrant in this occupation, the best-case representation for immigrants would range between 3.7% and 4.7% (Figure 29). This relatively restrictive upper boundary underscores the persistent challenges in enhancing immigrant participation in this occupation.

Recruitment May Not be Enough

MiHR’s model results suggest that addressing underrepresentation in this example is not easily achievable through short-term recruitment strategies such as wage increases or advertising. For *Underground miners*, workforce development and recruitment are inextricably linked, as employers tend to find candidates and train them for the job at the same time.

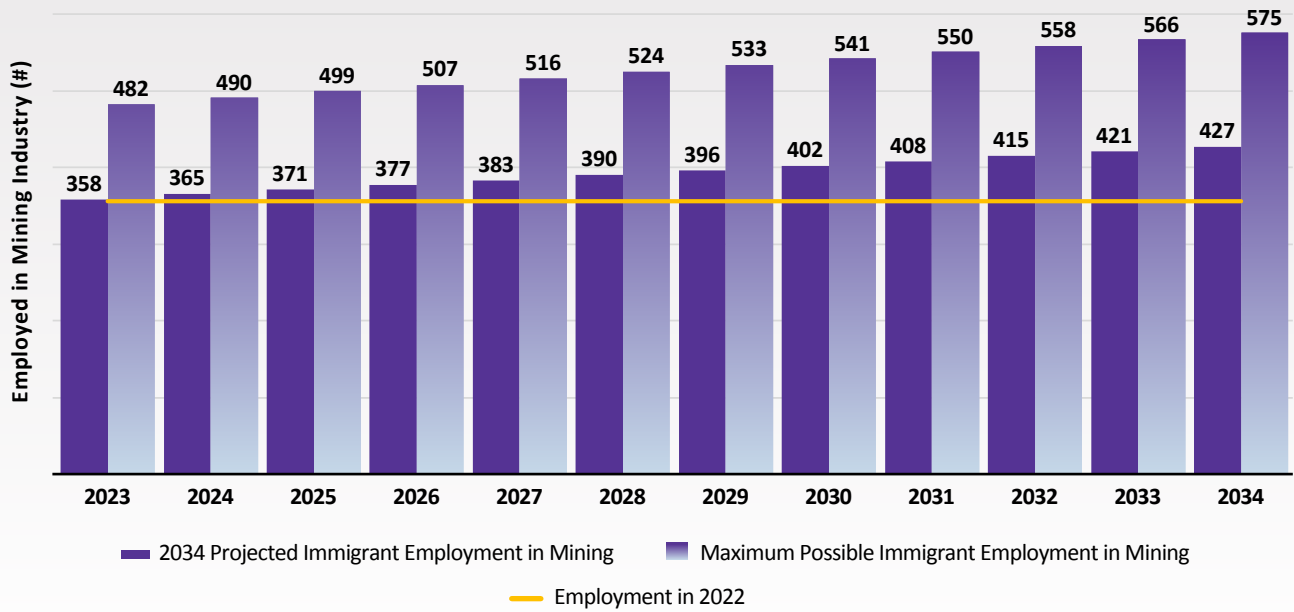
A limited labour pool means that every additional person becomes increasingly difficult to recruit. Hence, in mining-specific occupations such as this one, it is always necessary to look beyond the existing labour pool. Convincing individuals to pursue a career they may not have previously considered adds complexity to this challenge.

FIGURE 28 *EVALUATING IMMIGRANT EMPLOYMENT EXPECTATIONS, UNDERGROUND MINERS (PROJECTED YEAR: 2034)*



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry*, 2024.

FIGURE 29a PROJECTED AND MAXIMUM POSSIBLE IMMIGRANT EMPLOYMENT EXPECTATION, UNDERGROUND MINERS (PROJECTED YEARS: 2023 –2034)

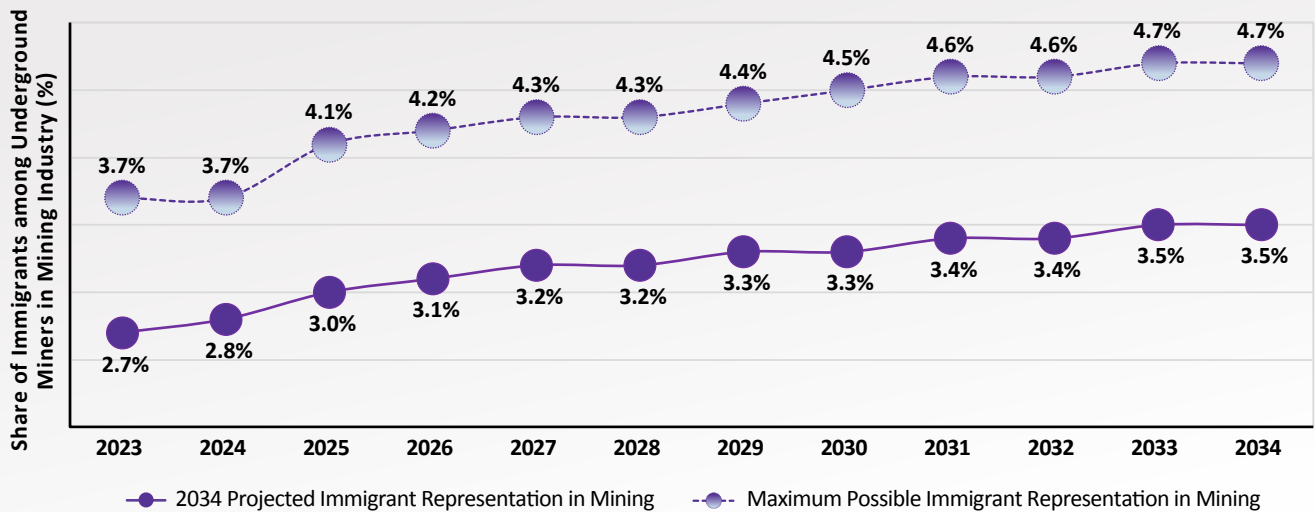


Projected Employment = Mining’s share of the immigrant labour supply is maintained at current (2022) levels through 2034

Maximum Possible Employment = Mining’s share of the immigrant labour supply is 100% in 2034 (i.e., mining is able to recruit the entire immigrant labour force within the occupation)

Source: Mining Industry Human Resources Council, Equity Deserving Groups in Canada’s Mining Industry, 2024.

FIGURE 29b PROJECTED AND MAXIMUM POSSIBLE IMMIGRANT REPRESENTATION, UNDERGROUND MINERS (PROJECTED YEARS: 2023 –2034)



Projected Employment = Mining’s share of the immigrant labour supply is maintained at current (2022) levels through 2034

Maximum Possible Employment = Mining’s share of the immigrant labour supply is 100% in 2034 (i.e., mining is able to recruit the entire immigrant labour force within the occupation)

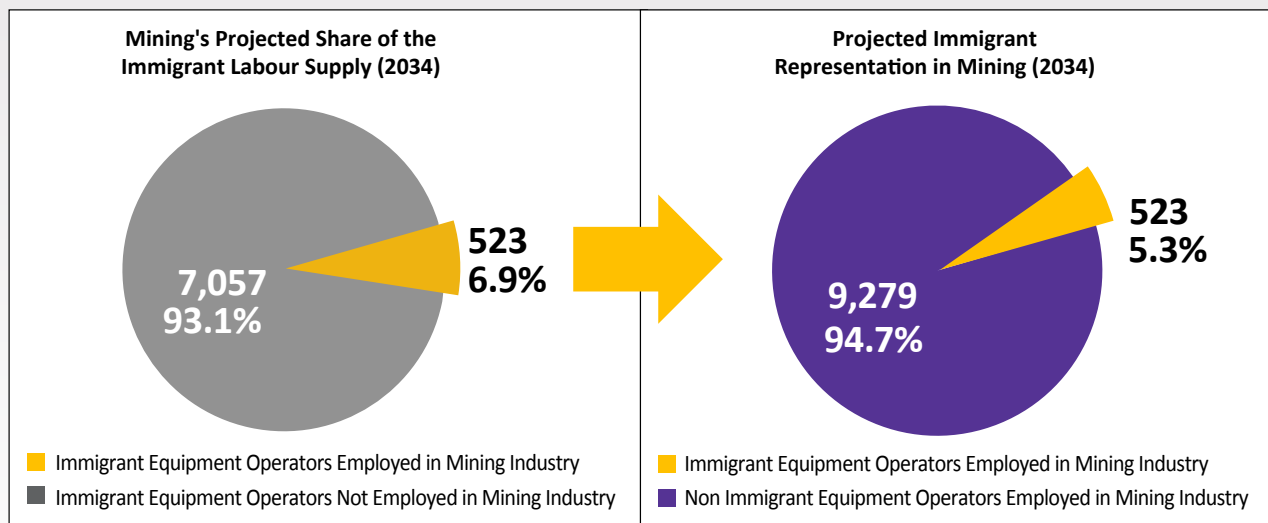
Source: Mining Industry Human Resources Council, Equity Deserving Groups in Canada’s Mining Industry, 2024.

Case Study 2: Equipment Operators

Figure 30 shows the projected representation of immigrants among *Heavy equipment operators* [NOC 73400] in mining, which is expected to rise slightly from 4.2% to 5.3% over the next ten years. At first glance, *Equipment operators* seem to share a pattern with *Underground miners*, both displaying persistently low levels of immigrant participation.



FIGURE 30 *EVALUATING IMMIGRANT EMPLOYMENT EXPECTATIONS, EQUIPMENT OPERATORS IN MINING (PROJECTED YEAR: 2034)*



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry*, 2024.

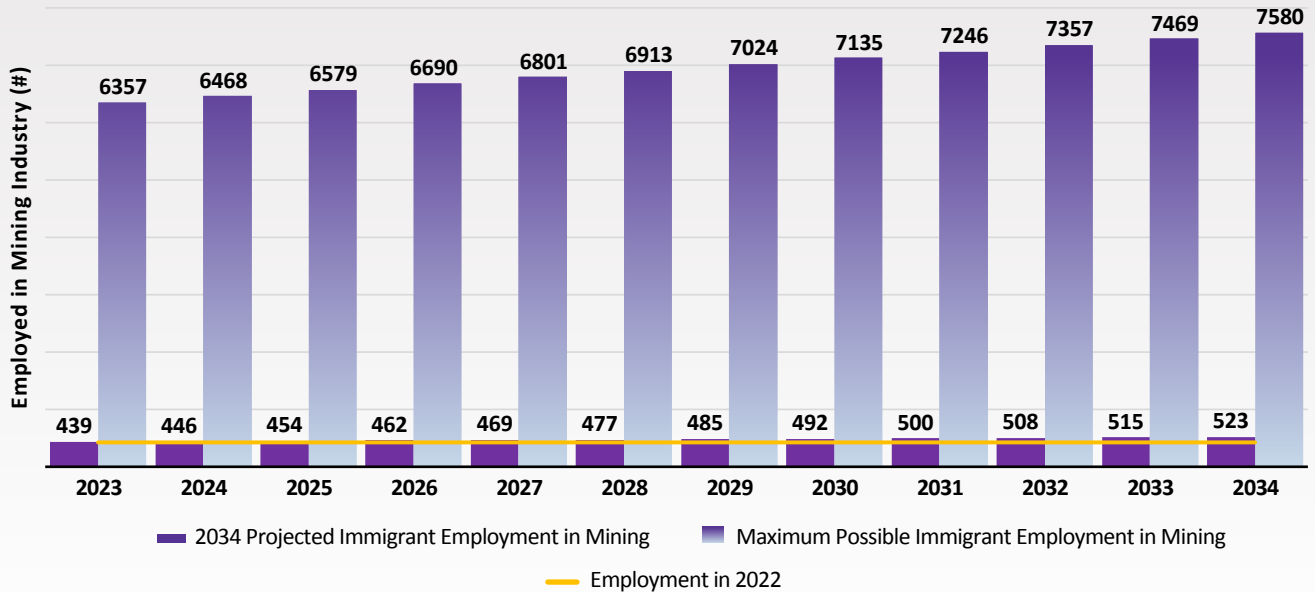
However, the underlying characteristics of the labour pool for *Equipment operators* differ significantly. In the hypothetical scenario where mining hires every available immigrant in this occupation (Figure 31), immigrant representation is projected to increase substantially to between 60.3% and 77.3%.

A Deeper Labour Pool Means Recruitment Is Viable

The mining industry has a relatively small share of the available labour force, employing just 6.9% of all *Equipment operators* who are immigrants. In contrast to the *Underground miners* example, there is not such an urgent need to expand the total number of qualified candidates, as there is already a substantial labour pool from which to recruit.

Despite the many challenges of attracting workers from other industries, a significant number of immigrant *Equipment operators* remain untapped for recruitment into the mining industry. These favourable conditions are also present for many mining-centric occupations, creating a fertile ground for more effective utilization of the immigrant workforce to mitigate labour shortages.

FIGURE 31a PROJECTED AND MAXIMUM POSSIBLE IMMIGRANT EMPLOYMENT EXPECTATION, EQUIPMENT OPERATORS IN MINING (PROJECTED YEARS: 2023 – 2024)

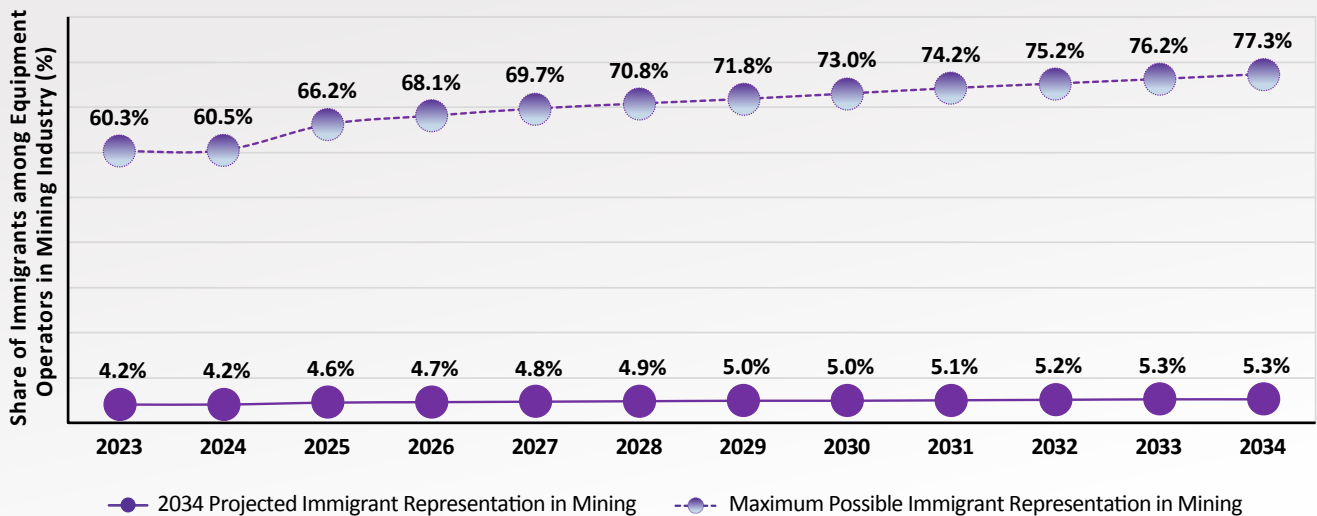


Projected Employment = Mining’s share of the immigrant labour supply is maintained at current (2022) levels through 2034

Maximum Possible Employment = Mining’s share of the immigrant labour supply is 100% in 2034 (i.e., mining is able to recruit the entire immigrant labour force within the occupation)

Source: Mining Industry Human Resources Council, Equity Deserving Groups in Canada’s Mining Industry, 2024.

FIGURE 31b PROJECTED AND MAXIMUM POSSIBLE IMMIGRANT REPRESENTATION, EQUIPMENT OPERATORS IN MINING (PROJECTED YEARS: 2023 – 2024)



Projected Representation = Mining’s share of the immigrant labour supply is maintained at current (2022) levels through 2034

Maximum Possible Representation = Mining’s share of the immigrant labour supply is 100% in 2034 (i.e., mining is able to recruit the entire immigrant labour force within the occupation)

Source: Mining Industry Human Resources Council, Equity Deserving Groups in Canada’s Mining Industry, 2024.

2.4. Immigrants in Mining: Key Takeaways

■ Driving Canada's population growth:

With a quarter of Canada's working population, immigration is the main driver of Canada's population growth. Immigrants represent an enormous opportunity to access a new and skilled workforce that could potentially ease labour shortages in the mining industry.

■ **Geographical barriers:** Newcomers to Canada tend to gravitate toward larger metropolitan areas, likely limiting their participation in the mining industry. Roughly 80% of the total immigrant workforce resides in 10 regions (all in large metropolitan areas), while 70% of the total mining workforce reside elsewhere.

■ **Low representation:** Compared to other industries, immigrant representation in the mining industry is substantially lower (at roughly 15% versus roughly 31% for all industries in 2023). Furthermore, while other industries have been able to leverage the growing immigrant workforce, the mining industry has lagged in this aspect, pointing to an untapped opportunity to address labour shortages.

■ **In the right occupations, but not in mining:** In contrast to women, the underrepresentation of immigrants in mining is not primarily driven by occupational choices. Rather than being specific to certain occupations, the problem appears to be inherent to the mining sector as a whole. In general, immigrants are present in mining-centric jobs in healthy numbers. However, when looking for career opportunities, immigrants tend to steer away from the mining industry.

■ **Lower Unemployment:** the unemployment rate is comparatively low for immigrant workers in Mining and quarrying (NAICS 212). This may be indicative of higher immigrant representation in jobs with higher skills and educational requirements in the mining sector. In most other industries, unemployment rates for immigrants are roughly on par with non-immigrants.



■ **Well educated:** People entering Canada's labour force from other countries tend to be well-educated and highly skilled. In Canada's mining industry, the Immigrant workforce is heavily skewed towards university education, with nearly half the workforce holding a bachelor's degree or higher. Immigrants represent a potential asset to the mining sector, as many newcomers participate in disciplines that are critical to the industry.

■ **Not all employed in their field:** Despite having many of the required backgrounds and skill sets, Immigrant educational choices are not aligned with their observed occupational outcomes, suggesting many are experiencing a higher degree of underemployment compared to non-immigrants. For example, among those with an apprenticeship/trades diploma, immigrant workers are less likely to be in TEER 2 and 3 occupations that require this type of educational background.

■ **Room for more competition for Immigrant talent:** MiHR's LMA model results support the conclusion that occupational choice is not the primary limitation affecting immigrant employment in mining. The immigrant labour pool seems to be relatively deep in the selected mining-centric occupations. Consequently, the lower levels of representation result from other obstacles, such as competition from alternative industries, a lack of awareness of employment opportunities in mining, or geographic barriers, among others.

Indigenous Peoples in Mining

3

Indigenous Workers Have a Geographical Connection

Indigenous communities can be found in every corner of Canada (i.e., in urban, suburban, rural, remote, northern, and far north areas), which has led to their strong participation in the mining industry, as projects are commonly located on or near traditional Indigenous lands.

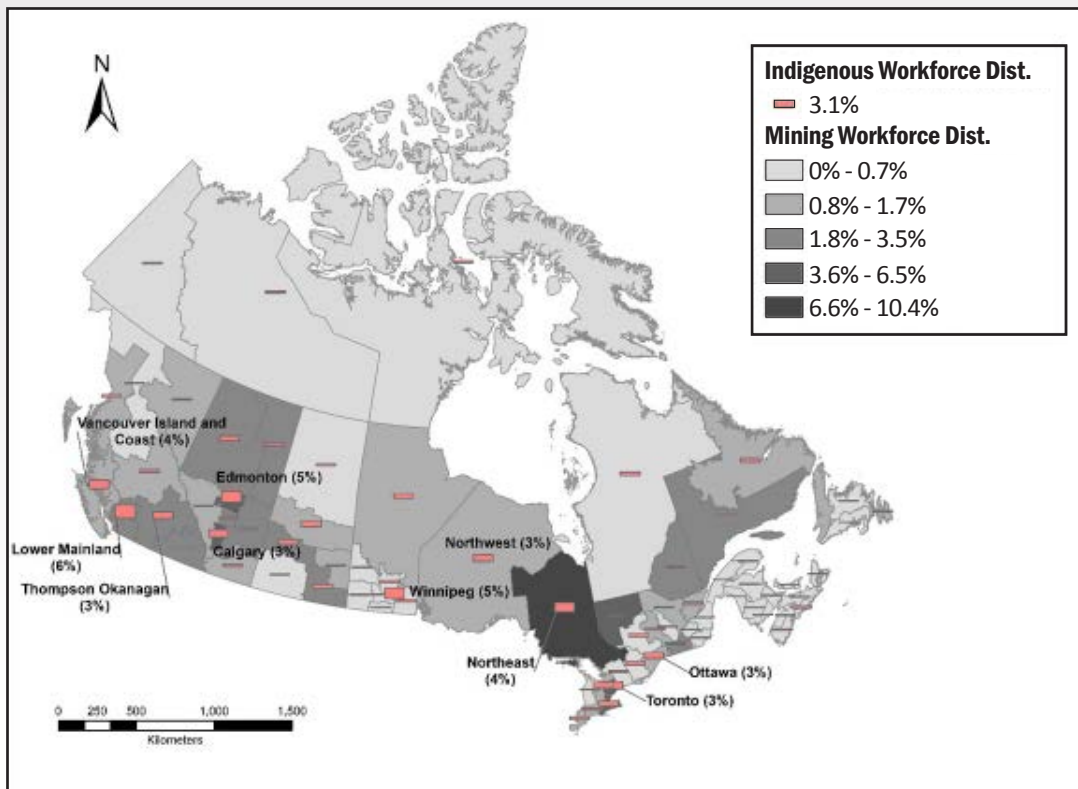
Table 5 shows the top 10 regions with the greatest share of Indigenous workers across the country. Overall, there were nearly 680 thousand Indigenous workers in Canada in 2021. The distribution of Indigenous workers across Canada is fairly even, with the largest contingent in the Lower Mainland of British Columbia, (6% of all Indigenous workers). Thus, unlike with immigrants, there is not one (or a small handful) of places where the majority of Indigenous talent resides. Figure 32 further shows a map comparing the distributions of the Indigenous workforce and the mining workforce.

TABLE 5 TOP 10 REGIONS WITH GREATEST SHARE OF INDIGENOUS WORKERS (ALL INDUSTRIES) vs SHARE OF ALL MINING WORKERS (2021)

Rank	Economic Region	Share of All Indigenous Workers (All Industries)	Share of All Mining Workers
1	Lower Mainland--Southwest, B.C.	41,830 (6%)	4,985 (3%)
2	Edmonton, Alta.	35,810 (5%)	12,270 (6%)
3	Winnipeg, Man.	33,500 (5%)	790 (0%)
4	Northeast, Ont.	29,675 (4%)	19,680 (10%)
5	Vancouver Island and Coast, B.C.	27,820 (4%)	1,570 (1%)
6	Toronto, Ont.	23,200 (3%)	7,340 (4%)
7	Calgary, Alta.	22,840 (3%)	10,030 (5%)
8	Thompson--Okanagan, B.C.	21,525 (3%)	4,580 (2%)
9	Northwest, Ont.	20,150 (3%)	3,200 (2%)
10	Ottawa, Ont.	18,905 (3%)	1,420 (1%)
Other Regions		405,175 (60%)	123,480 (65%)
Total		680,430 (100%)	189,345 (100%)

Source: Mining Industry Human Resources Council, Equity Deserving Groups in Canada's Mining Industry, 2024; Statistics Canada, Census of Population (Custom Data), 2021.

FIGURE 32 COMPARING THE GEOGRAPHIES OF CANADA'S INDIGENOUS WORKFORCE AND IT'S MINING WORKFORCE (2021)



Source: Mining Industry Human Resources Council, Equity Deserving Groups in Canada's Mining Industry, 2024; Statistics Canada, Census of Population (Custom Data), 2021.

3.1. Representation of Indigenous Peoples in Mining

Share of Indigenous Peoples in Mining Outperforming

As one of the largest employers of Indigenous peoples in Canada, mining continues to outperform other industries in terms of Indigenous representation. Indigenous workers represented about 9.8% of the mining industry workforce in October 2023, compared to 3.9% across all industries (Figure 33). Since 2007, Indigenous representation in the mining industry has more than doubled, pointing to a favourable trend for Indigenous participation in the sector.

Indigenous Peoples Outperforming across Occupational Categories

On the whole, Indigenous workers have a higher level of representation in mining than in other industries. The geographic proximity of many First Nations, Metis and Inuit communities to mining and related operations contributes to a strong Indigenous involvement in the industry.

Figure 34 compares Indigenous representation in the mining sector with their representation across all industries, for 100 mining-centric occupations¹⁷. The relatively higher representation of Indigenous workers in the mining industry is consistent across the majority of occupations that can be observed. In the figure, these occupations are shown above the parity line.

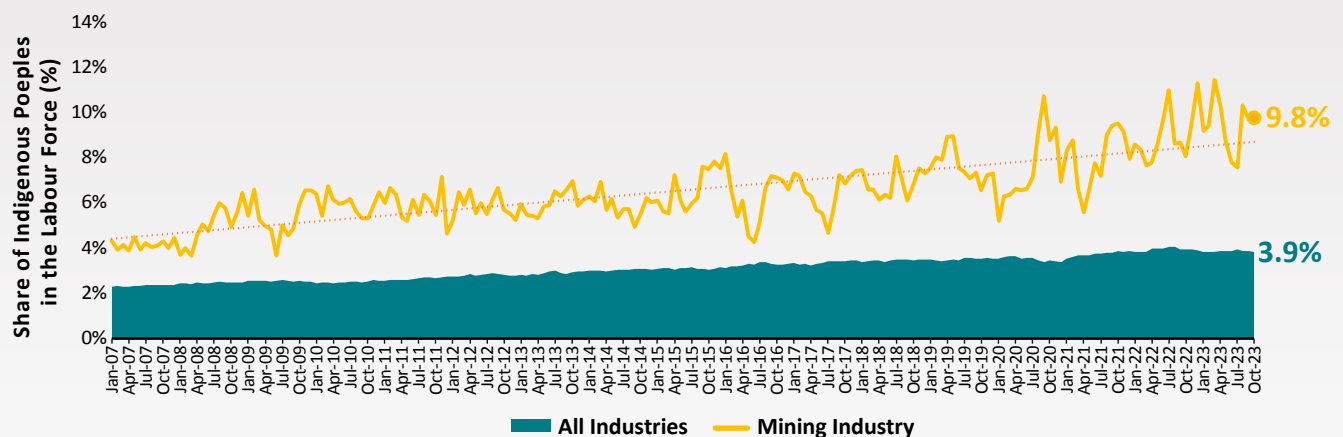
Mining Outperforms, but Occupational Mix could be Improved

The percentage of Indigenous workers in mining, relative to all industries, is consistently high across most occupations and occupational categories. In particular, the presence of Indigenous workers in *production* and *technical occupations* in mining far exceeds other industries.

However, there is room for improvement: Indigenous workers could benefit from increased representation in higher-skilled and higher-paying positions. Within the mining sector, Indigenous workers tend to be employed in *production* (11.8% Indigenous), *trades* (7.7% Indigenous), and *support worker* roles (6.4% Indigenous). Fewer are employed in occupations requiring more years of education and training, such as *human resources & finance* (3.5% Indigenous) and *professional & physical science occupations* (2.5% Indigenous).

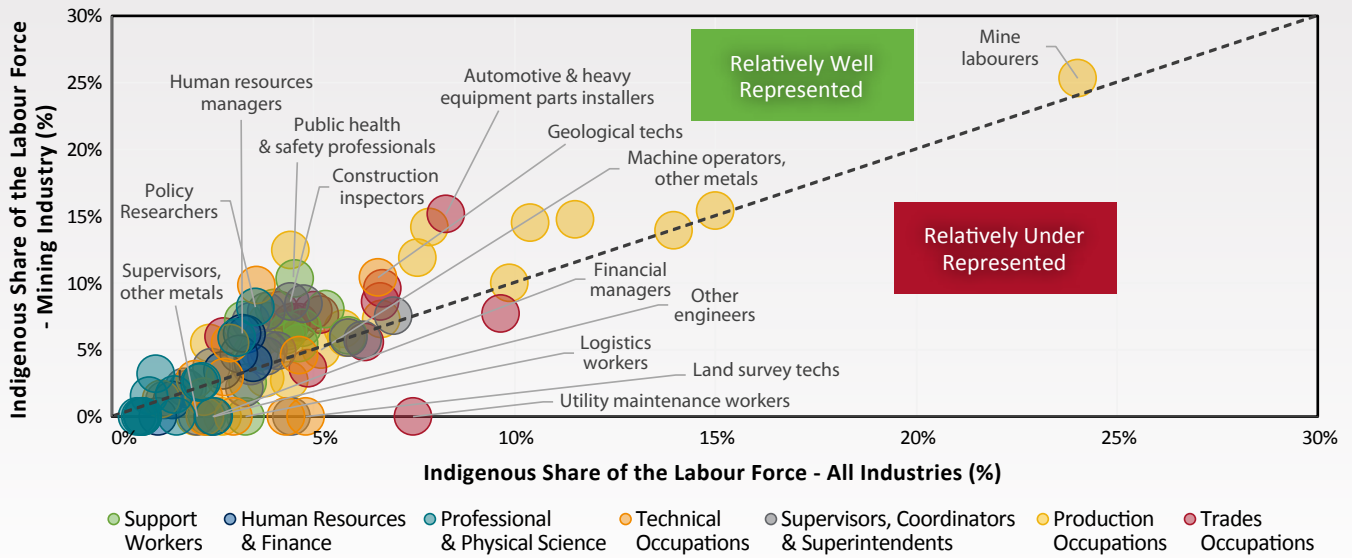
17 Please see Appendix A for the complete list of occupations and categories.

FIGURE 33 *INDIGENOUS SHARE OF THE LABOUR FORCE, ALL INDUSTRIES AND MINING INDUSTRY (JAN 2007 – OCT 2023)*



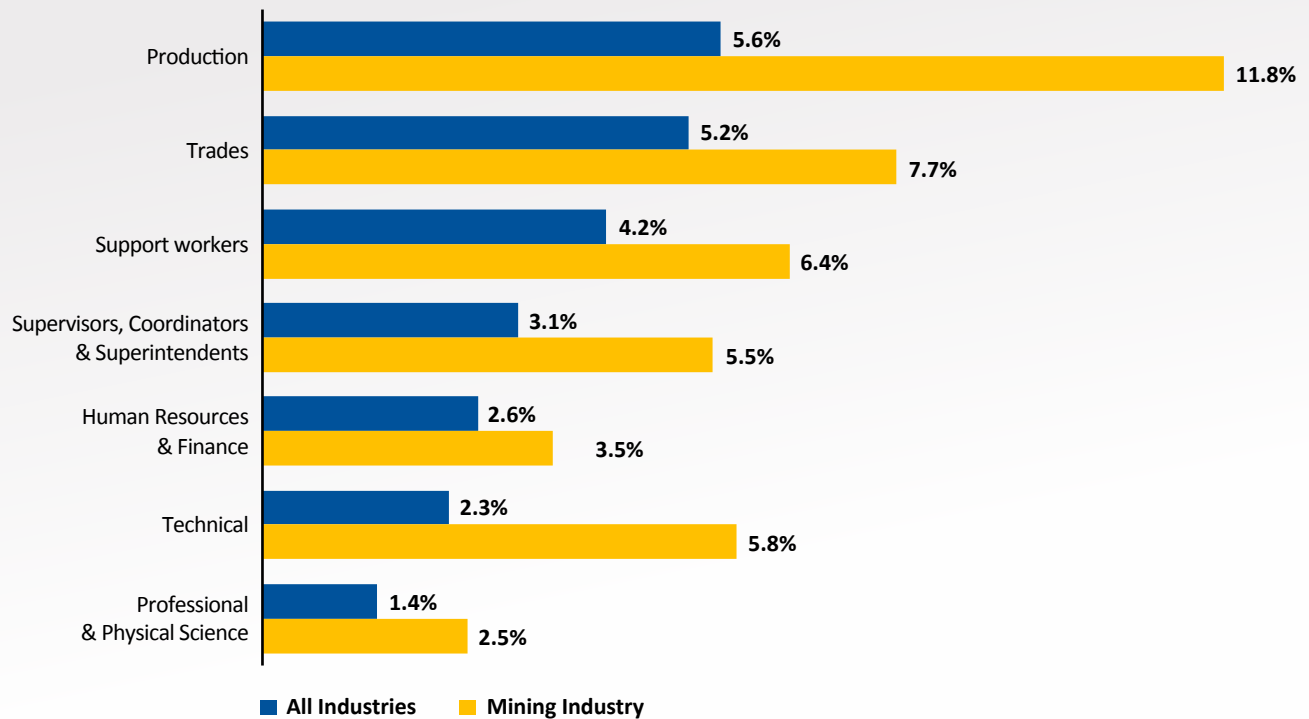
Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry, 2024*; Statistics Canada, *Labour Force Survey (Custom Data)*.

FIGURE 34a *INDIGENOUS SHARE OF THE LABOUR FORCE BY MINING OCCUPATION, ALL INDUSTRIES AND MINING INDUSTRY (2021)*



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry*, 2024; Statistics Canada, *Census of Population (Custom Data)*, 2021.

FIGURE 34b *INDIGENOUS SHARE OF THE LABOUR FORCE BY BROAD OCCUPATIONAL CATEGORY, ALL INDUSTRIES AND MINING INDUSTRY (2021)*



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry*, 2024; Statistics Canada, *Census of Population (Custom Data)*, 2021.

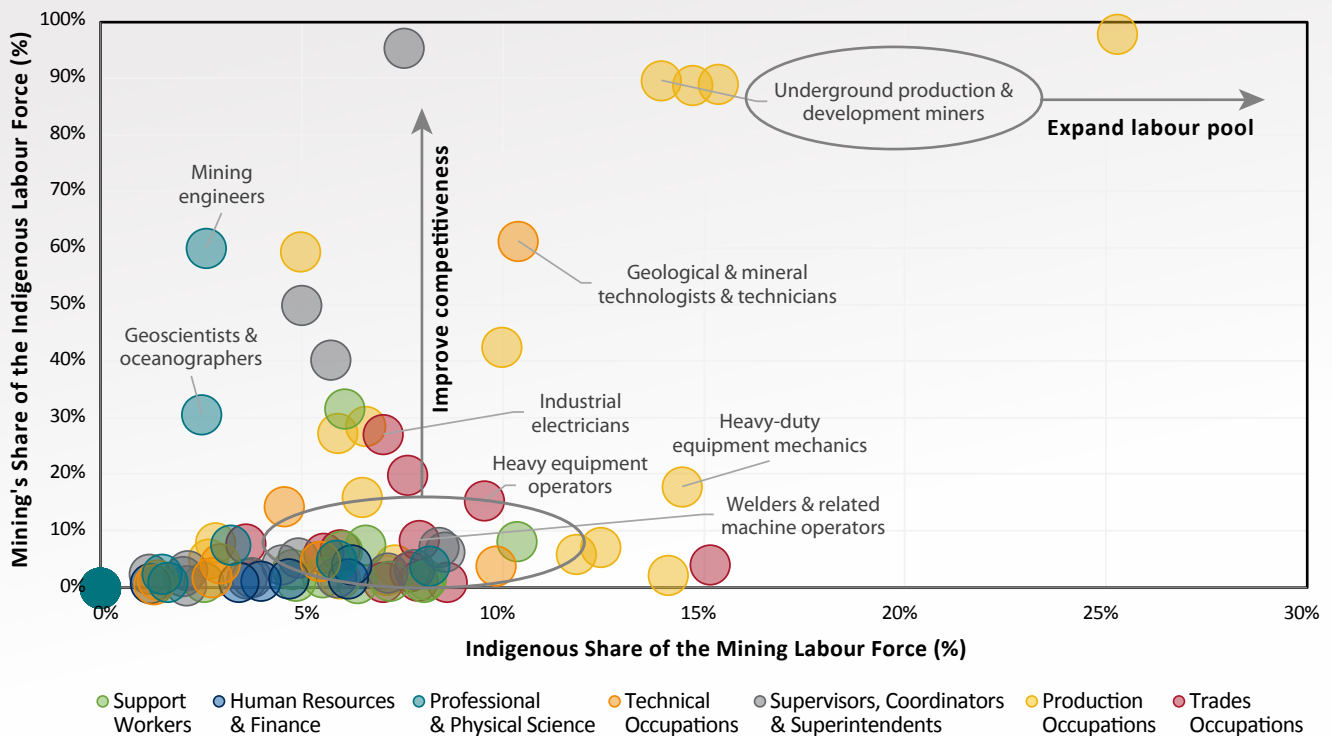
Figure 35 compares Indigenous representation in the mining industry with mining's share of the Indigenous labour force, for occupations of interest.

Occupations higher on the vertical axis will have difficulty increasing Indigenous representation by competing with other industries (i.e., taking a larger share of the pie), since their Indigenous workers are already predominantly employed in the mining industry. For example, the mining industry (as defined by MiHR) employs 90% of *Underground production & development miners* who are Indigenous, yet Indigenous workers make up only 14% of the *Underground miners*. Therefore, if the mining industry wants to hire more Indigenous workers in this occupation, it needs to train and develop new workers to expand the labour pool (i.e. expand the size of the pie).

Conversely, occupations lower on the vertical axis have a relatively deeper labour pool from which to recruit. Indigenous workers make up only 7.9% of the mining workforce among *Welders & related machine operators*, yet mining has only managed to employ 8.3% of all available Indigenous *Welders*. In these cases, the mining industry has an opportunity to draw from the existing labour pool and to improve its competitiveness to attract more Indigenous workers into the mining industry.



FIGURE 35 *INDIGENOUS SHARE OF THE MINING LABOUR FORCE VS. MINING'S SHARE OF THE INDIGENOUS LABOUR FORCE, MINING OCCUPATIONS (2021)*



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry, 2024*; Statistics Canada, *Census of Population (Custom Data), 2021*.

Systemic Barriers to Indigenous Representation

Indigenous workers are more likely than other groups to be employed in the mining industry, making up a higher proportion of the workforce in mining (10%) than in all other industries (4%). However, their relatively limited presence in higher-skilled positions suggests the existence of systemic barriers that limit career opportunities, which may be related to Indigenous worldviews, skills profile, training and educational attainment. Several qualitative studies have explored such systemic barriers for Indigenous Peoples in the mining sector:

- Barriers in recruiting Indigenous workers stem from factors such as insufficient training or work experience, limited familiarity with the industry, geographical distance between communities and mine sites, and a desire to continue working in traditional activities. Additionally, post-hiring, Indigenous workers confront many obstacles to integration, such as discrimination, limited opportunities for internal advancement, a work culture fixated on productivity, and employers who are unequipped to address their specific needs and concerns.¹⁸
- While much of the research has focused on the obstacles or deterrents to Indigenous employment in the mining sector, less attention has been devoted to the positive factors leading to the successful recruitment, integration, and retention of Indigenous workers.¹⁹

In addition to skills-related obstacles, there are many other career hurdles. MiHR's recent publication *Integrating EDI: Addressing Systemic Employment Barriers in Canadian Mining* suggests that Indigenous peoples in mining have continued to face workplace barriers over the past five years:

- More than half (56%) of *Workforce Experiences Survey* respondents reported experiencing discrimination-related barriers, including racism, ageism, sexism, gender pay gaps and homophobia. In a recent small study of workers' experiences in mining camps in Yukon and northern British

Columbia, 45% of research participants reported experiencing discrimination on the basis of race or Indigeneity.

- A study of Inuit women with recent experience working in the mining industry revealed that 40% of respondents felt unsafe in their community while nearly half had experienced sexual harassment at the mine.
- The Native Women's Association of Canada (NWAC) found that Indigenous women are more likely to experience racism when mining activities take place near Indigenous or First Nations communities.

3.2. Labour Market Outcomes of Indigenous Peoples in Mining

Unemployment Rates Higher and More Volatile for Indigenous

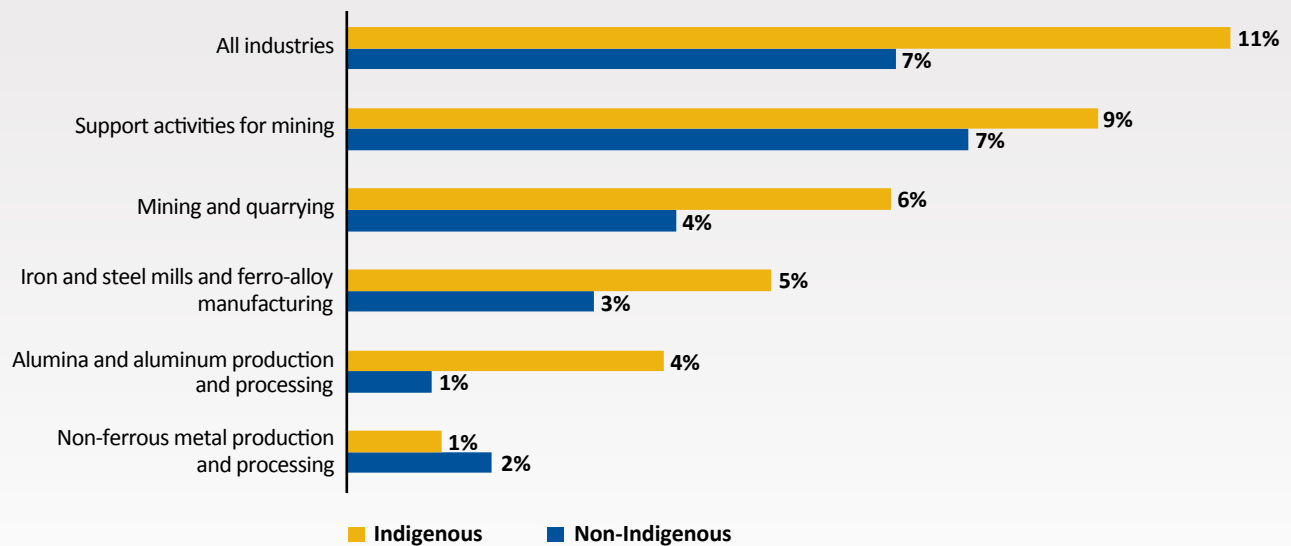
Unemployment rates are important not only as a signal of labour market tightness but also as a measure of job stability for workers.

Figure 36 contrasts unemployment rates for Indigenous and non-Indigenous workers across various industries. Notably, since 2018, the unemployment rate for Indigenous workers across all industries has averaged 11% compared to only 7% for non-Indigenous workers. This difference is also observed in mining-related industries, likely resulting from the occupational mix and the types of roles that are common for Indigenous workers. In most of the industries examined, unemployment rates for Indigenous workers are generally 2% to 4% higher than for other workers.

18 Caron, J., Asselin, H., & Beaudoin, J. (2020). *Indigenous employees' perceptions of the strategies used by mining employers to promote their recruitment, integration and retention*. Resources Policy, 68, 101793. <https://doi.org/10.1016/j.resourpol.2020.101793>

19 Ibid.

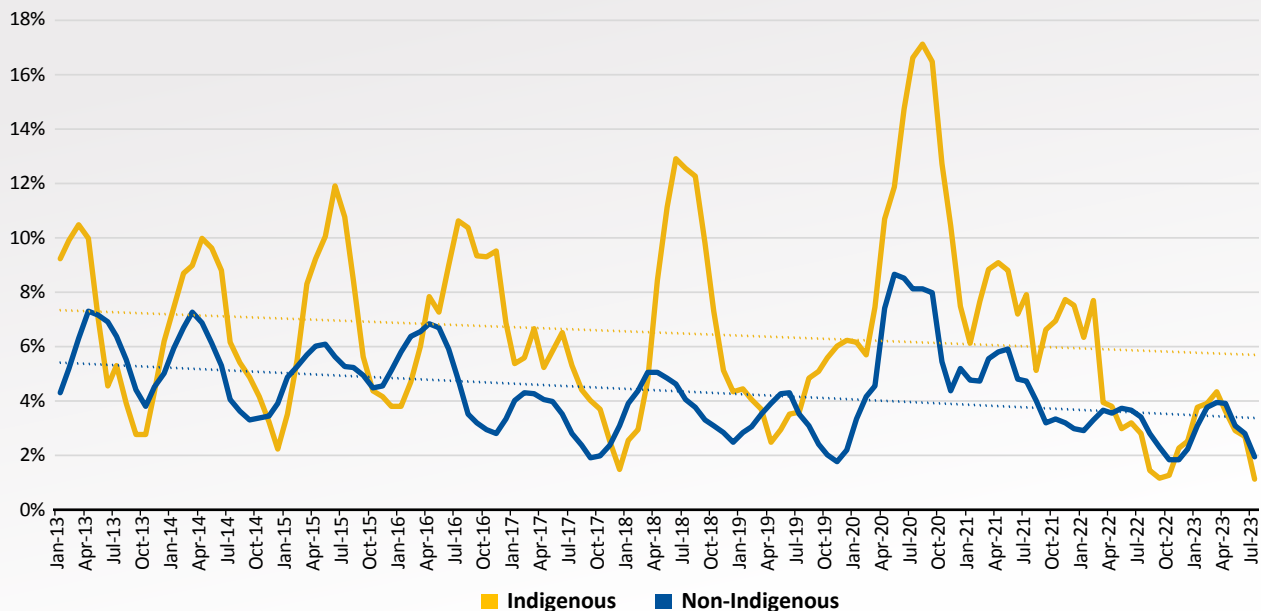
FIGURE 36 UNEMPLOYMENT RATES BY INDIGENOUS IDENTITY, ALL INDUSTRIES AND MINING SUBSECTORS (AVERAGE FROM JAN 2018 - JUL 2023)



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry, 2024*; Statistics Canada, *Labour Force Survey (Custom Data)*.

Figure 37 compares unemployment rates in *Mining and quarrying (NAICS 212)* for Indigenous and non-Indigenous workers over the past decade. In general, the unemployment pattern for Indigenous workers is more volatile, showing higher peaks than for other workers. At the same time, it is highly seasonal and relatively predictable. At the height of the COVID-19 pandemic²⁰, Indigenous workers experienced an unprecedented 17% unemployment rate (six-month average), in contrast to roughly 8% for non-Indigenous workers. In the post-pandemic period, Indigenous unemployment rates have trended lower due to tightening labour market conditions.

FIGURE 37 INDIGENOUS UNEMPLOYMENT RATE, MINING AND QUARRYING (NAICS 212) (SIX-MONTH MOVING AVERAGE FROM JAN 2018 - JUL 2023)



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry, 2024*; Statistics Canada, *Labour Force Survey (Custom Data)*.

20 This may be related to government-mandated closures and lockdowns of many Indigenous communities in the spring of 2020.

Indigenous Workers More Likely to Be in Jobs Not Requiring Formal Education

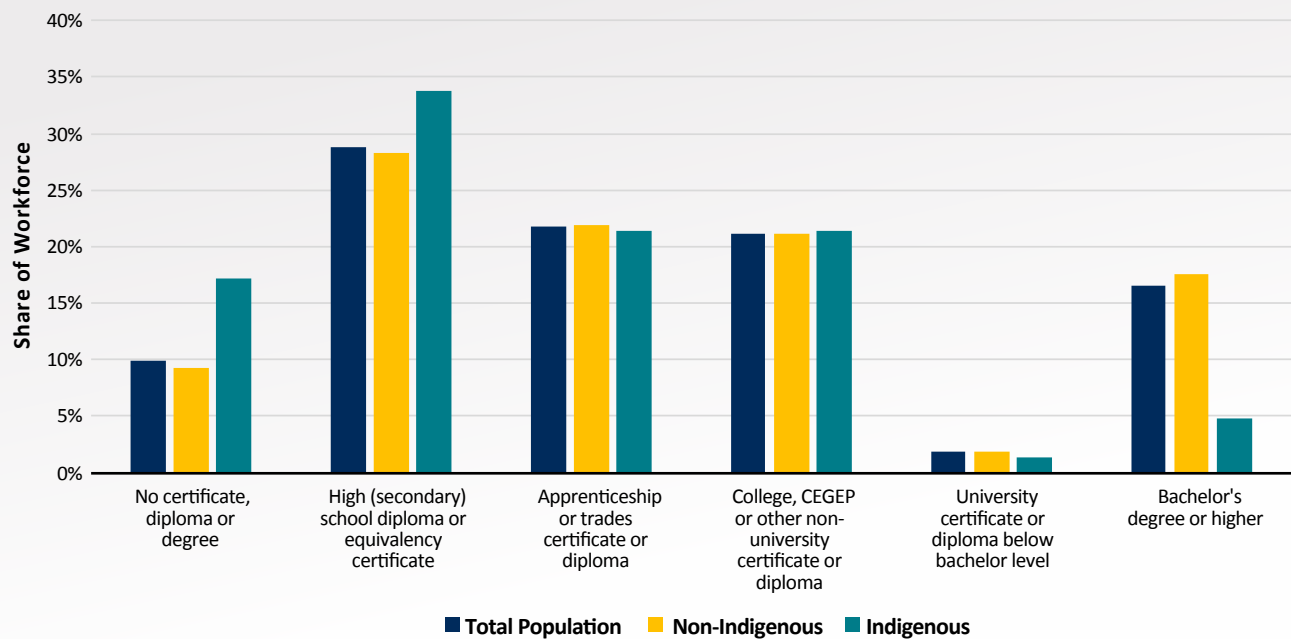
Although Indigenous people are well represented in the mining industry, there is a notable imbalance in educational attainment and in the types of jobs in which they are employed. Compared to the non-Indigenous population, Indigenous workers are much more likely to have *No certificate, diploma or degree* (17%) or *High school diploma or equivalency certificate* (34%), and much less likely to have a *Bachelor's degree or higher* (5%) (Figure 38).

Consequently, a higher percentage of the Indigenous workforce is found in occupations that do not require formal training. Furthermore, Indigenous workers in jobs requiring college or apprenticeship are more likely to have less than two years of training.

Indigenous peoples are also less prevalent in management positions; educational attainment impacts the types of roles filled by Indigenous workers as well as their vertical mobility within mining companies.

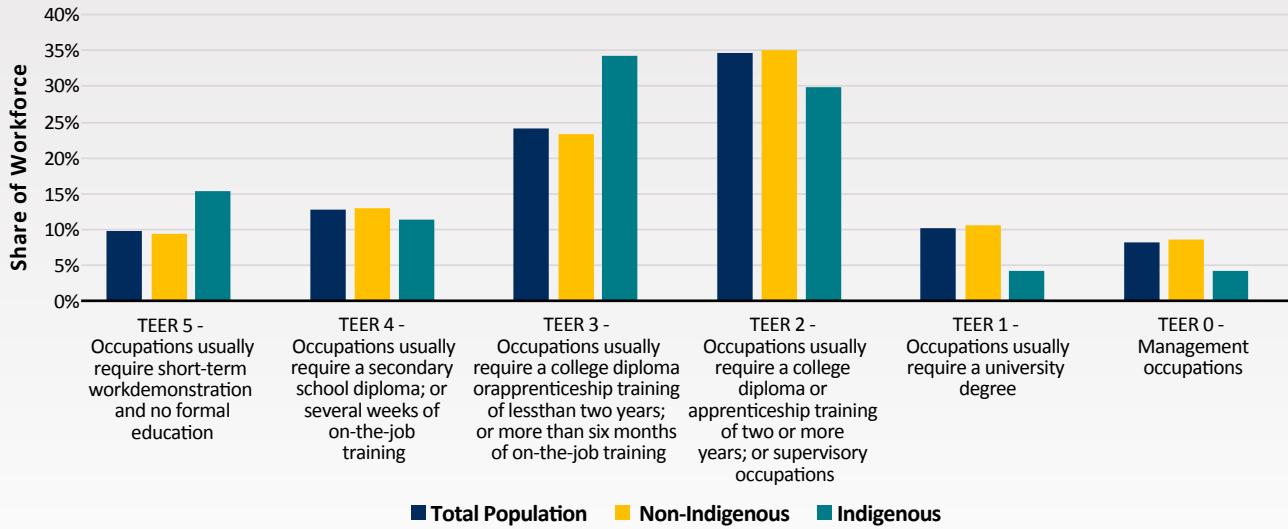


FIGURE 38a DISTRIBUTION OF EDUCATIONAL ATTAINMENT BY INDIGENOUS IDENTITY, MINING INDUSTRY (2021)



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry, 2024*; Statistics Canada, *Census of Population (Custom Data), 2021*.

FIGURE 38b DISTRIBUTION OF TEER CATEGORIES BY INDIGENOUS IDENTITY, MINING INDUSTRY (2021)



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry*, 2024; Statistics Canada, *Census of Population (Custom Data)*, 2021.

3.3. Labour Pool of Indigenous Peoples in Mining

Labour supply is a complex subject, given that measuring potential sources of labour can be abstract and difficult to define. MiHR's LMA model estimates the size of the labour pool for Indigenous workers in critical mining occupations.

Model Overview and Assumptions

This section shares results from MiHR's Labour Market Analysis (LMA) model. The main objective of this model is to assess the availability of labour for Indigenous workers in mining relevant occupations and to identify the factors that influence that availability. The findings from this model help determine whether the projected labour supply for Indigenous workers is expected to lead to favourable labour market outcomes in the coming years.



MiHR's LMA model follows several key assumptions (described in Appendix B), including population growth, labour force participation, demographic factors, and occupational choices. Each assumption represents a conservative status quo scenario based on recent historical trends.

LMA Model Results

Table 6 provides MiHR’s baseline expectations for Indigenous workers’ representation in critical mining occupations over the next decade. These estimates are based on historical trends, and thus represent a realistic baseline estimate for evaluating future performance.²¹

Table 6a calculates *mining’s current share of the Indigenous labour supply*. This percentage is expected to be difficult to change, considering that efforts to increase mining’s share will be countered by competition from other industries.

Mining’s current share underpins the *current representation* of Indigenous workers in the mining industry. Assuming mining’s share of the labour supply remains consistent with past performance, Table 6b provides a forecast for the *projected representation* of Indigenous workers in 2034.

The outlook differs widely by occupation—some occupations are expected to increase Indigenous representation significantly (e.g., *Equipment operators*

and *Underground miners*), whereas others will continue to struggle to boost their numbers (e.g., *Geologists* and *Mining engineers*). For underperforming occupations, long-term trends (such as career choice, industry choice and geography) are persistent obstacles to raising Indigenous representation.



TABLE 6a CALCULATING MINING’S SHARE OF THE INDIGENOUS LABOUR SUPPLY, SELECTED OCCUPATIONS (2022)

Occupation	Indigenous Employment in Mining	Estimated Indigenous Labour Supply	Mining’s Share of the Indigenous Labour Supply
Geologists	268	82	30.6%
Mining engineers	84	50	59.8%
Technicians	471	265	56.3%
Welders	4,995	387	7.7%
Electricians	1,263	328	26.0%
Heavy Duty Mechanics	2,756	402	14.6%
Equipment operators	10,331	1,593	15.4%
Underground miners	2,114	1,773	83.9%

Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada’s Mining Industry*, 2024.

²¹ This model is not a prediction of the future, rather it gives us a measurement of the change that will need to happen from the status quo. Because of mining’s particular skills requirements, MiHR’s model assumes that labour supply is largely inelastic to wages and is principally driven by population size, demographics and geography.

TABLE 6b MIHR'S PROJECTION FOR INDIGENOUS REPRESENTATION, SELECTED OCCUPATIONS
(2022 AND PROJECTION FOR 2034)

Occupation	Mining's Share of the Indigenous Labour Supply (2022)		Indigenous Representation in Mining (2022)	Projected Indigenous Representation in Mining (2034)
Geologists	30.6%	⇒	3.0%	4.3%
Mining engineers	59.8%	⇒	2.9%	4.2%
Technicians	56.3%	⇒	9.2%	13.2%
Welders	7.7%	⇒	7.7%	11.0%
Electricians	26.0%	⇒	7.7%	11.0%
Heavy Duty Mechanics	14.6%	⇒	9.6%	13.7%
Equipment operators	15.4%	⇒	15.4%	22.0%
Underground miners	83.9%	⇒	13.8%	19.8%

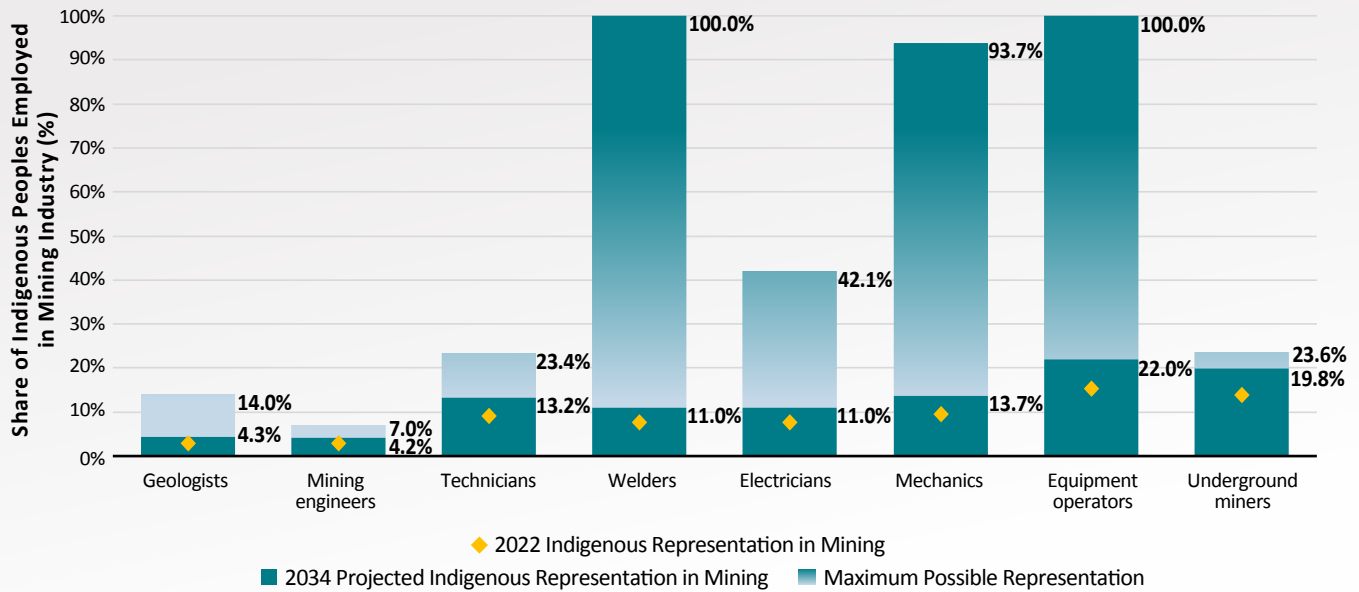
Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry*, 2024.

Figure 39 plots MiHR's baseline expectations for Indigenous representation in critical mining occupations, projected through 2034. These occupations are considered among the most important to mining operations and represent 22% of the mining workforce. The chart also presents a hypothetical scenario (Maximum Possible Representation) in which the industry is able to recruit the entire estimated labour supply of Indigenous workers. Though the

hypothetical scenario is unrealistic, it illustrates an important point: the key constraint for many occupations is the size of the Indigenous labour pool. In these instances, even if the mining sector hired all available Indigenous workers, representation would remain low. It is therefore crucial to understand which occupations have a sufficiently deep labour pool, and which occupations have a relatively shallow one.



FIGURE 39 *INDIGENOUS PEOPLE'S LABOUR SUPPLY SUSTAINABILITY BY SELECTED OCCUPATIONS (PROJECTED YEAR: 2034)*



Projected Representation = Mining's share of the Indigenous labour supply is maintained at current (2022) levels through 2034

Maximum Possible Representation = Mining's share of the Indigenous labour supply is 100% in 2034 (i.e., mining is able to recruit the entire Indigenous labour force within the occupation)

Source: Mining Industry Human Resources Council, Equity Deserving Groups in Canada's Mining Industry, 2024.

This section presents two case studies that highlight the significant differences in strategies needed to increase Indigenous representation in two occupations that, on the surface, appear to share similar issues.

Case Study 1: Technicians

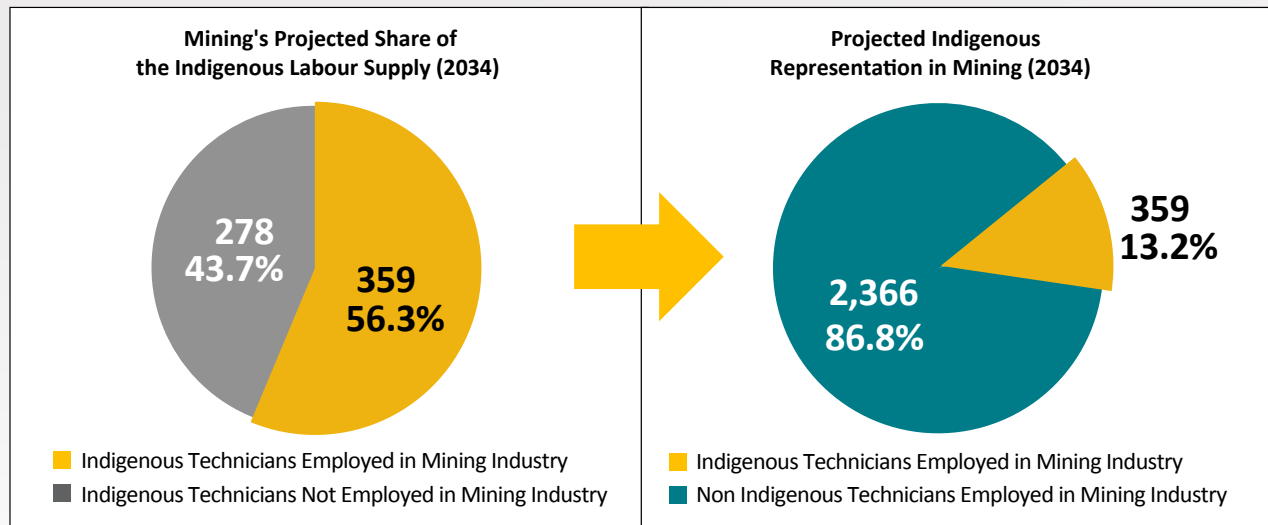
Geological and mineral technologists and technicians [NOC 22101] ranks as the 11th most prevalent job in mining, employing 2% of the mining labour force. Tackling the challenge of Indigenous underrepresentation in mining requires addressing the most common occupations, including this one.

Assuming mining's share of the labour supply remains at 56.3% through 2034 (Figure 40), Indigenous representation among *Technicians* is expected to rise subtly over the next decade, increasing from 9.6% to 13.2% (Figure 41).

Even in a hypothetical scenario where mining hires every available Indigenous worker in this occupation, the best-case Indigenous representation would range between 17.1% and 23.4%. This relatively restrictive upper boundary is an indication that mining is reaching its natural limit in its capacity to increase Indigenous representation, at least in the short-to-medium term.



FIGURE 40 *EVALUATING INDIGENOUS EMPLOYMENT EXPECTATIONS, TECHNICIANS IN MINING (PROJECTED YEAR: 2034)*



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry*, 2024.



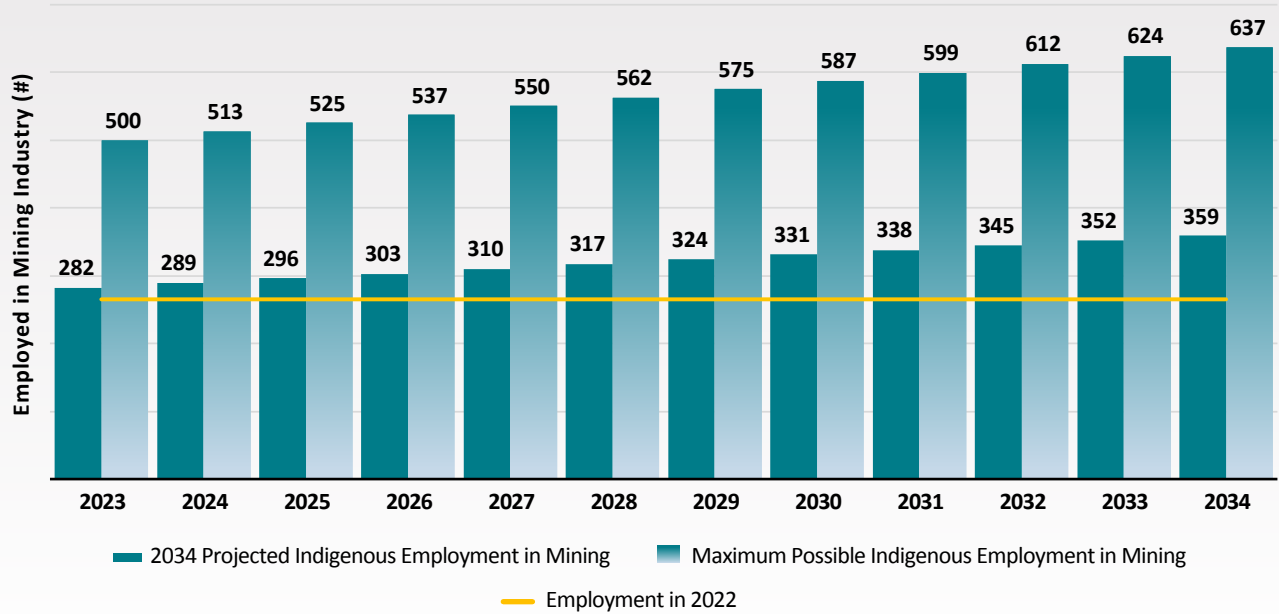
Recruitment May Not be Enough

The LMA model shows that a recruitment-based approach, like raising wages or advertising, will not be sufficient to significantly boost the number of Indigenous *Technicians* beyond their current level. A limited labour pool means that every additional person becomes increasingly difficult to recruit. Given these limitations, it becomes necessary to broaden the scope beyond the existing labor pool. Encouraging individuals to switch careers adds an additional layer of complexity to this challenge.

Hence, a holistic, long-term workforce development strategy is necessary to significantly enhance Indigenous representation and meet IBA representation goals²². This strategy involves investments in awareness, skills, and training, as well as efforts to remove systemic barriers and promote a respectful workplace culture.

²² IBA representation goals, in the context of Indigenous employment in Canada's mining industry, refer to specific targets outlined in Impact Benefit Agreements. These goals aim to ensure meaningful and equitable Indigenous participation in the workforce associated with mining projects, typically encompassing targets for Indigenous employment percentages, skill development, and opportunities for Indigenous businesses.

FIGURE 41a PROJECTED AND MAXIMUM POSSIBLE INDIGENOUS EMPLOYMENT EXPECTATION, TECHNICIANS IN MINING (PROJECTED YEARS: 2023-2034)

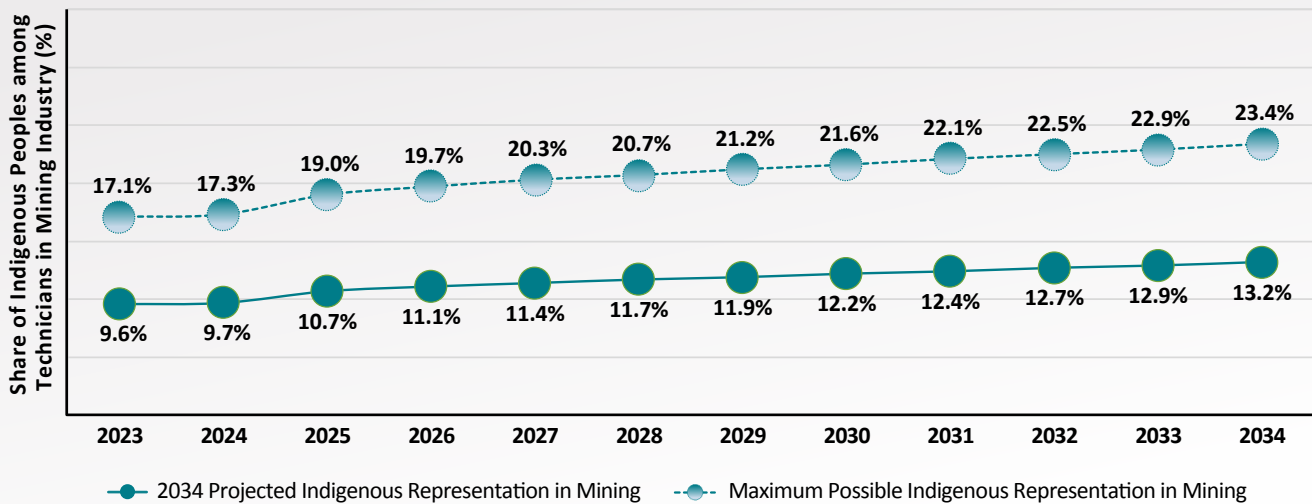


Projected Employment = Mining's share of the Indigenous labour supply is maintained at current (2022) levels through 2034

Maximum Possible Employment = Mining's share of the Indigenous labour supply is 100% in 2034 (i.e., mining is able to recruit the entire Indigenous labour force within the occupation)

Source: Mining Industry Human Resources Council, Equity Deserving Groups in Canada's Mining Industry, 2024.

FIGURE 41b PROJECTED AND MAXIMUM POSSIBLE INDIGENOUS REPRESENTATION, TECHNICIANS IN MINING (PROJECTED YEARS: 2023 - 2034)



Projected Representation = Mining's share of the Indigenous labour supply is maintained at current (2022) levels through 2034

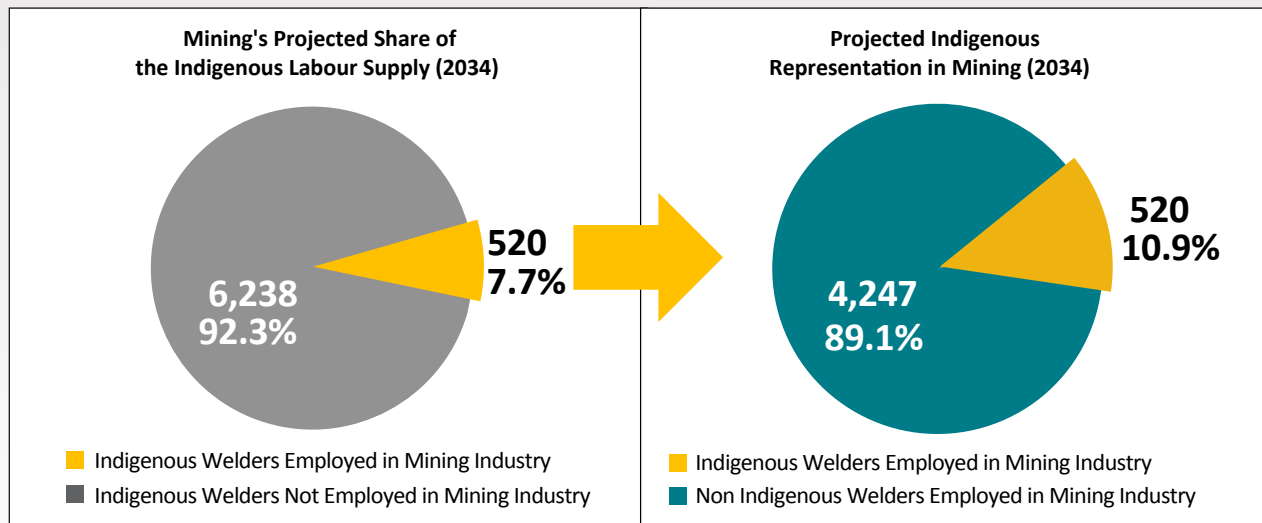
Maximum Possible Representation = Mining's share of the Indigenous labour supply is 100% in 2034 (i.e., mining is able to recruit the entire Indigenous labour force within the occupation)

Source: Mining Industry Human Resources Council, Equity Deserving Groups in Canada's Mining Industry, 2024.

Case Study 2: Welders

Figure 42 shows the projected representation of Indigenous workers among *Welders and related machine operators* [NOC 72106] in mining, which is expected to increase slightly from 8% to 11% over the next ten years. At first glance, *Welders* seem to share a pattern with *Technicians*, both displaying similar levels of Indigenous participation.

FIGURE 42 EVALUATING INDIGENOUS EMPLOYMENT EXPECTATIONS, WELDERS IN MINING (PROJECTED YEAR: 2034)



Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry*, 2024.

However, the underlying characteristics of the labour pool for *Welders* differ significantly. In the hypothetical scenario where mining hires every available Indigenous worker in this occupation (Figure 43), Indigenous representation is projected to increase to 100%.

A Deeper Labour Pool Means Recruitment Is Viable

The mining industry represents a smaller proportion of the workforce, employing just 8% of all Indigenous *Welders*. Unlike the case with *Technicians*, workforce development is not as critical to improving Indigenous representation, given the deeper pool of talent available for recruitment. Recruiters benefit from a more favourable environment for increasing Indigenous representation, as the mining industry can greatly expand the number of Indigenous *Welders* before hitting its natural limit. While there are genuine challenges in persuading non-mining workers to switch industries, there is a sizeable contingent of Indigenous *Welders* who can in theory be recruited.



FIGURE 43a PROJECTED AND MAXIMUM POSSIBLE INDIGENOUS EMPLOYMENT EXPECTATION, WELDERS IN MINING (PROJECTED YEARS: 2023 –2034)

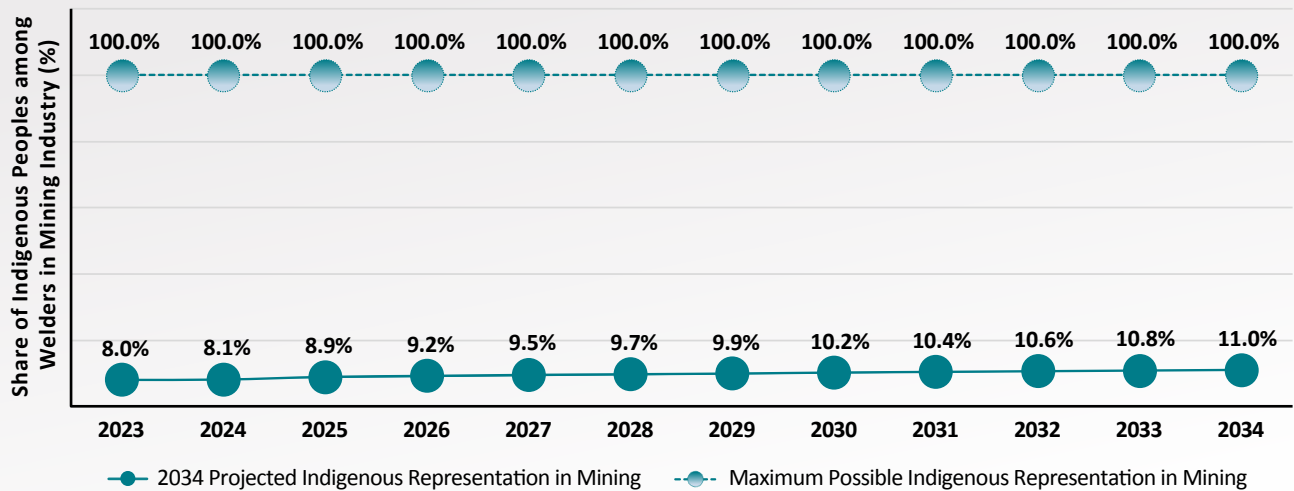


Projected Employment = Mining’s share of the Indigenous labour supply is maintained at current (2022) levels through 2034

Maximum Possible Employment = Mining’s share of the Indigenous labour supply is 100% in 2034 (i.e., mining is able to recruit the entire Indigenous labour force within the occupation)

Source: Mining Industry Human Resources Council, Equity Deserving Groups in Canada’s Mining Industry, 2024.

FIGURE 43b PROJECTED AND MAXIMUM POSSIBLE INDIGENOUS REPRESENTATION, WELDERS IN MINING (PROJECTED YEARS: 2023 –2034)



Projected Representation = Mining’s share of the Indigenous labour supply is maintained at current (2022) levels through 2034

Maximum Possible Representation = Mining’s share of the Indigenous labour supply is 100% in 2034 (i.e., mining is able to recruit the entire Indigenous labour force within the occupation)

Source: Mining Industry Human Resources Council, Equity Deserving Groups in Canada’s Mining Industry, 2024.

3.4. Indigenous Peoples in Mining: Key Takeaways

- **Geographical connection:** Indigenous communities can be found in every corner of Canada, which has led to their strong participation in the mining industry, as projects are commonly located on or near traditional Indigenous lands. The distribution of Indigenous workers across Canada is even. Unlike with immigrants, there is not one (or a small handful) of places where most Indigenous talent resides.
- **High (and growing) representation:** Mining continues to outperform other industries in terms of Indigenous representation with about 10% of the mining industry workforce in 2023 (versus about 4% across all industries). Since the mid-2000s, Indigenous representation in the mining industry has more than doubled, pointing to a favourable trend for Indigenous participation in the sector.
- **Mining outperforms across occupations:** Compared to other industries, Indigenous representation is consistently high across most occupations and occupational categories. In particular, the presence of Indigenous workers in production and technical occupations in mining far exceeds other industries.
- **Occupational mix could be improved:** Within the mining sector, Indigenous workers tend to be employed in production, trades, and support worker roles. Fewer are employed in occupations requiring more years of education and training, such as human resources and finance, and professional and physical science occupations. There are opportunities for Indigenous workers to improve their occupational mix and find upward mobility into higher-skilled and higher-paying positions.
- **Higher and more volatile unemployment:** Over the past five years, the unemployment rate for indigenous workers has been relatively higher than non-Indigenous workers across mining sub-sectors, likely resulting from the occupational mix and the types of roles that are common for Indigenous workers. Furthermore, the unemployment pattern for Indigenous workers tends to be more volatile compared to other workers.
- **In jobs requiring no formal education:** Educational attainment impacts the types of roles filled by Indigenous workers as well as their vertical mobility within mining companies. Compared to the non-Indigenous population, Indigenous workers are much more likely to have No certificate, diploma or degree or High school diploma or equivalency certificate. Consequently, a higher percentage of the Indigenous workforce is found in occupations that do not require formal training.
- **Labour pool size is the key constraint:** MiHR's LMA model results finds that, for most of the occupations analyzed, the key constraint is the size of the Indigenous labour pool. In these instances, even if the mining sector hired all available Indigenous workers, representation would remain low. For these occupations, a longer-term labour force development strategy is required to grow the labour pool to a sustainable size for all industries involved.

Conclusion

Diversity is important, not only from a social equality perspective, but also from a viewpoint of competitiveness, innovation, and productivity. More than ever, the mining industry is prioritizing equity and inclusion as a growing part of its human resources strategy moving forward.

This report examines the labour market characteristics of three critical equity deserving groups—women, immigrants, and Indigenous peoples. The analysis finds key disparities in labour outcomes among these groups, which have implications for the best approach to improving their outcomes in the coming years.

Women are nearly half of the labour force, yet women represent only 15% of the mining industry. This report finds that women are not entering several critical occupations, including those that would have a definite impact on their representation in the mining industry, such as many of the skilled trades occupations that the mining industry employs more heavily. This issue is not necessarily a mining one, as several competing industries are drawing from a labour pool that is simply too small.

Immigrants are a growing segment of the population, and leveraging their talents represents a potential solution for the mining industry to address its issues with labour imbalances and skills shortages. This report finds that immigrants can be found in fields of study and occupations that are highly relevant to the mining industry, yet they are not likely to work in the mining industry. Several factors, such as geographical barriers and lack of awareness may be preventing mining employers from capitalizing on this skilled labour pool to a greater degree.

Indigenous workers are well represented in the mining industry compared to other industries. Although their representation in the sector has been growing, educational attainment impacts the types of roles they hold as well as their vertical mobility within mining companies. This report finds that the depth of the labour pool will likely be a key constraint for the continual progress of Indigenous representation in the mining industry.

Appendices



Appendix A:

MiHR's Top 100 Mining-Centric Occupations

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
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
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.

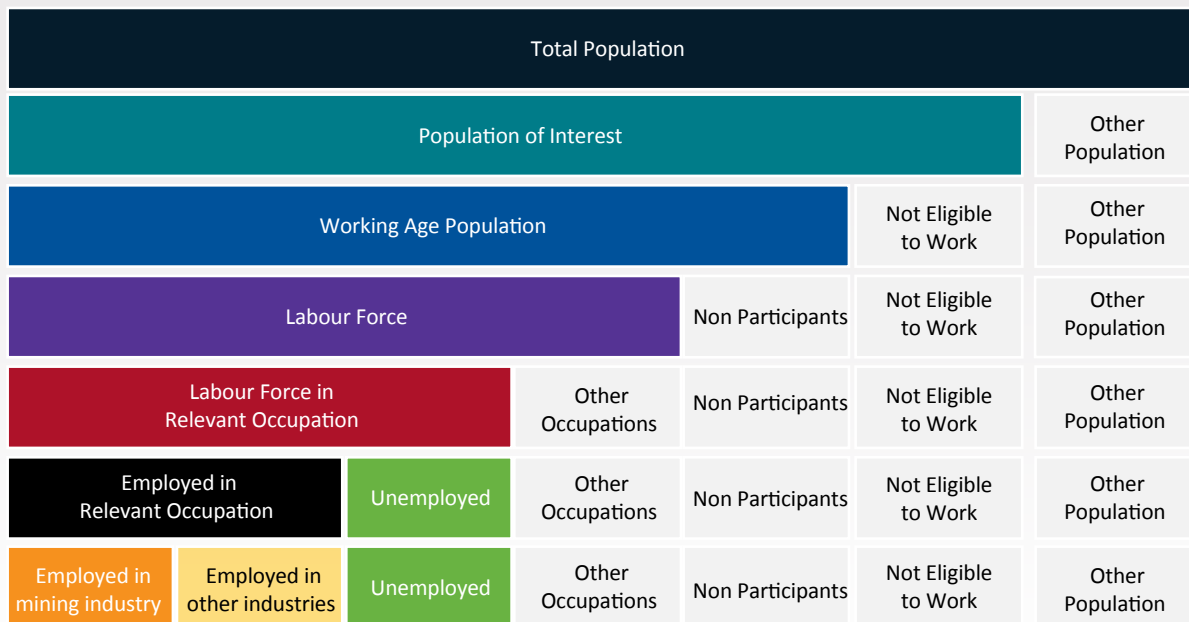
Appendix B: Methodology

MiHR’s Labour Market Analysis Framework

The Labour Market Analysis (LMA) framework is MiHR’s analytical model to understand how well the future labour supply can sufficiently sustain future labour demand in the mining industry. The LMA framework considers the entire population of Canada as a base, and rather than decisively excluding anyone from the potential labour pool, the framework selectively sorts individuals according to their “degree of attachment” to the mining industry’s relevant labour supply.

Figure B-1 deconstructs the complexity of the labour supply through successive levels of inquiry. As the analysis drills down layer by layer, a more detailed picture of the labour supply emerges.

FIGURE B-1 MIHR’S LABOUR MARKET ANALYSIS FRAMEWORK



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

This report analyzes equity deserving groups in the mining labour market over a 10-year time horizon (2023 – 2034), based on historical trends (2006 – 2022). The layers of the LMA framework are grouped into seven main topics that form the structure of the analysis:

Total Population: the analysis begins at the broadest level, the overall population of Canada, which is disaggregated into segments of increasing labour supply relevance. The population growth of projected years is based on historical population trends.

Population of Interest: the total population is sub-divided into population of interest (i.e., women, immigrants, Indigenous peoples). Future population growth is based on historical population trends of the sub-population of interest.

Working Age Population: the population of interest is further grouped into people of working age and those who are ineligible to work (i.e., under-age). Future working age population growth is based on historical population trends of the sub-population of interest.

Labour Force Participation: the working age population is then divided into labour force participants and non-participants. The “labour force” describes those who are potentially available for employment (including those who are employed and unemployed job seekers). The forecast assumes the labour force participation rate will revert to natural levels at the historical mean.

Labour Force in Relevant Occupations: the analysis then focusses on relevant occupations to develop an estimate of labour supply. The forecast assumes the share of the labour force in these select occupations will remain consistent with historical observations.

Employed and Unemployed in Relevant Occupations: the labour force is then divided into those who are employed and unemployed (i.e., actively looking for work). The forecast assumes the unemployment rate will revert to natural levels at the historical mean.

Employment and Labour Demand in Mining: the final layer of the framework compares the findings on Canada’s forecasted labour supply with the industry’s future employment requirements (i.e., labour demand).

LMA Model Objectives

The goal of this analysis is to assess the capacity of Canada’s labour supply to support diversity in the industry. MiHR’s model captures the primary factors that push and pull on the labour supply. For select occupations of interest, the analysis considers four key questions:

- What is the overall labour supply available in that occupation?
- What is the mining industry’s share of that labour pool?
- What is the mining industry’s required share to meet its labour demand?²³
- What is the LMA model’s expectation of employment outcomes for equity deserving groups, based on their current share of the labour pool?

As with most forecasting methods, MiHR’s LMA framework implicitly assumes that the future will resemble the past. While different scenarios capture some inherent uncertainties, there are still limitations to the projections presented in this report. The model does not account for unexpected or unpredictable events that may occur during the time horizon analyzed.

²³ The forecast of labour demand is based on MiHR’s latest labour demand forecast model. See MiHR’s [Canadian Mining Outlook \(2023\)](#).

LMA Model Key Assumptions

TABLE B-1 KEY ASSUMPTIONS FOR LABOUR MARKET ANALYSIS MODEL (WOMEN)

Key Variable	Assumptions Projected Year (2023 – 2034)
All Occupations	
Total population annual growth rate	1.02% CAGR ²⁴
Population of women annual growth rate	1.02% CAGR
Working age population annual growth rate	1.10% CAGR
Labour force participation rate	61.40% average
Labour demand annual growth rate	-0.50% CAGR
Geoscientists and oceanographers	
Share of labour force in occupation	0.03% average
Unemployment rate in occupation	8.16% average
Mining industry's share of those employed	25.70% average
Mining engineers	
Share of labour force in occupation	0.01% average
Unemployment rate in occupation	3.38% average
Mining industry's share of those employed	56.00% average
Geological and mineral technologists and technicians	
Share of labour force in occupation	0.03% average
Unemployment rate in occupation	10.50% average
Mining industry's share of those employed	38.80% average
Welders and related machine operators	
Share of labour force in occupation	0.05% average
Unemployment rate in occupation	11.90% average
Mining industry's share of those employed	2.60% average
Industrial electricians	
Share of labour force in occupation	0.01% average
Unemployment rate in occupation	11.01% average
Mining industry's share of those employed	14.50% average
Heavy-duty equipment mechanics	
Share of labour force in occupation	0.01% average
Unemployment rate in occupation	5.44% average
Mining industry's share of those employed	8.10% average
Heavy equipment operators	
Share of labour force in occupation	0.04% average
Unemployment rate in occupation	17.27% average
Mining industry's share of those employed	20.00% average
Underground production and development miners	
Share of labour force in occupation	0.01% average
Unemployment rate in occupation	8.75% average
Mining industry's share of those employed	78.00% average

Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry*, 2024; Statistics Canada, *Census of Population (Custom Data)*, 2011, 2016, 2021; Statistics Canada, *Labour Force Survey (Custom Data)*, 2006 – 2022; Statistics Canada, *Population Estimates (Historic and Projected)*, 2006 – 2034; Mining Industry Human Resources Council, *Canadian Mining Outlook Report*, 2023.

²⁴ Compound Annual Growth Rate (CAGR)

TABLE B-2 KEY ASSUMPTIONS FOR LABOUR MARKET ANALYSIS MODEL (IMMIGRANTS)

Key Variable	Assumptions Projected Year (2023 – 2034)
All Occupations	
Total population annual growth rate	1.02% CAGR
Immigrant population annual growth rate	-1.52% CAGR
Working age population annual growth rate	-1.46% CAGR
Labour force participation rate	62.17% average
Labour demand annual growth rate	-0.50% CAGR
Geoscientists and oceanographers	
Share of labour force in occupation	0.06% average
Unemployment rate in occupation	14.16% average
Mining industry's share of those employed	20.20% average
Mining engineers	
Share of labour force in occupation	0.02% average
Unemployment rate in occupation	7.37% average
Mining industry's share of those employed	41.60% average
Geological and mineral technologists and technicians	
Share of labour force in occupation	0.03% average
Unemployment rate in occupation	11.65% average
Mining industry's share of those employed	24.30% average
Welders and related machine operators	
Share of labour force in occupation	0.41% average
Unemployment rate in occupation	7.92% average
Mining industry's share of those employed	3.00% average
Industrial electricians	
Share of labour force in occupation	0.10% average
Unemployment rate in occupation	8.47% average
Mining industry's share of those employed	6.30% average
Heavy-duty equipment mechanics	
Share of labour force in occupation	0.09% average
Unemployment rate in occupation	4.77% average
Mining industry's share of those employed	5.30% average
Heavy equipment operators	
Share of labour force in occupation	0.12% average
Unemployment rate in occupation	12.81% average
Mining industry's share of those employed	6.90% average
Underground production and development miners	
Share of labour force in occupation	0.01% average
Unemployment rate in occupation	5.38% average
Mining industry's share of those employed	74.30% average

Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry, 2024*; Statistics Canada, *Census of Population (Custom Data)*, 2011, 2016, 2021; Statistics Canada, *Labour Force Survey (Custom Data)*, 2006 – 2022; Statistics Canada, *Population Estimates (Historic and Projected)*, 2006 – 2034; Mining Industry Human Resources Council, *Canadian Mining Outlook Report, 2023*.

TABLE B-3 KEY ASSUMPTIONS FOR LABOUR MARKET ANALYSIS MODEL (INDIGENOUS)

Key Variable	Assumptions Projected Year (2023 – 2034)
All Occupations	
Total population annual growth rate	1.02% CAGR
Indigenous population annual growth rate	2.06% CAGR
Working age population annual growth rate	2.25% CAGR
Labour force participation rate	61.91% average
Labour demand annual growth rate	-0.50% CAGR
Geoscientists and oceanographers	
Share of labour force in occupation	0.03% average
Unemployment rate in occupation	11.08% average
Mining industry's share of those employed	30.60% average
Mining engineers	
Share of labour force in occupation	0.01% average
Unemployment rate in occupation	3.04% average
Mining industry's share of those employed	60.00% average
Geological and mineral technologists and technicians	
Share of labour force in occupation	0.06% average
Unemployment rate in occupation	15.97% average
Mining industry's share of those employed	56.30% average
Welders and related machine operators	
Share of labour force in occupation	0.59% average
Unemployment rate in occupation	14.36% average
Mining industry's share of those employed	7.70% average
Industrial electricians	
Share of labour force in occupation	0.15% average
Unemployment rate in occupation	12.42% average
Mining industry's share of those employed	26.00% average
Heavy-duty equipment mechanics	
Share of labour force in occupation	0.33% average
Unemployment rate in occupation	8.37% average
Mining industry's share of those employed	14.60% average
Heavy equipment operators	
Share of labour force in occupation	1.23% average
Unemployment rate in occupation	20.49% average
Mining industry's share of those employed	15.40% average
Underground production and development miners	
Share of labour force in occupation	0.25% average
Unemployment rate in occupation	9.76% average
Mining industry's share of those employed	83.90% average

Source: Mining Industry Human Resources Council, *Equity Deserving Groups in Canada's Mining Industry*, 2024; Statistics Canada, *Census of Population (Custom Data)*, 2011, 2016, 2021; Statistics Canada, *Labour Force Survey (Custom Data)*, 2006 – 2022; Statistics Canada, *Population Estimates (Historic and Projected)*, 2006 – 2034; Mining Industry Human Resources Council, *Canadian Mining Outlook Report*, 2023.