Mining and Automotive Skills Alliance

Mining Workforce Insights Report 2026

Workforces in Transition

Acknowledgement of Country

We acknowledge the Traditional Custodians of the lands on which we live and work. We acknowledge Traditional Custodians of Country throughout Australia and their connections to land, sea and community.

We honour and respect their Elders, past and present, and extend that respect to all First Nations people.

Contents

CEO foreword

I am proud to present Mining and Automotive Skills Alliance's (AUSMASA's) *2026 Workforce Insights Report – Workforces in Transition*.

Building on our previous work, our 2026 report draws on extensive consultations, qualitative, and quantitative research to inform our work and research priorities. It delves into key trends driving the ebbs and flows within the Automotive and Mining workforces, electrification, licensing (including the need for national harmonisation), digitalisation, and the need for flexibility across skills, pathways, and career lifecycles.

Both industries are entering a period of profound transformation. The transition toward Net Zero emissions, rapid technological advancement, and evolving community and workforce expectations are fundamentally changing how work is performed, where it occurs, and the capabilities required to succeed. These changes present a significant opportunity, but also a risk if workforce systems, training arrangements, and policy settings do not evolve at the same pace as industry needs.

This year, AUSMASA has adopted a digital-first delivery model through the Research Hub on our website. This modular approach allows research findings to be released progressively, enabling ongoing engagement with stakeholders and ensuring insights remain timely, accessible, and actionable throughout the year rather than confined to a single publication cycle.

At its core, workforce planning is about partnership. The insights captured in this report reflect contributions from industry leaders, workers, unions, training providers, governments, and community representatives across Australia. Their perspectives ensure that this plan is grounded not only in data but in lived industry experience.

Our work is informed by the National Skills Agreement and aligns with various federal and state priorities and initiatives, including Closing the Gap, improving gender equity outcomes, the Critical Minerals Strategy, and the National Electric Vehicle Strategy. We also actively contribute to various policy conversations, providing direct input to work on the Migration Occupation Lists, Apprenticeship Priority Lists, and other reviews conducted by the Productivity Commission and the Australian Bureau of Statistics.

As the Jobs and Skills Council (JSC) for Mining and Automotive, AUSMASA's role is to act as a trusted steward, connecting industry voice with intelligence to enable evidence-based decision-making and policymaking. The opportunities outlined in this report are not owned by any single organisation; they require coordinated action across industry, education, and government. We welcome opportunities to collaborate and coordinate.

The transition underway is significant, but so too is Australia's capability to navigate it successfully. With collaboration, innovation, and a shared commitment to building skills, we can ensure that both industries continue to provide high-quality jobs, strong regional economies, and sustainable, inclusive growth for decades to come.

I extend my gratitude to our union, industry, government, and education partners. Your contributions are vital to our shared success. Our workforce planning outputs will serve as a valuable resource in our collective efforts to strengthen Australia's Mining and Automotive workforces for a sustainable, inclusive, and innovative future, as the industries transition into the industries of the future.

Dr. Gavin Lind,
Chief Executive Officer

Learn more about AUSMASA:

Executive summary

Mining

The Mining industry is an important employer in the economy, with a workforce well over 300,000 and one-fifth of that workforce is female. The industry has an **ageing** workforce, with the average worker aged 41, and fewer than 6% aged 24 or younger.[1]

Given the growing demand and importance of **critical minerals**, the industry is set to experience increased workforce demand and greater electrification (towards **Net Zero**). However, critical minerals and, by extension, their industry are harder to identify and track due to challenges with the Australian and New Zealand Standard Industrial Classification (ANZSIC) classification system. Growing electrification has also increased pressure from technological advancement, meaning there is a greater need for industry to source **higher-education**-aligned skills and fill increasingly **AI-augmented roles**, made even more challenging by **OEM-specific technology variations** and the increasing demand for digital and **diagnostic skills**. As electrification heads towards ubiquity, licensing and the need for national consistency will become an important conversation. The licensing landscape is complex, with overlapping federal and state regulations, standards, and licenses.

An increasing number of mines are approaching **closure, making rehabilitation** and **post-mining use** important aspects of **mine planning**. By extension, this also means more planning is needed throughout the skills lifecycle to ensure existing workers are appropriately transitioned, a task made challenging by the regional nature of mining activity.

The Mining industry is concentrated in the regions and, as such, faces **acute skills shortages** that are significantly greater than those in most industries. The **regional** nature of the industry also means that **workforce transitions** (from commodity to commodity or site to site) are not as straightforward as they would be elsewhere, often exacerbated by the higher incidence of **mental health** challenges. This places unique consideration on retention, attraction, and recruitment.

In the Vocational Education and Training (VET) ecosystem, the Resources and Infrastructure Industry (RII) training package sees lower enrolments often due to a misalignment between industry expectations and what the **national training ecosystem** can deliver. Combined with an ageing workforce, this means the sector must **expand entry pathways** for critical occupations and diversify its workforce to meet future demand.[2]

1 AUSMASA, "Workforce Data Dashboard", 2025.
2 CISCO, "Future of Australian Jobs Report", 2019. Cited in AUSMASA "Planning for success – adapting to transitions in the Mining industry", 2025.

About workforce planning

Workforce planning is the strategic centrepiece for AUSMASA and all JSC's. It informs all other functions by guiding the understanding of current and future workforce needs. This approach ensures that both industries and workers remain agile and responsive to changing conditions. By leveraging data, research, stakeholder input, and insights, workforce planning further helps to diagnose issues, anticipate trends, and identify opportunities for alignment and development across entire industries.

AUSMASA shares its workforce planning output in two ways:

- the annual workforce plans (now referred to as the Workforce Insights Report) and
- the monthly research bulletin.

The Bulletin, available via the Research section of the AUSMASA website, highlights key topics in the automotive and mining sectors and includes case studies, dashboards, fact sheets, and other state-of-the-industry snapshots.

Figure 1: Workforce planning cycle for Workforce Plan 2027

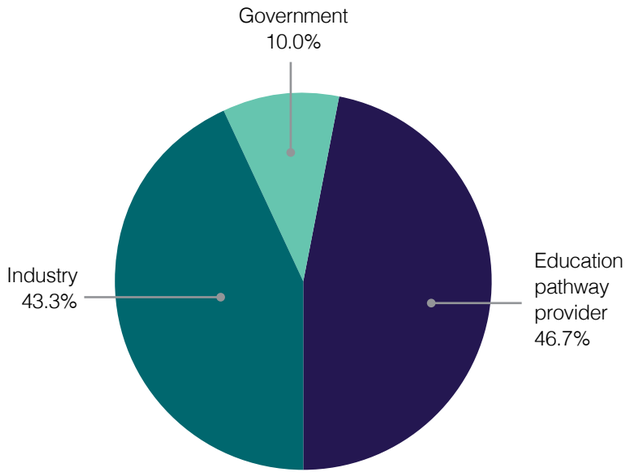
Workforce planning cycle	Intelligence gathering and research	Initial consultation	Targeted consultations	Collating, submission, publications, and launch	Implementation and monitoring
Timeline	Ongoing	Ongoing	September 2026 - February 2027	February 2027 - June 2027	Ongoing
What it involves?	• Stakeholder engagement and intelligence gathering • Ascertaining overlap with other federal/state bodies and JSCs • Establishing stakeholder needs and pain-points • Input from SWAPs to direct research and engagement • Update analysis and data dashboards	• Prepare Consultation Papers for stakeholder input • Establish key workforce challenges and industry level trends • Establish Prioritisation matrix and systematic approach to alleviating roadblocks	• 1:1s with industry stakeholders and SWAPs • 1:1s with industry stakeholders as identified by SWAPs • In-depth exploration of industry level trends and industry level challenges • Detailed mapping of workforce and appropriate pathways and solutions that align with industry needs	• Internal review for Workforce Plan • SWAP feedback on Workforce Plan • Final tweaks and design editing • Final 1:1s with SWAPs to tie off any pending action items • Submit Workforce Plan to DEWR and provide further information as needed	• Promotion, collaboration, and coordination across stakeholders to communicate Workforce Plan findings • Develop suitable industry-led solutions • Engage stakeholders to monitor the success of the development and implementation phases • Close off feedback loop and report on the success of above initiatives
Who do we talk to?	Strategic Workforce Advisory Panel (SWAP) | Employers | Individual Industry Association and Peak Bodies | Industry stakeholders | Pathway Providers (VET & Higher education)		Government | JSCs | Unions		
How do we communicate?	Meetings	Roundtables	Emails	Summits	LinkedIn Website Webinars Conferences

Our Workforce Planning and Policy team drives our data, workforce planning, policy, and research, and is part of our stewardship functions. It focuses its work on three core pillars: research, engagement, and amplification. Engagement with stakeholders to inform and direct research, and amplification to promote and activate the rigorous research that has been done. All three pillars are activated and implemented throughout the year to continuously direct and tighten the focus and impact of these functions (Figure 1).

Approach to consultation and key groups

Our 2026 workforce planning consultations spanned 4 in-person roundtables and one online roundtable across Darwin, Perth, Brisbane, and Melbourne. Across these, we undertook over 150 consultations and received over 100 written submissions. This included feedback from managers, directors, operational, and executive-level staff across training providers, government representatives, unions, industry groups, and peak bodies (Figure 2).

Figure 2: Type of stakeholders AUSMASA consulted for the Workforce Insights Report 2026



First Nations

AUSMASA is committed to advancing First Nations employment by working with industry to better understand and support the design and understanding of pre-employment and training programs tailored to First Nations communities. These programs are essential for fostering participation and success in the years ahead. AUSMASA will continue to research this space and further engage with First Nations organisations to better understand the nuances around the opportunity. We have outlined our planned First Nations consultation strategy and invite stakeholder feedback, including opportunities to collaborate (Figure 3).

Figure 3: First Nation's Consultation Plan

First Nation's Consultation Plan	Intelligence gathering	Consultation and engagement	Research	Amplification and Implementation
Timeline	Ongoing	April 2026 - Ongoing	June 2026 - Ongoing	February 2027 - Ongoing
What it involves?	• Scoping and designing engagement • Building relationships • Defining research, data, and communication protocols • Collating lists of relevant stakeholders Initiating contact	• Engage First Nations Advisory forums and advisory groups • Direct research efforts • Access and collate data sources • Engage with key stakeholders • Enable intelligence gathering channels • Enable ongoing intelligence gathering channels	• 1:1s with industry stakeholders and SWAPs • 1:1s with industry stakeholders • In-depth exploration of industry level trends and industry level challenges • Detailed mapping of workforce and appropriate pathways and solutions that align with industry needs • In-depth research and analysis	• Publish findings • Publish recommendations • Explore and coordinate implementation challenges • Amplify process improvements • Amplify system improvements • Impact tracking (including utilisation monitoring) • Coordinating intelligence
Who will we talk to?	Community led organisations | First Nations Peak Bodies | Indigenous Educators and RTOs		CoE for Indigenous Futures | Coalition of Peaks | JSA First Nations Cultural Advisory Panel	
How do we communicate?	Meetings	Roundtables	LinkedIn	Website	Webinars	Conferences
Considerations	Building trust | Engagement fatigue | Workplace barriers		Lack of data availability | Sustained engagement | Access challenges	

First Nations

First Nations people comprise 4.6% of the mining workforce, higher than the 2.6% average for all industries (Figure 4).[3] Mining consistently records higher First Nations participation than all other sectors, with sub-sectors such as Coal and Metal Ore Mining setting the benchmark at over 5% of First Nations workers (Table 1). This mainly points to the co-location of mines and the places where First Nations communities live, mostly in Queensland (QLD) and Western Australia (WA). In comparison, Automotive sits below the national average at 2%, and most First Nations workers in the Automotive industry work in the eastern states. First Nations workers are concentrated in core production roles, but they also hold notable positions in supervisory and technical roles.

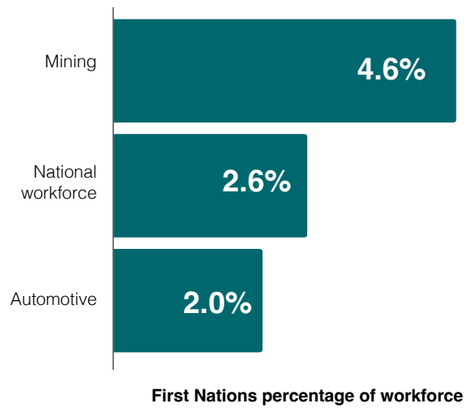
A significant proportion of First Nations workers in the mining sector is concentrated in Coal Mining and Metal Ore Mining, accounting for over 76.9% of all mining First Nations workers in these sub-sectors. Similarly, over half of all First Nations workers in the automotive sector work in repair and maintenance. At the same time, First Nations women's representation is relatively low in these sectors. First Nations women make up 27.6% of the total First Nations workforce in Oil & Gas on the mining side, and in Automotive Retail on the automotive side. There is an opportunity to improve First Nations female participation beyond these two sub-sectors.

First Nations Australians represent 12.3% of Mining apprentices and trainees, compared to the 6.1% average for all industries.[4] Across both enrolments and completions, RII consistently attracts greater numbers, largely due to the co-location factor mentioned above. First Nations enrolments in RII consisted of 7.6% of all enrolments and 9.8% of completions across 2015 to 2024. RII is structurally positioned as a stronger vocational pathway for First Nations learners (Figure(s) 5 & 6).

In contrast, the AUR and Automotive industry Manufacturing (AUM) pathways have lower participation from First Nations learners, with lower enrolments and completions, both in absolute terms and relative to non-First Nations learners, especially compared to the RII pathway. Although AUR's First Nations completions and enrolments are growing. AUM has low enrolments and completions and appears to be the least common entry pathway. AUR and RII training packages display stability in both enrolments and completions. The overall trend suggests a high level of engagement and follow-through for First Nations participants in automotive pathways, despite year-to-year variability in numbers.

The Automotive sector's relatively low First Nations participation suggests there may be structural or cultural barriers to access. There is scope to research employer recruitment and retention behaviours, apprenticeship availability and perception of trade pathways in First Nations communities. There may be an opportunity to scale growth in AUR enrolments and completions through targeted interventions, such as mentoring programs, community-based pre-training, and culturally responsive apprenticeship models.

Figure 4: Proportion of First Nations workforce by industry, 2021



Source: ABS Table Builder 2021 Census—employment, income, and education.
Note: The proportion of the Automotive industry has been calculated by averaging the 3-digit ANZSIC groups covering the industry.

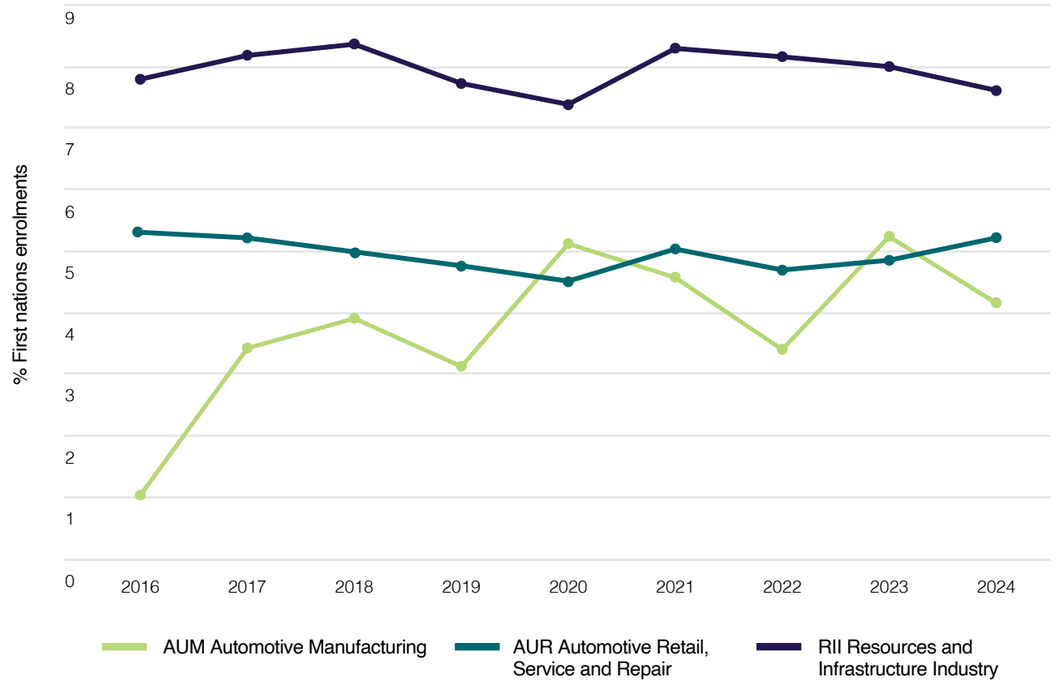
Table 1: Percentage of First Nations employees by sub-industry, 2021

Sub-industry	First Nations percentage of total workforce	Female proportion of First Nations workforce
Coal Mining	5.5%	20.9%
Oil and Gas Extraction	3.2%	27.6%
Metal Ore Mining	5.2%	23.2%
Non-Metallic Mineral Mining and Quarrying	3.8%	16.4%
Exploration and Other Mining Support Services	2.6%	16.5%
Mining total	**4.6%**	**21.8%**
Automotive Repair and Maintenance	2.3%	12.4%
Motor Vehicle Parts and Tyre Retailing	2.3%	29.7%
Motor Vehicle Retailing	1.6%	27.4%
Motor Vehicle and Motor Vehicle Parts Wholesaling	1.5%	16.2%
Motor Vehicle and Motor Vehicle Part Manufacturing	1.4%	11.5%
Automotive total	2.0%	16.8%
National workforce	**2.6%**	—

Source: Australian Bureau of Statistics, 2021 Census; Indigenous Employment by Industry, 2023.

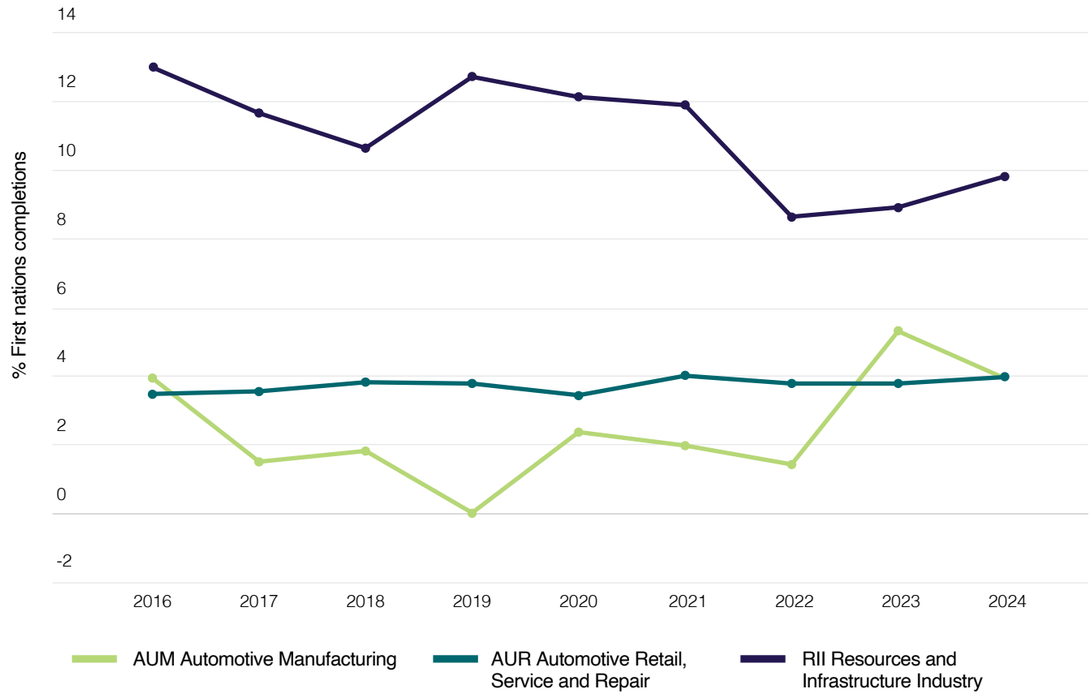
[3] Australian Bureau of Statistics, "2021 Census - DataBuilder - Indigenous Employment by Industry", 2023.
[4] NNCVER, Apprentices and trainees 2023 - March quarter DataBuilder, Contract status, Employer industry 2-digit by Indigenous status, 2023..

Figure 5: Percentage of First Nations students enrolments for RII, AUR and AUM, 2016–2024



Source: NCVER VOCSTATS, "TVA program enrolments 2015-2024", 2025.

Figure 6: Percentage of First Nations students Completions for RII, AUR and AUM, 2016–2024



Source: NCVER VOCSTATS, "TVA program completions 2015-2024", 2025.

Key trends in the Mining industry

Australia's Mining industry is undergoing a structural transformation, shaped by shifting global demand, technological change, and evolving workforce expectations. Mining remains a cornerstone of the national economy and a major regional employer. The sector is increasingly transitioning towards critical minerals, automation, electrification, and low-emissions operations. Industry is responding to these underlying trends alongside demographic headwinds, regional constraints, evolving pathway needs, and additional constraints required across the life of a mine.

These trends are occurring alongside heightened expectations around environmental stewardship, community engagement, and long-term regional sustainability. As mines progress through development, operation, care and maintenance, and closure phases, workforce needs become more dynamic and increasingly interconnected with broader economic and social outcomes. At the same time, persistent skills shortages, misalignment of the training system, and evolving occupational profiles are placing pressure on employers seeking to attract, retain, and develop a future-ready workforce.

The following section outlines the key trends shaping Australia's Mining industry, highlighting the workforce, skills, and structural factors that will influence productivity, regional resilience, and the sector's ability to support emerging industries and the global energy transition.

Regions are key for the Mining workforce

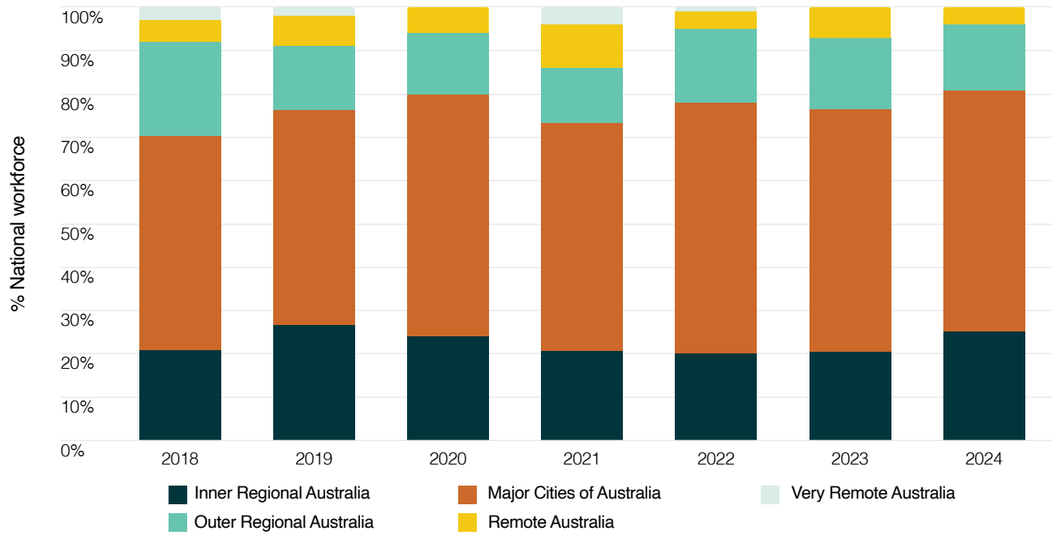
Tags: regional workforce, skills shortages, and education pathways

The majority of mining activity occurs in the regions. However, the regions face exacerbated challenges in retaining, attracting, and recruiting skilled workers (Figure M1). Supply constraints, such as inadequate levels of training services/facilities and trainers, are also amplified in the regions, with employers having to rely on in-house (enterprise) and other informal training to upskill workers. Geographic distance can also make it harder for workers to find adequate housing and services (hospitals, schools, etc.) in proximity. As a result, retention is more likely to be short-term.

This highlights the importance and implications for:

- **government:** coordinating regional education and training infrastructure and trainer capability
- **industry:** coordinating regional workforce strategies with government, including housing, community infrastructure, and local training partnerships
- **pathway providers:** developing flexible programs that allow workers to train while working in regional locations.

Figure M1: Mining workforce share by remoteness, 2018–2025



Source: Australian Bureau of Statistics, "Education and Work, Australia, Customised Table, May 2025", 2025.

There is strong and growing demand for higher education-aligned occupations

Tags: higher education, productivity, AI, education pathways, and critical minerals

A significant decline is projected in demand for several of Mining's larger occupations; however, jobs like Mining Engineers, Metallurgists, Geologists, and Geophysicists, which are less susceptible to automation, are projected to have growing demand (Figure M3).[5] With various universities having closed their Mining Engineering programs, the pipeline of qualified candidates for such occupations is expected to shrink.[6,7] Industry is calling for more flexibility in pathways and a culture of lifelong learning that allows individuals to adapt and grow.

The mining engineering occupation faces significant supply challenges that have wide-ranging impacts on the industry. Constricted talent pipelines can delay feasibility studies, mine planning, and operations, ultimately increasing costs, reducing productivity, and heightening safety risks. As experienced engineers retire, replacing them becomes increasingly difficult, posing challenges for technical expertise, leadership, and Australia's ability to scale up the clean energy sector, which relies on critical minerals such as lithium, copper, and rare earth elements.

These challenges are compounded by the limitations of the higher education ecosystem. Its relatively decentralised structure makes it difficult for academia to respond quickly to the cyclical nature of the Mining industry and to fluctuations in industry demand. Innovative and flexible training pathways will be required to maintain a reliable supply of skills. Flexible pathway solutions are needed that can be delivered by universities, RTOs, or employers, to provide a responsive, adaptable pipeline that aligns more closely with industry needs, and can reduce skills shortages, and support productivity outcomes.[8]

This highlights the importance and implications for:

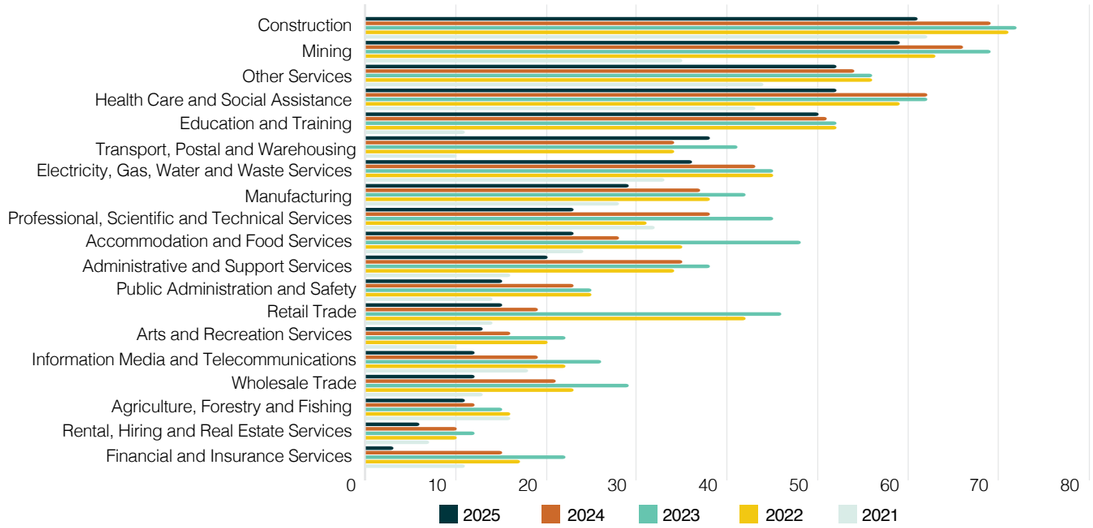
- **government:** coordinating improvements in aligning higher education policy and industry workforce needs
- **industry:** partnering with universities and training providers to rebuild pipelines in mining engineering and geosciences
- **pathway providers:** expanding stackable qualifications for emerging technical roles to anticipate industry needs
- **unions:** supporting professional development for workers transitioning into technical and supervisory roles.

Critical Minerals and Strategic Materials will shape the future of the industry

Tags: critical minerals, sovereign capability, renewables, and advanced materials

Demand for critical minerals and strategic materials is projected to grow in tandem with the growing needs of the Advanced Manufacturing, Space, MedTech, and Renewables industries. As a result, the critical minerals workforce in Australia is expected to increase by 8,900 jobs across 40 planned mining projects. The composition of the critical minerals workforce largely mirrors the Mining workforce, meaning the industry will face acute skills shortages.[9]

Figure M2: Workforce shortage (%), by industry, 2021–2025



Source: Jobs and Skills Australia, "Occupation Shortage | Jobs and Skills Australia", October 2025.
Note: The percentage is weighted by each occupation's employment within each industry, calculated by Jobs and Skills Australia.

5 AUSMASA, "Technological Advancement and the Evolution of Skills", 2025.
6 ABC News, "Federation University scraps one of Australia's oldest geology courses", 2025
7 Mining.com.au, "Mining talent crossroads: Geoscience "off student radars", 2025.
8 AUSMASA, "Restoring the higher education mining skills pipeline", 2026.
9 AUSMASA, "Planning for success – adapting to transitions in the Mining industry", 2025.

The cost of processing and beneficiation of critical minerals impacts their feasibility compared to other, more conventional minerals (iron ore, coal). Such disincentives will need to be addressed if the Mining industry is to meet growing demand for critical minerals and support growth in downstream industries. In conjunction with increased automation and electrification, the industry will also look to the higher education stream to supply a greater proportion of the workforce, including Mining Engineers, Geologists, and Geophysicists.[10]

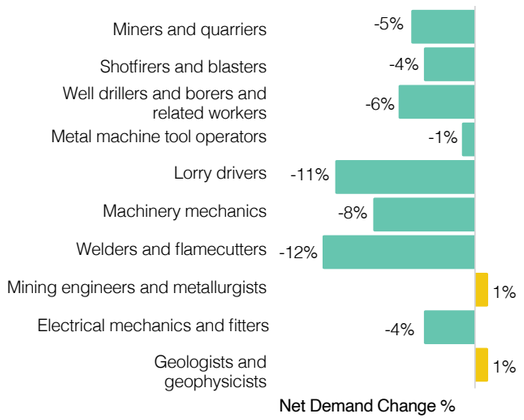
Critical minerals need a separate ANZSIC identifier

The lack of a separate ANZSIC category for critical minerals results in inconsistent data and reporting on the industries relevant to them. As a result, it is complicated to conduct accurate economic or econometric analysis of these industries and the effects of various government plans and initiatives. A separate category, either a class or a group, under the Mining ANZSIC Division B for critical minerals, is needed to enable this work.[11]

This highlights the importance and implications for:

- **government:** supporting workforce strategies aligned with critical minerals policy and industrial policy
- **government:** updating statistical classifications for critical minerals to improve labour market measurement
- **industry:** collaborating with downstream industries to build integrated supply chains and scale workforce planning activities
- **pathway providers:** strengthening STEM pipelines linked to emerging industries.

Figure M3: Net demand change for top 10 mining jobs, 2018–2028



Source: CISCO, "Future of Australian Jobs Report", 2019.

Skills supply has been constrained because of a potential misalignment between industry needs and the national training ecosystem

Tags: education pathways, training product maintenance, and productivity

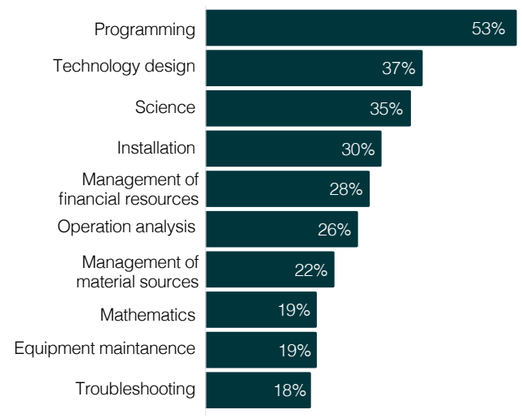
Mining has some of the most acute skills shortages in the country, with 68.5% growth in shortages between 2021 and 2025 (Figure M2), ranking third after the education and transport industries. The shared use of similar occupations across the construction industry heightens competition for workers with comparable skills, particularly as both the construction and mining sectors are expected to experience the most significant occupational shortages.[12]

These shortages are exacerbated because of misalignment between industry expectations and the national training package. High equipment costs and OEM-specific training requirements limit RTOs' ability to deliver at scale, slowing workforce supply.[13]

This highlights the importance and implications for:

- **government:** enabling collaboration and support for high-cost training infrastructure
- **industry:** supporting shared training infrastructure where equipment costs are prohibitive
- **pathway providers:** exploring shared equipment facilities and industry partnerships to reduce delivery costs.

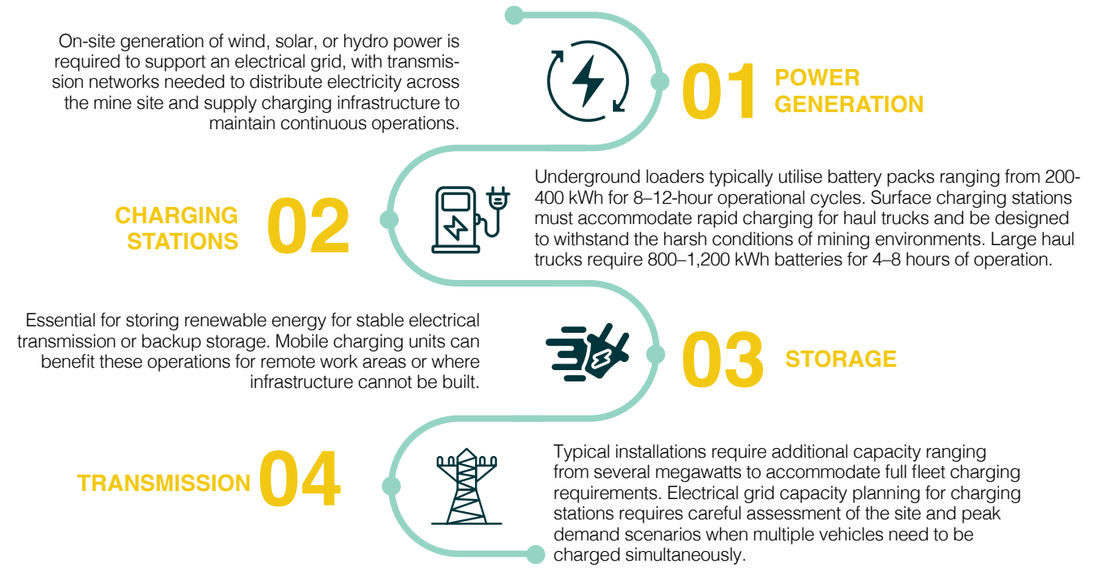
Figure M4: Top 10 skill gaps for new mining sector entrants 2019



Source: CISCO, "Future of Australian Jobs Report", 2019.

10 AUSMASA, "Planning for success – adapting to transitions in the Mining industry", 2025.
11 AUSMASA, "Critical Minerals in ANZSIC - Letter to the ABS", 2025.
12 Jobs and Skills Australia, "2025 OSL Additional Insights Report", 2025.
13 AUSMASA, "Skills shortages in Mining and the RII junction", 2025.

Figure M5: Infrastructure needed for an electrified mine site



Source: GMG, "Recommended Practices For Battery Electric Vehicles in Underground Mining", 2023.

Technological advancement in the industry has led to increased demand for digital and diagnostic skills

Tags: digitalisation, industry 4.0, and technological advancement

The current mining workforce faces significant skills challenges, with acute shortfalls among new entrants. Talent gaps are particularly pronounced for roles requiring programming, installation, mathematics, and troubleshooting, reflecting the increasing diagnostic demands of modern mining equipment, especially for autonomous and remote operations (Figure M4). These skills gaps, combined with safety concerns, risk-averse workplace cultures, and incompatible equipment standards, create barriers to adopting technology-driven practices and transitioning to low-emission operations.[14]

This highlights the importance and implications for:

- **government:** supporting the inclusion of digital skills development within vocational and higher education systems
- **industry:** strengthening digital capability across the workforce
- **pathway providers:** delivering stackable and modular training for such skills.

Electrification requires innovative solutions and consideration for micro-grids

Tags: decarbonisation, electrification, net zero, and battery innovation

Electrification is a key Net Zero and productivity lever for the Mining industry; it can deliver safety, cost, and emissions benefits. However, there are barriers around infrastructure, mine design, charging, and grid stability. Electrification requires a comprehensive set of solutions, including Net Zero applications, microgrids, and other renewable technologies, to ensure the transition reduces emissions rather than shifting them upstream/downstream (Figure M5). This move will require coordinated efforts and planning to ensure the skills ecosystem moves in tandem and serves as an enabler rather than a bottleneck.[15]

This highlights the importance and implications for:

- **government:** aligning energy policy, infrastructure planning, and workforce development
- **industry:** coordinating workforce solutions with upstream and downstream industries
- **unions:** supporting workforce transition pathways as energy systems change.

14 AUSMASA, "Technological Advancement and the Evolution of Skills", 2025.
15 AUSMASA, "Electrification in mining: Infrastructure, skills and the road to Net Zero", 2026.

Closure of mines requires specific skills, particularly in connection with land rehabilitation

Tags: circular economy, net zero, and education pathways

At present, 25.0% of mine sites in Australia are classified as being in care and maintenance, with 53.5% in WA.[16] Throughout its life, a mine will require varying combinations of skills, although there is considerable overlap; the volume of each skill can vary significantly at times.[17] There is a particular focus on skills relevant to project management, environmental management, planning, ecological rehabilitation, and community stakeholder engagement. Many of these roles are managerial, supervisory, or advisory. However, the care and maintenance stage does not always lead to closure. There are instances of mines being brought back into operation depending on commodity prices.

Significant research and stakeholder engagement are required to better understand industry and community needs regarding handover, land rehabilitation, and ecological preservation, particularly with a First Nations and community stewardship lens.

Tailings dam safety management is another aspect within mine closure planning. Tailings dams are a fundamental infrastructure component of mining operations, storing byproducts across the life of a mine. As more mines approach closure, the safe management, monitoring, and rehabilitation of tailings storage facilities is becoming increasingly consequential. Despite this, there are no nationally accredited units within the RII training package around safety management at the supervisory or governance/engineering tier.

This highlights the importance and implications for:

- **government:** supporting regional economic diversification programs
- **industry:** incorporating workforce transition planning into mine lifecycle management
- **unions:** supporting job transition, support and redeployment opportunities.

Succession planning has become key to unlocking ongoing economic stability

Tags: AI, management or supervision upskill, and productivity

The Mining industry confronts social and operational challenges as it navigates technological transformation. Job displacement and redundancies raise questions about maintaining a social licence to operate, with 44% of top global mining companies' executives identifying maintaining social licence as a top business risk.[18] Meeting community expectations while implementing automation, AI, and data-driven innovation requires stronger collaboration between industry and pathway providers, investment in future-ready workforce skills, and shared infrastructure. Overcoming these barriers is critical to unlocking productivity, supporting regional communities, and maintaining the sector's position as a global leader in sustainable, technologically advanced mining.[19]

Without transition strategies, communities risk unemployment, underutilisation of skills, and economic downturns, as other local industries are often unable to absorb displaced workers. These issues are particularly acute in tight labour markets already facing skills shortages, limiting productivity and regional economic resilience. Policy and skills gaps further exacerbate the problem, leaving both industry and communities exposed to unintended negative consequences. Succession planning can help alleviate some of these challenges.

This highlights the importance and implications for:

- **government:** improving and enabling coordination between industry, workforce, and regional development strategies
- **industry:** developing long-term workforce succession planning across mine lifecycle stages through engagement with regional and co-located communities
- **unions:** supporting communities affected by automation and mine closures.

[16] Geoscience, "Australian Operating Mines Map 2024", 2024.
[17] AUSMASA, "Planning for success – adapting to transitions in the Mining industry", 2025.
[18] Mining.com, "Miners rate social licence, climate change as top concerns. Really?", 2019.
[19] AUSMASA, "Technological Advancement and the Evolution of Skills", 2025.

Mental health remains a key challenge for the industry

Tags: safety, productivity, and management

The incidence of mental health has increased in the Mining industry (+9ppt in the decade up to 2023) (Figure M6). The nature of mining, particularly fly-in, fly-out (FIFO) work, is defined by long working hours, physical strain, isolation, and high-pressure environments. Such factors continue to impact mental health due to extended periods away from loved ones, social disconnection and limited downtime.

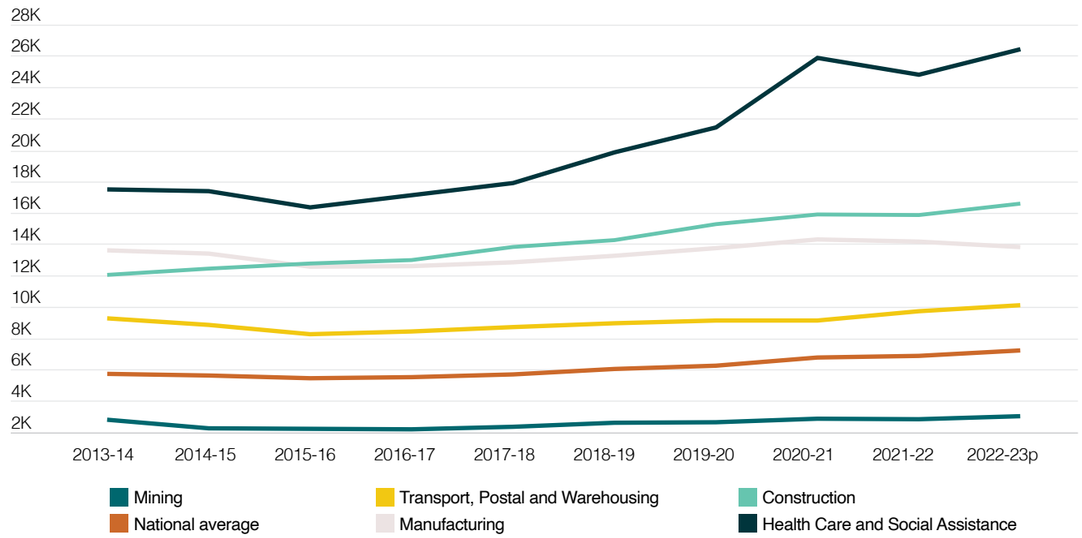
Workplace stress has been indirectly linked to employee health and self-harm, as it often contributes to negative health behaviours such as smoking, poor diet, lack of physical activity, and alcohol consumption. Individuals facing mental health challenges may experience reduced attention, difficulty focusing on tasks, and fatigue, all of which contribute to decreased performance and increased time off work.[20] This, in turn, affects the productivity of the workforce and the industry.

It is harder for employers to recruit, attract, and retain a skilled workforce due to perception challenges and a lack of awareness about the industry amongst younger workers, challenges compounded by FIFO work lifestyles.

This highlights the importance and implications for:

- **government:** supporting research and prevention initiatives targeting high-risk occupations
- **industry:** establishing mental health support programs and enabling workplace culture improvements.

Figure M6: Mental health-related compensations across industries, 2013–2023



Source: SafeWork, "Workers' compensation", 2023.

[20] AUSMASA," Mental health in the Mining industry", Upcoming Publication.

Gender representation in the Mining industry

In recent years, the Mining industry has seen gradual increases in female workforce participation, with a range of employer initiatives and government policies promoting a better gender balance, alongside workplace changes to attract more diverse workforces (Figure M7). Some educational programs and scholarships for women and non-binary people in Science, Technology, Engineering, and Mathematics (STEM) fields, like the Australian Academy of Technological Sciences & Engineering's (ATSE) Elevate program, have played a key role in fostering this.[21] Such programs can provide scholarships, mentoring, and leadership opportunities to help close gender gaps. Further, employer-led initiatives, such as a focus on more flexible parental leave and work options, have also assisted. For example, BHP's targeted efforts have seen women's representation in their workforce rise to 37%.[22]

The age distribution of the industry's workforce may also reflect gender-related trends. In 2023, male employment was highest in the 35–44-year age range, while for females it was in the 25–34-year age range – suggesting more recent increases in younger women's workforce representation, which is both positive but may also reflect gendered issues like unpaid caregiving and other responsibilities later in life.[23] The Mining industry also remains predominantly male across key occupations. For example, the Drillers, Miners and Shot Firers occupation included 51,600 males and 6,700 females, while Metal Fitters and Machinists had 27,400 males and 1,600 females.[24]

Some occupations have seen growth in female employment, however. 1,200 women became Drillers, Miners and Shot Firers between 2016 and 2021, while 1,000 became Other Building and Engineering Technicians.[25] Industry-wide efforts, like AusIMM's Women in Mining Network also further these outcomes.[26] Such initiatives, alongside employer-specific programs and flexibility, like those offered by BHP, look to be helping to improve gender diversity.[27] Consequently, while the industry remains largely male-dominated, key peak bodies and employers are charting a course towards higher workforce participation and more leadership opportunities for women.

Sector-level trends

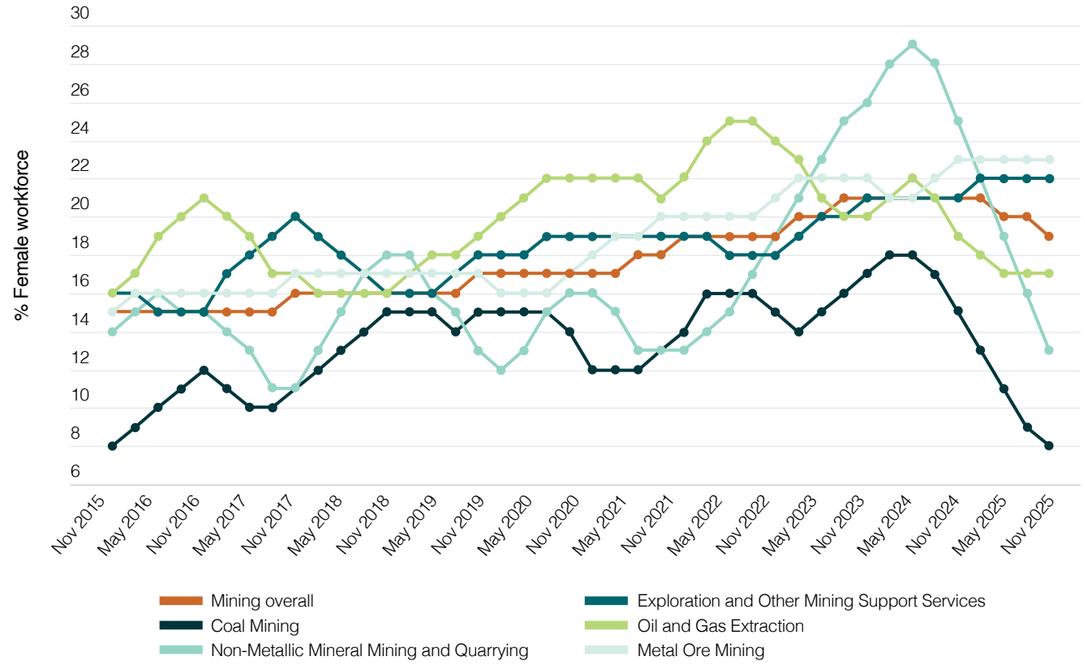
All sectors of the Mining industry have experienced increases in the number of female workers, leading to a gradual shift towards improved gender representation:[28]

- **Metal Ore Mining**'s share of female workers rose from 15.5% in August 2015 to 22.8% in November 2025.
- **Coal Mining**'s proportion of female workers fluctuated but also increased, from a baseline of 8.2% in August 2015 to almost 18.3% by May 2024. However, it fell back to 7.8% in the latest quarter, November 2025.
- **Non-Metallic Mineral Mining and Quarrying** sector experienced fluctuation over a decade in female representation. It increased from 14.1% to 28.6% by May 2024 and then fell back to 13.3% in November 2025.
- **Exploration and Other Mining support Services** had gains in female workforce representation from 16.2% in August 2015 to 22.3% in November 2025.
- **Oil and Gas Extraction**'s female representation fluctuated over time, increasing from 16.2% in August 2015 to a peak of 25.1% in August 2022 before declining to 16.5% in November 2025.

Taken together, these trends suggest that three of the Mining industry's core sectors have made gradual and, at times, swift steps towards a more diversified workforce.

21 Department of Industry, Science and Resources, "256 STEM scholarships for women and non-binary people in STEM", 2024.
22 BHP, "Inclusion and diversity", 2025.
23 Chief Executive Women, "Addressing Australia's Critical Skill Shortages: Unlocking Women's Economic Participation", 2022.
24 AUSMASA, "Gender Representation", 2025.
25 AUSMASA, "Gender Representation", 2025.
26 AUSMASA, "Gender Representation", 2025.
27 AUSMASA, "Gender Representation", 2025.
28 Labour Force, Australia, Detailed, November 2025; Trended by AUSMASA.

Figure M7: Proportion of female workforce, 2015–2025



Source: ABS, Labour Force, Australia, Detailed, 2025; Trended by AUSMASA.

The way forward

This section highlights opportunities for stakeholders to advance outcomes for the industries in our remit. These are based on opportunities identified through our research. These opportunities are not owned by any single organisation; they require coordinated action across industry, education, and government. We welcome opportunities to collaborate and coordinate. This is only a sample; our whole library is available through our research publications.

Mining	Priority Type		
Industry	**Core**	**Emerging**	**Risk-associated**
Community engagement and responsible transitions:			
Embed social licence considerations into business decisions, particularly around worker displacement during technological transition.	✓	✓	✓
Collaborate with communities, employees, and governments for region-specific planning for mine closure and critical minerals transitions.	✓	✓	✓
Participate in workforce transition programs, supporting employees through regional and economic transitions, especially post-mine closure.	✓		✓
Workforce development and career pathways:			
Provide mentoring, succession planning, formal recognition of skills, and improved visibility of career pathways to support future workforce development.	✓		
Implement phased technology rollouts to manage training demands and safety risks.			✓
Promote lifelong learning, including modular pathways, to support continuous upskilling across the mining lifecycle.	✓		
Government			
Innovation:			
Incentivise R&D in electrification, automation, and AI, and support regional training expansion and Net Zero priorities.		✓	
Expand VET–Higher Education collaboration to build pathways into data analytics, mechatronics, and AI systems.		✓	
Policy and funding for inclusive transitions:			
Align policies to enable career transitions across sub-industries within mining, such as the Coal-to-Critical Minerals workforce transitions, including transferable skills and accredited pathway reforms.	✓		✓
Provide industry-aligned funding and support for higher education to improve the diversity of the workforce and support for at-risk cohorts.	✓		
Research Priorities			
Workforce Transitions:			
Conduct stakeholder engagement to better understand mine closures, rehabilitation processes, coordination requirements, and local community needs.		✓	
Strengthen research–industry–university links to support knowledge transfer and keep academic capability aligned with industry demand.	✓		
Future workforce demands:			
Map workforce demand, transferable skills, and emerging skill needs across the minerals sector and mine life stages.	✓		
Undertake training product gap analyses to determine whether the VET system and national curriculum are aligned with emerging and future workforce needs, especially in rehabilitation and new technology environments.		✓	
Analyse factors influencing mining engineer attraction and retention, including student and educator experience.	✓	✓	
People, skills & partnerships			
Workforce diversity and flexibility:			
Increase participation of women and First Nations peoples to reduce vulnerability to skills shortages.	✓		✓
Build a more flexible, diverse workforce by encouraging pathways to promote modular learning, and employment-based learning for specialists like geologists, mining engineers, metallurgists, etc.	✓		
Improve attraction, recruitment, and retention of mining engineers through research into lived experiences and workforce perceptions.		✓	
Upskilling for emerging technologies:			
Support upskilling in new and emerging technologies, including electrification, automation, VR/AR tools, and AI-enabled training.		✓	

Data methodology

Explanatory notes to workforce demographic and occupational insights

AUSMASA's workforce analysis is based on the 2 key government classification systems: ANZSIC and ANZSCO.

- ANZSIC (Australian and New Zealand Standard Industrial Classification) classifies businesses into industry sectors based on their primary activities.
- ANZSCO (Australian and New Zealand Standard Classification of Occupations) categories all occupations and jobs using the skill-based classification.[29]

Trending methodology for employment data

The total workforce numbers are calculated by aggregating the workforce numbers of ANZSIC 3-digit groups from the Australian Bureau Statistics' (ABS) quarterly Labour Force Survey (LFS). The workforce numbers have been seasonally adjusted using the 13-term Henderson filter moving averages.

Defining the State of Industry

Sub-industries within the State of Industry section are classified using ANZSIC and, ANZSCO. In cases where these frameworks do not fully capture the characteristics of specific industries, additional economic activity indicators are applied to ensure appropriate classification.

The table below outlines the scope and definitions of each industry included in the analysis.

State of Industry sub-section	Scope
Mining	ANZSIC - Main Division B Mining
Coal Mining	ANZSIC – Subdivision 06 Coal Mining
Oil and Gas Extraction	ANZSIC – Subdivision 07 Oil and Gas Extraction
Metal Ore Mining	ANZSIC – Subdivision 08 Metal Ore Mining
Quarrying	ANZSIC – Subdivision 09 Non-Metallic Mineral Mining and Quarrying
Exploration and Other Mining Support Services	ANZSIC – Subdivision 10 Exploration and Other Mining Support Services
Drilling	There is no dedicated ANZSIC classification for the drilling sector. Employment estimates therefore draw on relevant occupations (712211 Drillers, 821912 Drillers Assistants, and Drillers, Miners, and Shot Firers not further defined under ANZSCO), as well as support workers associated with active rigs.[30]
METS	There is no dedicated ANZSIC classification for the METS sector. Our approach to defining the METS sector uses ABS Input–Output (IO) tables to track sub-industry inputs and outputs, identifying industries associated with METS. Employment is estimated by applying relevant proportions (e.g. 95% for Exploration and Mining Support Services in FY23) to workforce data in each IO category. As individuals may work across multiple industries, these figures represent an upper bound of the workforce, reflecting roles rather than distinct workers. ABS data are available for FY13 and FY19 to FY23. FY13 is used as a baseline to assess long-term and recent trends. FTE roles are calculated as full-time plus 50% of part-time roles, with trends largely driven by full-time employment.
Automotive	ANZSIC Subdivision 35, 39, Group 231, and 941
Automotive Manufacturing	ANZSIC – Group 231 Motor Vehicle and Motor Vehicle Part Manufacturing
Automotive Wholesale and Retail	ANZSIC – Subdivision 35 Motor Vehicle and Motor Vehicle Parts Wholesaling, 39 Motor Vehicle and Motor Vehicle Parts Retailing
Automotive Repair and Maintenance	ANZSIC – Group 941 Automotive Repair and Maintenance
Heavy Automotive	There is no dedicated ANZSIC classification for the Heavy Automotive sector. Instead, it spans relevant occupations across manufacturing, repair and maintenance, and transport. Employment figures presented in this section are based on the HVIA's estimates.[31]
Collision Repair	There is no dedicated ANZSIC classification for the Collision Repair sec-tor. Employment numbers are based on Australasian Paint & Panel's estimates. The collision rates shown are calculated per 10,000 residents to allow comparison between states and territories of different population sizes.
Marine	There is no dedicated ANZSIC classification for the Marine sector. Em-ployment estimates of the key occupations Boat Builder and Repairer (399111), Shipwright (399112), Marine Surveyors (231215), Marine Transport Professionals (231299), Ship's Engineer (231212), Vehicle Body Builder (324211), Vehicle Trimmer (324212), Motor Mechanic (General) (321211) are based on ABS Census 2021 data. As the Marine Automotive industry intersects with other industries, including marine, automotive, and fishing sectors, we are unable to identify the exact employment numbers within the Marine Automotive industry. Our remit is limited to the Automotive aspects of the industry.
Bicycles	There is no dedicated ANZSIC classification for the Bicycles sector. Employment numbers are based on the ABS Census 2021 figure for Bicycle Mechanics.

[29] We will work with ABS to transition our occupation classification references to OSCA as OSCA becomes more widely adopted and integrated to other ABS products. Please find more information on OSCA as it relates to AUSMASA here: OSCA Update | Mining and Automotive Skills Alliance (https://ausmasa.org.au/news-and-events/osca-update/)

[30] ADIA, "Economic Impact of Drilling in Australia", 2025.

[31] HVIA, "Industry At A Glance", 2026.

Mining and Automotive
Skills Alliance