MINERALS COUNCIL OF AUSTRALIA
SUBMISSION TO THE JOBS AND SKILLS AUSTRALIA BILLS

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1. EXECUTIVE SUMMARY

Addressing skills and labour shortages is a global challenge. As the nation navigates the economic recovery of the COVID-19 pandemic and impacts of low productivity growth, fortifying the integrity and stability of Australia’s skills and training sector is an important foundation, and continued priority for the minerals industry.

The Minerals Council of Australia (MCA) commends the government on prioritising the election commitment to establish Jobs and Skills Australia as an independent body that will significantly contribute to a strengthened Australian skills and training sector.

Acknowledging the legislation replaces the existing National Skills Commissioner, the MCA supports the Jobs and Skills Bill 2022 and welcomes the more detailed functions outlined for Jobs and Skills Australia, including the:

- Scope of advice in relation labour market needs and priorities; current emerging and future skills and training needs and priorities; and the adequacy of the system for providing vocational education and training (VET)
- Focus on workforce planning, including emerging and growing industries and occupations, and cross industry workforce analysis
- Introduction of research and analysis on the resourcing and funding requirements for registered training organisations to deliver accessible quality VET courses
- Inclusion of consultation and collaboration with key stakeholders (employers, training providers, industry, State and Territory governments, unions etc.) in the performance of those functions.

In addition to supporting the introduction of Jobs and Skills Australia, this submission seeks to:

- Provide key background information on the Australian mining workforce (skills and labour shortages, investment in skills, future skills requirement, and emerging occupations)
- Highlight the functions that industry believes are core to strengthening the skills and training landscape and driving greater alignment between employer needs and VET outcomes.

Mining in Australia is a sophisticated and technologically advanced enterprise that requires a highly skilled and adaptable workforce. Mining represents 10 per cent of the Australian economy, pays one-third of company taxes and directly employs more than 274,000 people in secure high paid jobs.

The MCA has a comprehensive understanding of critical skills and labour shortages as well as new occupations in the Australian mining industry.

Due to a range of factors, the Australian mining industry is facing a number of acute skills shortages in essential, non-substitutable occupations. These include mining engineers, metallurgists, geologists, mine surveyors, electricians, diesel fitters, and drillers. Their acute shortage is increasing cost, delaying projects and reducing production.

Technological innovation continues to change the nature of work in mining and shape skills requirements. Already it is driving improvements across the mining lifecycle from exploration, development and operations to closure and rehabilitation, through to supply chains. This has resulted in both changing and new occupations, requiring workforce training and skills development.

Central to this is workforce planning and understanding the broader employment landscape, including emerging occupations, identifying priority areas for skilling and upskilling related to technological advances to ready the current and future workforce for these opportunities.
Delivering an outcomes-focused skills and training system, driven through tripartite cooperation that includes robust, reliable and regular data, is critical to meeting the skills needs of the sector, especially as specialist skills associated with innovation and technology adoption increase.

In this context, it is vital that, in executing its functions, Jobs and Skills Australia leverages the experience and expertise of key stakeholders, builds on the existing strengths/addresses weaknesses within the skills and training system, and is decisive in the provision of advice to government.

**Recommendations**

This submission includes the following recommendations for consideration:

- Mining be a priority industry for workforce planning
- Cross industry workforce analysis of mining, oil and gas, manufacturing, defence industry, construction and professional and scientific services
- Established data sets remain a feature of the new system
- Provision of advice on VET efficient pricing and the public and private return on government investment in VET qualifications included within the scope of functions
- Transparency and clear processes around stakeholder consultation and collaboration.
2. AUSTRALIA’S MINING WORKFORCE

Today, the direct workforce of Australian mining is at record levels – employing more than 274,000 people. Around one in every ten Australian jobs is supported by the broader mining and mining equipment, technology and services sector.

These jobs are high skilled, highly paid and secure.

Since 2011, 54,000 jobs have been added to the workforce. The projections by the National Skills Commission indicate this strong growth will continue, with an additional 16,000 jobs to be added over the five years to November 2026.\(^1\)

Around 70 per cent of these roles are located in regional areas, increasing the nation’s economic resilience. More than 73 per cent of mining the workforce has a qualification, making it a highly skilled industry.\(^2\)

In late 2020, the mining industry committed to create 5000 new apprenticeships as part of the COVID-19 economic recovery effort. The latest data released in March 2022 showed the industry had met and beaten this commitment – 6700 new apprenticeships and traineeships were created in the period from December 2020 to September 2021.\(^3\)

Preparing for a career in mining

Launched in 2020, the BHP’s FutureFit Academy is part of a new national training program designed to bolster Australia’s skills base and create new career pathways into the mining sector. Offering an innovative approach to training, the Academy’s fit-for-purpose maintenance training programs are run in dedicated learning centres in Perth, Western Australia, and Mackay in Queensland.

In FY2021, the Academy welcomed over 500 apprentices and trainees, with strong demand for future intakes, and deployed the first graduates to permanent jobs across BHP’s Australian operations.

Students of the Academy earn a salary while they are studying. The purpose-built learning centres feature the latest immersive virtual reality technology combined with workshop learning designed to provide students with the training they need to competently and safely carry out their work in field.

The Academy has two training options offering nationally-recognised certification:

- **Maintenance traineeship** – a 12-month Certificate II in Engineering – Production Technology, focused on preventative maintenance
- **Trade apprenticeship** – a two-year program offering a full-trade qualification and the skills to perform preventative maintenance, diagnostics and repairs

Academy programs are nationally accredited, and supported by BHP’s partnerships with Central Queensland University Australia and North Metropolitan TAFE, Western Australia.

In addition to training more of our own workers, the mining industry has increased efforts to attract and retain talent. In December 2021, the MCA launched mining’s first Industry of Choice Framework. The Framework will help achieve the MCA’s objective to position mining as an attractive industry for the broadest possible pool of talent. Major progress has already been made in improving women’s participation in mining; the Framework will help supercharge industry efforts to create inclusive workplaces that support diversity.

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3 MCA analysis of National Centre for Vocational Education Research, *VET statistics*, viewed 21 October 2021
In line with the industry’s commitment to support wealth development for First Nations people, 10 per cent of the apprentices identify as being Aboriginal or Torres Strait Islander peoples. This is in addition to the 18 per cent of Indigenous men employed by the mining industry in remote areas.

Recently, the Government’s Workplace Gender Equality Agency acknowledged the mining industry is leading the way and driving change in terms of gender equality best practice – this leadership is underpinned by mining’s systems approach.

In the last 15 years, the industry has seen a fivefold increase in the number of female managers in the mining industry, from just over 1,000 to more than 5,000 today. There has been an increase of over 200 per cent in women in technical and trade roles, and almost a 400 per cent increase in women in operator roles. Today, our workforce is now 21 per cent women and the industry continually strives to achieve a gender balance.

Miners make good allies at work

Mining companies are active allies of LGBTIQA+ employees with a raft of workplace programs to support a safe and inclusive work environment.

Newmont was recognised for its inclusion and diversity policies in 2020, named one of the best places to work for LGBTIQA+ equality by the Human Rights Campaign Foundation. Newmont wears its pride proudly – a rainbow truck tray is part of its commitment to increase visibility and inclusion of the LGBTIQA+ community.

At Thiess, a conversation between colleagues was the catalyst for Allies, an LGBTIQA+ pride network, which today has more than 180 members among its Australian and Chilean workforce.

A substantial growth in workforce size, combined with tightening of the labour market and a reduction in skilled migration has seen the mining industry experience acute skills shortages that are driving up costs and reducing production – this makes Australian mining relatively less competitive in the global market in which we operate.

The most critical professional roles for the mining industry are mining engineers, geotechnical engineers, metallurgists and geologists – particularly to meet the raw material challenge to achieve a global transition to net zero.

The National Skills Commission Skills Priority List 2021 forecast the following future demand for these occupations:

- Mining engineers – national shortage and forecast strong future demand
- Metallurgists – national shortage and forecast moderate future demand
- Geotechnical engineers – national shortage and forecast strong future demand
- Geologists – national shortage and forecast moderate future demand

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4 Ibid.
6 R Cassells and A Duncan, Gender Equity Insights 2021: Making it a priority, BCEC WGEA Gender Equity Series, Issue #6, March 2021, p 6 viewed 12 November 2021.
7 MCA analysis of Australian Bureau of Statistics, EQ09 - Employed persons by Industry division (ANZSIC) and Occupation major group (ANZSCO) of main job and Sex, August 1986 onwards, accessed on 2 June 2022.
8 Ibid.
9 Ibid.
11 Ibid.
12 Ibid.
13 Ibid.
Recent forecasts by PwC indicated demand for these critical roles would substantially increase over the next two decades to 2040:

- Mining engineers – increase by 21 per cent from 3,900 in 2020 to 4,732 in 2040
- Geotechnical engineers – increase by 21 per cent from 1,500 in 2020 to 1,820 in 2040
- Metallurgists – increase by 29 per cent from 960 in 2020 to 1,234 in 2040.\(^4\)

Member companies of the MCA also reported on critical occupations across operations. Noting the acute supply and demand gap, companies have identified that immediate, tripartite (industry, government and training provider) intervention is required to ensure that there is an accessible and sustainable pipeline of talent now and into the future.

The key occupations reported by industry (in order of priority) include:

- Mining engineers
- Metallurgists
- Geologists
- Electricians
- Mine surveyors
- Auto electricians
- Diesel Fitters
- Drillers, miners, shot firers.

Industry-led demand profiling and forecasts provide one (albeit important) layer of intelligence for workforce planning. The release of the 2021 Census Data on employment later this year will be another valuable input into understanding the broader employment landscape.

The value of the proposed independent workforce planning of Jobs and Skills Australia is the provision of research, data and analysis that is more comprehensive, and contributes to critical planning for the pipeline of skilled workers needed across Australia’s workforce.

**Recommendations**

Given the economic significance of mining, noting the ongoing efforts of industry to arrest chronic and emerging skills shortages and the rapid rate of growth across the industry, the MCA is requesting that mining be a priority industry for workforce planning. The MCA also recommends cross-industry workforce analysis of mining, oil and gas, manufacturing, defence industry, construction and professional and scientific services.

\(^{14}\) AusIMM, *A critical moment – the supply and demand of mining, metallurgical and geotechnical engineers in the Australian resources industry*, 2021.
3. COORDINATED INDUSTRY INVESTMENT IN SKILLS AND EDUCATION

Individual company commitments to investing in skills and education have been substantial – from school education programs to internships, apprenticeships and scholarships, as well as undergraduate and postgraduate sponsorships and programs. Through the MCA’s Mineral Tertiary Education Council (MTEC), the industry has collectively injected more than $65 million in skills and education programs since 2000.

The focus and strategy of MTEC has changed in response to industry needs and circumstance. However, there are a number of highly successful long-standing programs – these include:

- **The Indigenous Australian Engineering Schools program**
  A foundation sponsor, the MCA has supported the IAES for more than 20 years. The program exposes Indigenous secondary school students to engineering employment opportunities.
  The schools have seen incredible success – 98 per cent of students in the program complete their year 12 studies, with 25 per cent going on to study a STEM course at university.

- **The Metallurgical Education Partnership (MEP)**
  MEP is a partnership between the MCA, Curtin University, Murdoch University and the University of Queensland for collaborative teaching of the capstone metallurgical process and plant design course for fourth-year engineering undergraduate students.
  MEP produces 100 per cent of all four-year trained Australian extractive metallurgists.

- **The National Exploration Undercover School (NExUS)**
  Commencing in 2016, NExUS is a high quality finishing school for geologists that culminates into an intensive summer school with substantial fieldwork. The program also includes a RockStars geoscience and STEM outreach program to develop the pipeline of geologists.
  Graduates of the program are in strong demand from industry and 45 per cent of the summer school alumni are women.

Recently, a number of innovative pilot programs have also been supported by MTEC – these include:

- **The Mining Engineering Curriculum pilot**
  The MCA partnered with Curtin University to pilot a mining engineering curriculum update. The update incorporated industry changes due to innovation and technology, work-integrated-learning opportunities and industry placements for academics.
  The refreshed course has seen a 50 per cent increase in enrolments at Curtin University and is being rolled out to other universities.
  Successful elements of this pilot are being applied in two additional institutions as an extension of the program.

- **Foundations of Modern Mining microcredential program**
  The MCA partnered with Curtin University and the University of Queensland to develop a six-course [Foundations of Modern Mining](#) microcredential program that provides a professional certificate for graduates. Accessed by over 3,000 learners during the pilot phase, it is a self-paced program delivered fully online. The program provides pathways for those already in the industry and for people in allied industries.

In 2022, the MCA also started a multi-year campaign to promote the essential role of minerals and metals in everyday life and the highly skilled and rewarding careers on offer. As the campaign evolves, there will be an opportunity to showcase specific occupations and the education pathways for these occupations.
4. FUTURE SKILLS REQUIREMENTS AND EMERGING OCCUPATIONS

The Australian mining industry is rapidly undergoing a digital transformation that is enhancing existing and creating new occupations. Critically, this digital transformation is making mining safer, more productive and more sustainable. This means that Australian mining is better placed to maximise opportunities to provide the world with metals and minerals required to meet the raw material challenge and support the economic transition to net zero.

In 2019, the MCA released a landmark report by EY titled *Skills Map for the Future of Work*. The report provides a comprehensive examination of future skills and training and technology trends in the Australian minerals industry.

Key findings included:

- 77 per cent of jobs in Australian mining will be enhanced or redesigned due to technology within the next five years
- Productivity increases up to 23 per cent can be achieved with the rollout of new technologies
- An injection of up to $13 billion in workforce capability will be needed over the next decade
- Australian education and training systems need to be modernised to deliver higher certification and fit-for-purpose degrees.

While some roles will be replaced, many new highly skilled, highly paid roles are being created and other roles are being enhanced by technology. This technologically-advanced workforce is building new capabilities for Australia.

**Investing in future skills**

Rio Tinto launched Australia’s first accredited automation qualification in partnership with South Metropolitan TAFE and the WA Government in 2019.

The Certificate II looks at data driven processes in an autonomous workplace and the human-machine interface.

Technology is transforming mining skills with traditional mining trades increasingly incorporating elements of computing, and new career paths such as mechatronics and virtual reality advancing the digital ambitions of mining companies.

Some of the roles commensurate with the continued evolution of the sector that are emerging include Automation Engineers, Integrated Remote Operating Centre (IROC) Controllers, Port Controllers - Remote Operations, and Mine Controllers - Autonomous Mine Systems.

- The Automation Engineer contributes to the production, development and management of autonomous mobile and fleet systems in line with requirements
- The IROC Controller works remotely together with onsite operations teams and liaise with other controllers to optimise production at automated mine and/or port operations across the value chain
- The Operator – Port Control contributes to the controlling and monitoring of automated port operations (a higher skill level than the average Machine Operator occupation)
- The Operator – Mine Control contributes to the controlling and monitoring of automated mine operations and production (as above).

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As the global fight for talent exacerbates the already critical skills shortages Australia is experiencing across many sectors, promotion of career pathways and investment in education and skills related initiatives that drive the talent pipeline are essential.

To date, industry investment in a range of initiatives from promotion of the multitude of careers in mining and future skills mapping through to curriculum updates, development of new courses and innovative pilots has resulted in:

- Greater awareness of mining occupations
- Increased enrolments in programs that are pathways to occupations in mining
- Improved curricula aligned with future needs of industry
- More pathways to careers in mining.

### Data science reshaping career pathways

Big data is driving new occupations and skills development across the mining industry. Employees at South32’s silver and lead Cannington mine in Queensland are helping develop the next generation of scientists, engineers and coders.

The STEM4Schoolkids workshop at St Laurence’s College in Brisbane provides hands-on activities to demonstrate the role STEM plays in the minerals and energy sector. Data analysis and data and digital literacy are two of the fastest growing mining skill sets.

Mining companies will recruit thousands of data scientists over the next decade to support mining’s digital transformation.

Data scientists will work alongside geotechnical engineers, mining engineers, geologists, metallurgists and process technicians in the future workforce.

Through consultation with 93 member companies, which span the mining sector in terms of commodities and value chain members, the MCA identified that the slow recognition of new occupations under ANZSCO is an impediment to these skills initiatives.

Formal recognition of new and emerging occupations would:

- Enable accurate labour market data essential for workforce planning
- Promote career pathways
- Ensure skills and training package development and qualification recognition
- Ensure that skilled migration pathways which are occupation rather than skills based are included, excluding the Global Talent Visa Program.

As the global economy transitions to net zero, there will also be an increased demand for ‘green skills’ both at a specialist level and also to upskill existing professions – for example:

- Safety and sustainability practices
- Sustainable development planning
- General environmental knowledge, awareness and understanding
- Regulatory skills related to compliance, licensing and modelling
- Research and adaptive management skills for environmental planning.

As the demand for these skills will not be limited to the mining industry, this will place additional pressure to secure the talent pipeline.
5. PRIORITY AND SCOPE OF FUNCTIONS

Evidence based planning

As industry continues to navigate the ever-changing skills landscape, shaped by technological change and innovation, impacted by the global fight for talent – access to reliable, digestible and current data is critical to workforce planning.

Data enables industry to:

- Have greater insight into emerging trends
- Map pressure points across allied industries
- Target skills and training investment
- Work toward collaborative intra and inter-industry strategies that build the broader talent pool.

During its time operation, the National Skills Commissioner established or improved a number of key publications and data that industry both contribute to and actively use, including Employment Projections, Labour Market Updates and the Skills Priority List.

Whilst some of this data was available previously, there was a lack of consistency in the methodology, resulting in reduced confidence and application of the data. The bi-annual data collection for the Skills Priority List is an example of improved data collection, collation and analysis. Previously this data was coordinated through Skills Service Organisations, which may have resulted in variance of across industries – having a single coordination point improved transparency and consistency.

The MCA welcomes the continued provision of research, data and analysis to inform policies that boost workforce participation and views this as a priority function.

Introducing research and analysis on the resourcing and funding requirements for registered training organisations to deliver accessible quality VET courses is another positive step toward increasing confidence of learners and employers in the skills and training sector.

Recommendation

The MCA recommends that established data sets such as Employment Projections and Labour Market Updates remain a feature of the new system

Scope of advice

The Australian minerals industry spends more on training per employee than most industry sectors. In 2021, 40 per cent of mining employers used nationally accredited training (the third largest user) and 64 per cent used non-accredited training (the fourth largest).

Efficient pricing and return on investment are considerations that may influence perceptions of and confidence in the sector, as well as determine uptake and future investment.

Noting that provision of advice on VET efficient pricing and the public and private return on government investment in VET qualifications has not been included, the MCA anticipates that this would fall within the parameters of the new functions under ‘the adequacy of the Australian system for providing VET.’

Recommendation

The MCA recommends provision of advice on VET efficient pricing and the public and private return on government investment in VET qualifications, is included within the scope of functions of Jobs and Skills Australia, under ‘adequacy of the Australian system for providing VET.’

16 MCA, Submission to the expert review of Australia’s VET system, p. 3, 2019.
17 NCVER, Employers’ Use and Views of the Vocational Education and Training (VET) System, 26 October 2021.
Consultation

Ensuring that all relevant stakeholders are appropriately engaged, and consulted is vital to securing confidence in the system. Maintaining a strong connection point to industry is a vital mechanism for accessing real-time data, and understanding the evolution of occupations within the workplace, as well as how employers are navigating skills and labour shortages. Moreover, it drives greater alignment between employer needs and VET outcomes.

The MCA strongly supports the explicit inclusion of provisions for broad consultation with key stakeholders in the performance of functions. 18 However, a feature that has not been included is the ability for the Minister to establish Advisory Committees – a clear mechanism for the Minister to facilitate relevant stakeholder engagement and contribution as appropriate.

The governance framework and structures that support Jobs and Skills Australia will have an important role in ensuring that all relevant stakeholders are engaged and consulted and that there is transparency and clarity in processes implemented.

Recommendation

In implementing Jobs and Skills Australia, the MCA recommends transparency and clear processes are established around stakeholder consultation and collaboration.

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18 Key stakeholders include State and Territory governments; relevant authorities of State and Territory governments; and, employers, unions, training providers and other industry stakeholders, and other persons or bodies with an interest in the labour market, workforce skills or workforce training need.
6. CONCLUSION

The strength of Australia’s skills and training system directly affects, skills acquisition, worker choice and opportunity, workforce planning, sector evolution, and the successful introduction of emerging industries and occupations.

The industry is confident in the approach that government is taking to establishing Jobs and Skills Australia, with initial functions and structure for the organisation, as well as securing an interim director to commence critical work to:

- Support the initial framework (informed by outcomes from the Jobs and Skills summit)
- Facilitate consultation for the full range of functions, structure and governance arrangements to establish the permanent model.

The MCA strongly commends the Albanese Government for swiftly implementing this key election commitment and stands ready to work with federal and state governments, unions, education and training providers in implementing Jobs and Skills Australia, including its scope, structure and governance, as well as to contribute to broader sector reforms and priorities.