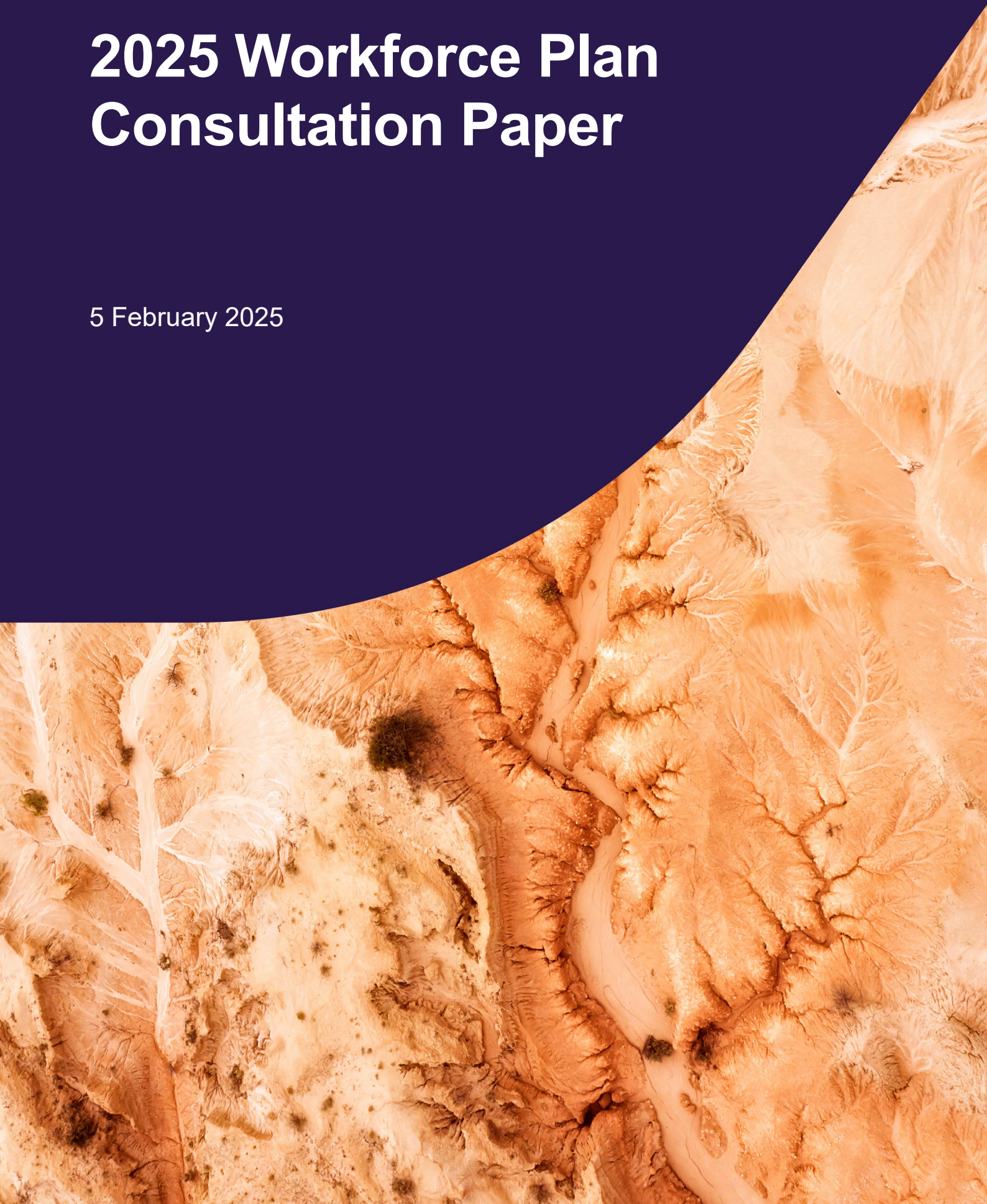
Mining and Automotive Skills Alliance

2025 Workforce Plan Consultation Paper

5 February 2025



Mining and Automotive Skills Alliance

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CEO foreword

I am proud to present AUSMASA's 2025 Workforce Plan – *Evolving Together*. This plan represents the next step in our journey to support Australia's mining and automotive industries. It focuses on developing an adaptable, future-ready workforce that is well-equipped to address emerging challenges.

Building on the foundation of our earlier plans, this year's theme, *Evolving Together*, reflects our commitment to collaboration and continuous innovation. Our initial workforce plan and the 2024 workforce plan focused on profiling industries within our remit, including an examination of their coverage and the strategic challenges surrounding those industries. The 2025 workforce plan expands on our earlier work by delving deeper into workforce demographics at a subdivision level. We explore the demographics of new entrants into these industries and investigate issues related to gender diversity, the involvement of First Nations communities, and perceived and potential labour shortages. The mining and automotive industries are constantly evolving; as we engage in workforce planning activities, we are consistently reassessing how our response needs to adapt and change. We continue to monitor relevant federal and state initiatives and broader emerging industry-level economic trends.

The Workforce Plan, in its current consultation paper stage, identifies medium to short-term shifts, such as where industries are facing skills shortages, retention and recruitment problems, lack of gender diversity, declining VET enrolments, and the upcoming need for the workforce to adapt to future technological change. Along with longer-term megatrends or structural shifts, such as decarbonisation, the move to net zero, electrification, and sustainability. The final Workforce Plan, together with our rigorous desktop research and industry consultations, will outline how AUSMASA is addressing or will address these issues to enable industry to adapt and evolve into the workforce of the future. Our Workforce Plans set the foundation for our actions and strategy. The Workforce Plan, leveraging stakeholder consultations identifies current and emerging strategic and workforce issues. Information that our workforce planning, research and industry engagement teams validate, and funnel to our training products team. Our training products team brings together experts, RTOs, and GTOs to develop and deliver training packages and qualifications that address the workforce challenges we have identified. Our consultation-based industry-led tripartite system also allows for industry input in our stewardship activities that we conduct through submissions to the government. A major function of these consultation papers is to seek input and direction from our stakeholders to align our strategies and approaches towards the needs of industry, and provide effective stewardship to industry.

Following the 2024 Workforce Plan, we have worked to respond to the 2024 Areas of Focus (AoFs)[1]. To enable greater transparency and reporting, we have grouped these AoFs under five key themes that will continue to drive our work and guide our decision-making:

- Education & Pathways
    - M1, M2, M3, M4, A4, & A7
- Building Inclusive, Respectful, and Diverse Workplaces
    - M6, M10, M13, A1, A2, & A5

[1] Please see Appendix for detailed AoF titles.

- Technological Advancement & Digitisation
    - M7, M8, M14, M16, A8, A9, A12, A14
- Workforce Attraction, Retention, & Wellbeing
    - M5, M9, M11, M12, A3, A6, & A13
- Sustainability & Industry Transformation
    - M15, M17, A10, A11, & A15

As we move forward together, I want to acknowledge the contributions of our industry, union, government, and education partners. Your insights and engagement are vital to shaping the future of the mining and automotive industries and ensuring that the workforce evolves in tandem with the challenges and opportunities ahead. It is through such collaborative efforts that we continue to find innovative solutions to strengthen workforce capacity and resilience in the face of rapid technological and economic change.

Over the coming year and beyond, we will continue to work, collaborate, and implement across the tripartite system. Specifically, we will support:

- Dynamic research and data to deliver insights and drive decision-making in the automotive and mining industries.
- The development of high-quality stakeholder-supported projects that advance the skills and knowledge of the mining and automotive workforce.
- Expert involvement in the tripartite system of stakeholder engagement.

We will continue to collaborate on:

- In-depth research and data analysis to drive our decision-making and implementation.
- The delivery of timely, high-quality education and pathway solutions and strategies for the mining and automotive industries
- Opportunities to support VET and pathways to improve outcomes.
- Workforce development and upskilling within the mining and automotive industries

As you come along on this journey with us, I hope this Workforce Plan serves as a valuable resource in your efforts to support and strengthen Australia's mining and automotive workforces. Together, let us continue to evolve and build a sustainable, innovative future for these critical industries and for Australia.

Dr Gavin Lind

Chief Executive Officer

Executive summary(s)

Mining

The mining industry has undergone significant changes over recent years, marked by changes in workforce size, diversity, and age, alongside fluctuations in labour turnover, job vacancies, and educational attainment. Omnipresent challenges in the Mining sector, such as electrification, net zero, skills shortages, and mine closures, need to be addressed. AUSMASA will leverage our roundtable consultations to gain industry input into these challenges and the skills needed to enable a thriving and resilient workforce of the future.

Australia's coal and oil and gas extraction sectors have decreased in size in recent years, despite record high prices for some commodities, others like metal ore mining, non-metallic mineral mining and quarrying, and exploration and other mining support services have grown – highlighting the evolving nature of the industry and the shift towards decarbonisation. At the same time, gender diversity has improved with the ratio of male to female workers converging across the industry, with some of the largest improvements in the coal and non-metallic mineral mining and quarrying sectors. However, with a growing workforce and the oldest median age in the industry, it is clear that the non-metallic mineral mining and quarrying sector will also need to continue to diversify.

Although high rates of growth in the metal ore mining and exploration and other mining support services sectors should be able to be supported by the VET sector going forward, there were notable downturns in enrolments in VET non-metallic mineral mining and quarrying qualifications, which represent the vast majority of VET mining qualifications. Combined with an aging workforce and an increasing focus by the Government and industry on greater onshore processing and beneficiation of critical minerals, this suggests that the non-metallic mineral mining and quarrying sector may face greater workforce supply challenges in the future. A better understanding of the Mining Equipment, Technology, and Services (METS) sector and regional workforce is also required.

Automotive

The automotive industry has experienced notable shifts in workforce composition and employment trends over recent years. The automotive sector continues to face challenges from skills shortages, an aging workforce, the shift to electrification, net zero, and stagnant female and first nations' participation. AUMASA will leverage our roundtable consultations to gain industry input into these issues and the skills needed to enable a thriving and resilient workforce of the future.

Broadly the automotive sector has experienced limited female participation, with the need for greater mentoring, growth, and upskilling opportunities for female workers. The automotive workforce is also in a unique position with the ongoing electrification of the industry and the rise of EV sales. The transition of the economy towards EVs and net zero will inevitably continue to disrupt traditional occupations and create new and growing opportunities (like EV technicians or autonomous car programmers). We are at a critical point in time where the identification of these emerging trends is essential if we are to respond to them in a timely manner to provide new entrants with rewarding career pathways into the automotive sector.

Priorities and Projects

AAS-001 Market research into youth perceptions of automotive careers

This project undertook research to uncover the perceptions priority cohorts, including Gen Z and existing workers, have of the automotive sector and associated careers. In stage 1, research was conducted with existing workers in the automotive sector and priority cohorts not yet working in the sector to identify the perceptions held of the automotive sector and its associated careers.

In stage 2 targeted interviews took place with industry and other stakeholders to identify strategies for supporting careers in the sector. Stage 2 is now complete. A summary of the research findings and opportunities for promoting careers in the auto sector will follow and be available for AUSMASA stakeholders.

AAS – 002 Review and update of the RII emergency response qualifications

This project will undertake a comprehensive review of the Emergency Response qualifications, skill sets and units of competency in the RII Resources and Infrastructure Industry Training Package. Following an initial national consultation process that ensures the views of as many stakeholders with an interest in the qualifications are captured, the project will propose a strategy to redevelop the qualifications and units of competency to ensure they meet the current and emerging needs of the sector.

Importantly, given that some units of competency to be reviewed are used in other training packages, the strategy will consider the impact of any proposed changes on other workforces that use the units of competency.

The following Emergency Response and training products will be the focus of the project:

- RII30719 Certificate III in Emergency Response and Rescue
- RII41319 Certificate IV in Emergency Response Coordination
- RIISS00033 Underground Coal Mine Safety Skill Set
- RIISS00034 Surface Coal Mine Safety Skill Set

This project has commenced in January 2025 and will be undertaken in collaboration with BuildSkills Australia, as we share elements of the RII training package and these training products. Our collaboration with BuildSkills Australia is key in forging a successful path forward in light of our relationship and sharing the RII training package. AUSMASA and BuildSkills Australia are the only two JSCs to share a training package.

AAS – 003 Resource Development: Certificate II in Autonomous Workplace Operations

This project augmented resources developed under the MSOP to suit the learning needs of students undertaking training through a VET Delivery to Secondary Students (VETDSS) pathway. Following a successful pilot, the resources are now available for distribution via an EOI published on the AUSMASA website.

The resources are specifically intended for training organisations, to support the delivery of RII21222 - Certificate II in Autonomous Workplace Operations in multiple industry areas and include the materials for the four core units:

1. RIIARO201 Work in autonomous operations.

2. RIIARO202 Use data and technology to complete work in autonomous operations.
3. RIICOM202 Contribute to the effectiveness of communication and teamwork in an autonomous workplace.
4. RIIWHS208 Operate within an autonomous workplace functional safety system.

The project is extended to 31 March 2025 to support a comprehensive national promotion of the developed resources and maximise their reach and impact. We have received positive feedback from the RTOs that have previewed the resources, including those in Queensland, and indications are that there will be an increased uptake of the qualification due in part to the successful development of our resources.

AAS – 004 Review into VET training products with low and no enrolments

This project aims to identify low or no enrolment training products and undertake industry engagement to understand the reasons for the lack of uptake and make recommendations to inform future training product development projects.

An analysis of NCVER enrolment data over the 5-year period 2019-2023 has identified that across the AUR—Automotive Retail, Service and Repair Training Package, AUM—Automotive Manufacturing Training Package, and RII—Resources and Infrastructure Training Package (Mining), several qualifications have no or low enrolment (50 or fewer enrolments per year nationally).

In recognition of the two separate industry sectors, automotive and mining, the public consultation will be undertaken in two stages:

> Phase 1: Public and government consultation will take place in February 2025 and include superseded units identified in the AUM and AUR training packages.
>
> Phase 2: Public and government consultation will take place in March 2025 and include superseded units identified in the RII (Mining) training package.

Where feedback from consultation confirms a no enrolment training product is no longer required in the system it will be deleted in line with the Ministers' directive to remove training products that have not been implemented within the past three years,

The key deliverables for this project are:

- A report outlining options to address low or no enrolment training products.
- Deletion of no enrolment training products identified as genuinely obsolete.

The project commenced in February 2024 and will conclude by 30 June 2025.

AAS – 005 Training package review of superseded units of competency

This project aims to identify and update superseded units in current qualifications and skill sets across the Automotive Retail, Service and Repair (AUR) Training Package, Automotive Manufacturing (AUM) Training Package and Resources and Infrastructure (RII) Training Package (Mining).

The desktop review has identified that superseded units exist in a range of training products in the above training packages. Given that the project involves two distinct industry sectors: automotive and mining, public consultation will be conducted in two phases. To ensure effective engagement, separate TAGs will be established for each industry sector during the consultation process.

We have established an Automotive Technical Advisory Group (TAG). This TAG has four members representing Queensland from Queensland TAFE, Motor Traders Association Queensland, Field Mining Services and Hastings Deering.

Public consultation for automotive training products will commence in February 2025. The consultation will propose updating those qualifications with the relevant current unit of competency in place of the superseded units and request feedback about any issues or unforeseen consequences of these changes.

We will seek expressions of interest to form the Mining TAG in February 2025, and public consultation for this industry is scheduled for March 2025.

The key deliverables of this project are:

- develop a draft report outlining the proposed treatment of all superseded units of competency that reflects stakeholder feedback.
- updating qualifications and skill sets on training.gov.au to include the latest units of competency.
- In some cases, AUSMASA may wait to update some qualifications or skillsets if they are scheduled for review in another project or where feedback indicates an adverse impact on stakeholders.

The project commenced in February 2024 and will conclude by 30 June 2025.

AAS-006 Automotive demonstration project

This project concluded in September 2024 with submission of the Final Report to DEWR and the Qualifications Reform Design Group.

The project tested a new approach to Qualification design. Specifically, testing the Qualification Reform Design Group's definition of Purpose 2 qualifications against the 15 Certificate II qualifications in the AUR Training Package.

AAS-007 VET Workforce Blueprint

This project aims to conduct a nationwide study of the VET workforce in the automotive and mining industries. AUSMASA will use desktop analysis and qualitative research to identify the VET workforce's characteristics, roles, and responsibilities. The project also aims to identify barriers to attracting and retaining a suitably qualified VET workforce and assess the impacts of emerging industry trends on their capability and capacity to support the automotive and mining industries.

Stream 1 will provide recommendations for addressing the challenges, which will be further explored and implemented in Streams 2 and 3. The recommendations from Stream 1 must be submitted to DEWR by June 13, 2025.

The Initial Workplan detailing activities to be undertaken in Stream 1 was submitted to DEWR on 30 September.

AAS-008 Hydrogen Fuel Cell EV Training Products for the AUR Training Package

This project will consult nationally to develop new Training Products for the AUR Training Package for the safe handling and maintenance of H2-FCEV components.

The project commenced in November 2024 and has an expected completion date of November 2025.

The Technical Advisory Group (TAG) for this project has been formed and had its inaugural meeting in December 2024. A survey to gather the essential skills and knowledge required to work on hydrogen fuel cell electric vehicles is currently seeking participation and is available on the AUSMASA website.

AAS-009 Vocational degree and higher apprenticeships

In response to skills and workforce shortages across the economy, the Australian Government, along with state and territory governments, is looking to flexible and innovative models of course delivery that meet industry needs and prepare workers for the jobs of the future. This project was developed in the context of the workforce challenges raised in the Australian Government's White Paper on Jobs and Opportunities and the recommendations contained in the Findings of the Australian Universities Accords.

AUSMASA will undertake a project to research existing higher and Degree apprenticeships, including the option of new VET-delivered Bachelor equivalent apprenticeships to support the mining industry. The project will work with industry and seek to identify job roles where there is a skills shortage or skills gap that might be suitably addressed through the development of a higher apprenticeship model. The project has been approved by DEWR and will commence in January 2025 and conclude in March 2026.

AAS-010 Review of Certificate II in Automotive Tyre Servicing Technology

This project will consult nationally to review and update the current Automotive Tyre Servicing Technology Training Products for the AUR Training Package for the safe handling and maintenance of wheels and tyres. The project will undertake a full review of the qualification and its AQF level.

The project has been approved by DEWR and will commence January 2025 with an expected completion of February 2026.

Other completed and approved projects

In addition, AUSMASA was engaged by the Cooperative Research Centre for Transformations in Mining Economies (CRC TiME) to undertake a strategic review of mine closure education and training. Launched in November 2024, the review found that the absence of a dedicated VET based qualification, and few if any units specifically delivering mine closure knowledge and skills, presents an opportunity for the scoping and development of appropriate training products to build capability in this increasingly critical component in the life of a mine.

Further, it highlights the importance of equipping a range of stakeholders, including METS industry, regional and First Nations communities, and government bodies, with the necessary skills and knowledge to manage mine closures effectively. The review identifies significant gaps in existing training programs and proposes the development of a coordinated, national approach to mine closure education, emphasizing the need for tailored training pathways, stakeholder engagement, and sustainable community development. Proposed initiatives include the First Nations VET pathways project, higher research programs, and a Mass Open Online Course on Mine Closure and Sustainable Transitions. The review also outlines recommendations for improving mine closure training and the importance of partnerships between education providers, mining companies, and communities.

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Relevant Federal and State Policies

This section details the relevant federal and state policies that we believe, in addition to policies identified in WFP24, affect the automotive and mining sectors across our themes of interest. We continue to consider these policy priorities in our work through our close relationship with states and territories, through the Senior Responsible Officers.

We would like to hear from stakeholders during our consultations on how these policies and initiatives have affected various stakeholders and if there are other policy/legislative instruments we should be incorporating in our workforce planning activities.

Theme: Education & Pathways

National Skills Agreement

A 5-year joint agreement between the Commonwealth and states and territories to strengthen the VET sector commenced on 1 January 2024.[2]

TAFE Centres of Excellence

Through the national skills agreement, the government has partnered with the states and territories to establish TAFE Centres of Excellence across Australia, that can support workforce challenges in specific industries.[3] A list of TAFE Centres of Excellence that are relevant to mining and automotive are listed below.

List of TAFE Centre of Excellence	Specialisation	States
Canberra Institute of Technology (CIT) Electric Vehicle (EV) Centre of Excellence	will specialise in innovative training for heavy hydrogen electric vehicles, retrofitting of vehicles, battery repurposing and charging installation, in addition to the broader development of safety training for a range of occupations with touch points across the electric vehicle industry.	Fyshwick, ACT
Clean Energy Skills National Centre of Excellence (CESNCE	will specialise in the delivery of innovative training in clean energy technologies including solar, wind, hydrogen, and batteries, to feed into the grid to help create a Future Made in Australia.	State-wide, WA
TAFE Queensland Clean Energy (Batteries) Centre of Excellence	will target training in renewable energy batteries, intermittent renewable energy source storage, grid connectivity, network embedded storage at large and small scales, and electric vehicles for existing and emerging workforces.	Acacia Ridge, QLD

[2] Department of Employment and Workplace Relations. "National Skills Agreement," 2024.
[3] Department of Employment and Workplace Relations. "TAFE Centres of Excellence - Department of Employment and Workplace Relations," 2025.

TAFE NSW Hunter Net Zero Manufacturing Centre of Excellence	will provide high-quality training products to support the national transition of traditional mining, energy and manufacturing industries into cleaner, renewable energy sources.	TAFE NSW Tighes Hill campus, NSW

Australian Skills Guarantee

The Australian Skills Guarantee (Skills Guarantee) directs government investment in major projects to help train the next generation of skilled workers. The Skills Guarantee introduced new national targets for apprentices, trainees, and paid cadets working on Australian government-funded major projects.

The focus area prioritises major construction and ICT projects valued at $10 million and above. The policy aims to increase labour hours undertaken by apprentices, trainees, and priority cohorts. Specifically, it targets a minimum of 12% women in apprenticeships and traineeships, and 10% women in trade apprenticeships and traineeships by 2030.[4]

Although construction and ICT projects are not directly related to AUSMASA's industry remit, supporting diversity in trade apprenticeships and traineeships can positively impact the skills shortage of trade occupations in the mining industry. Key trade occupations that overlap between the construction and mining sectors include electricians and earthmoving plant operators.[5]

Australian University Accord

The Australian University Accord emphasizes that the growth in higher education must be matched by similar growth in vocational education and training (VET). The report highlights that over the next decade, more than 90% of new jobs will require post-school qualifications, with 44% needing VET qualifications. This necessitates significant expansion in both higher education and VET.

The mining industry relies heavily on the university sector. According to the 2021 Census, 87% of mining engineers hold a bachelor's degree or above.[6] The new model will increase government funding to support science, technology, engineering and mathematics courses.[7] These degrees are of direct relevance to AUSMASA's remit, especially for the mining sector.

The impact of the accord on the VET sectors includes changes to the Higher Education Loan Program (HELP), making it fairer, and Tertiary Harmonization reforms. These reforms will improve credit recognition between VET and higher education, enhance regulatory approaches for dual sector providers, pilot delegating the Australian Skills Quality Authority's (ASQA) VET course accreditation to select TAFEs, enable some TAFEs to self-accredit certain higher education courses and allow Jobs and Skills Australia (JSA) to build better data to understand how students are accessing and moving between VET and higher education.[8]

Apprenticeships Review

[4] Department of Employment and Workplace Relations. "Australian Skills Guarantee," 2023.
[5] Jobs and Skills Australia. "Mining," 4 October 2024.
[6] Jobs and Skills Australia. "Mining Engineers," 4 October 2024.
[7] Department of Education. "Australian Universities Accord Final Report Document - Department of Education, Australian Government," 2024.
[8] Department of Employment and Workplace Relations. "Australian Universities Accord," 2024.

The Strategic Review of the Australian Apprenticeship Incentive System aims to enhance support for apprenticeships and traineeships in Australia. The review focuses on increasing the completion rates of apprenticeships, addressing skills shortages, and ensuring apprenticeships lead to secure, well-paid jobs. Key areas of investigation include:

- The performance of the Incentive System and complementary services in promoting apprenticeship uptake and completion.
- The impact of cost-of-living pressures on apprentices and trainees.
- Support for high-quality apprenticeships, including government support, workplace conditions, and employer roles.
- Encouraging diversity in apprenticeships, particularly for women, First Nations people, people with disabilities, and those in regional areas.
- Aligning the Incentive System with broader economic objectives and the 2023 Employment White Paper

Fee-Free TAFE

The Australian Government, in partnership with state and territory governments, established the Fee-Free TAFE Skills Agreement to deliver over $1.5 billion in funding for 500,000 Fee-Free TAFE and VET places across Australia from 2023 to 2026.[9] The agreement sets out training places across areas of national priority, including construction, care and support and the clean energy industry.

Fee-free places are prioritized to several priority groups, including First Nations Australians, women, young people aged 17-24, people with a disability, or people who are out of work.

Theme: Building Inclusive, Respectful, and Diverse Workplaces

Strategy for Gender Equality

The Working for Women strategy aims to create a more equitable and inclusive Australia by addressing systemic issues and promoting gender equality across various sectors. The current and future actions taken through this strategy include:

- Investment in fee-free to make a further 300,000 places available for 2024 to 2026 – with women making up 60% of enrolments.
- Addressing Gender Segregation by implementing recommendations from the Pathway to Diversity in STEM Review.
- Supporting access and retention for women in emerging and growth industries like clean energy, cyber security, and naval ship and submarine building.

Closing the Gap

The Closing the Gap agreement aims to address the inequality faced by Aboriginal and Torres Strait Islander people, ensuring their life outcomes are equal to all Australians.[10]

Further education and economic development to be delivered as a part of the agreement:

- Replacing the Community Development Program (CDP): Design a new jobs program to create 3,000 jobs with proper wages and conditions in remote communities. This includes a

[9] Department of Employment and Workplace Relations. "Fee-Free TAFE," 2023.
[10] Closing the Gap. "Objective and Outcomes | Closing the Gap," 2020.

Community Jobs and Business Fund for resources and capacity building. The program will be designed in partnership with First Nations people and stakeholders.[11]

- SEE First Nations: The redesigned Skills for Education and Employment (SEE) First Nations Program is available nationwide, specifically tailored for First Nations people and organisations. Eligible individuals can access training through both General SEE Delivery and SEE First Nations.[12]

First Nations Clean Energy Strategy

The Strategy is a national framework to guide investment, influence policy, and support First Nations people to self-determine how they participate in and benefit from Australia's clean energy transition.[13]

Theme: Workforce Attraction, Retention, & Wellbeing

Employment White paper

The Employment White paper outlines the Australian Government's vision for a dynamic and inclusive labour market. It emphasizes secure, paid work and aims to ensure that people, businesses, and communities can thrive amidst economic changes. The roadmap includes strategies to overcome employment barriers and broaden opportunities, promoting social inclusion and economic potential.[14]

Migration Strategy

The Migration Strategy aims to enhance national productivity, ensure fair wages and conditions, and create an efficient migration system. It outlines eight key actions, including reforming the temporary skilled visa and simplifying the migration process to improve the experience for both migrants and employers.[15]

Changes to the skilled visa program include a new skilled occupation list and a Skills in Demand visa, targeting temporary skilled migration. The Core Skills Occupation list features over 450 occupations, such as:

- Mining engineer
- Geologist
- Motor mechanic
- Fitter
- Metal machinist

The main mining and automotive sections provide aditional detail on the alignment of the migration programme for the respective sectors.

Theme: Sustainability & Industry Transformation

New Energy Workforce Strategy

The Australian Government is finalising a National Energy Workforce Strategy (NEWS) to build the skills and capability we need to reach net zero emissions by 2050. To identify the current and future

[11] Australian Government. "Closing the Gap Commonwealth 2023 Annual Report Commonwealth 2024 Implementation Plan," 13 February 2024.
[12] Department of Employment and Workplace Relations. "SEE First Nations," 2024.
[13] Department of Climate Change, Energy, the Environment and Water. "First Nations Clean Energy Strategy," 14 March 2024.
[14] Australian Government. "Closing the Gap Commonwealth 2023 Annual Report Commonwealth 2024 Implementation Plan," 13 February 2024.
[15] Australian Government. "Getting Migration Working for the Nation Migration Strategy," December 2023.

skills gaps in the energy sector, Jobs and Skills Australia has undertaken a capacity study on the workforce needs for Australia's transition to a clean energy economy.[16]

The study has identified 38 critical occupations that will support the new energy transition, which include:

- Automotive Electricians
- Motor Mechanics / Automotive Technicians
- Metal Fitters and Machinists
- Structural Steel and Welding Trades Workers
- Industrial, Mech. & Production Engineers
- Mining Engineers
- Geologists, Geophysicists & Hydrogeologists.
- Engineering managers
- Production managers. [17]

Net Zero Transition

Future Made in Australia

The Future Made in Australia plan will support Australia's transition to a net zero economy. The plan focuses on attracting investment to make Australia a leader in renewable energy, adding value to our natural resources and strengthening economic security. It will allow Australia to produce more things here, using natural resources to build competitive new industries, in turn creating more jobs and opportunities across the country.[18]

The Federal Government has introduced the Future Made in Australia (Production Tax Credit and Other Measures) Bill 2024 to Parliament to seize the economic and industrial opportunities the clean energy transition presents.

Critical minerals production tax incentive[19]

Building Women's Careers Program

The Australian Government is investing $60.6 million in the Building Women's Careers (BWC) Program to drive systemic structural and cultural change in training and work environments critical to the Future Made in Australia initiative. The BWC Program will fund both large-scale partnership projects and smaller, place-based partnerships to advance structural and cultural change and improve women's access to flexible, safe, and inclusive training and work opportunities in the key male-dominated industries of construction, clean energy, advanced manufacturing, and digital and technology.[20]

Battery Breakthrough Initiative

The Battery Breakthrough Initiative was announced as part of the Australian government's Future Made in Australia (FMA) policy agenda. The National Battery Strategy, released on 23 May 2024,

[16] Department of Climate Change, Energy, the Environment and Water. "Energy Workforce - DCCEEW," 3 December 2023.

[17] Jobs and Skills Australia. "The Clean Energy Generation," 19 October 2023.
[18] Australian Government. "Future Made in Australia," 2024
[19] Australian Government. "Critical Minerals Production Tax Incentive," 28 June 2024.
[20] Department of Employment and Workplace Relations. "Building Women's Careers Program," 2024.

provides insight into the program's strategic intent and outlines how the government will support the development of a diverse and competitive battery industry.[21]

Critical Minerals Strategy

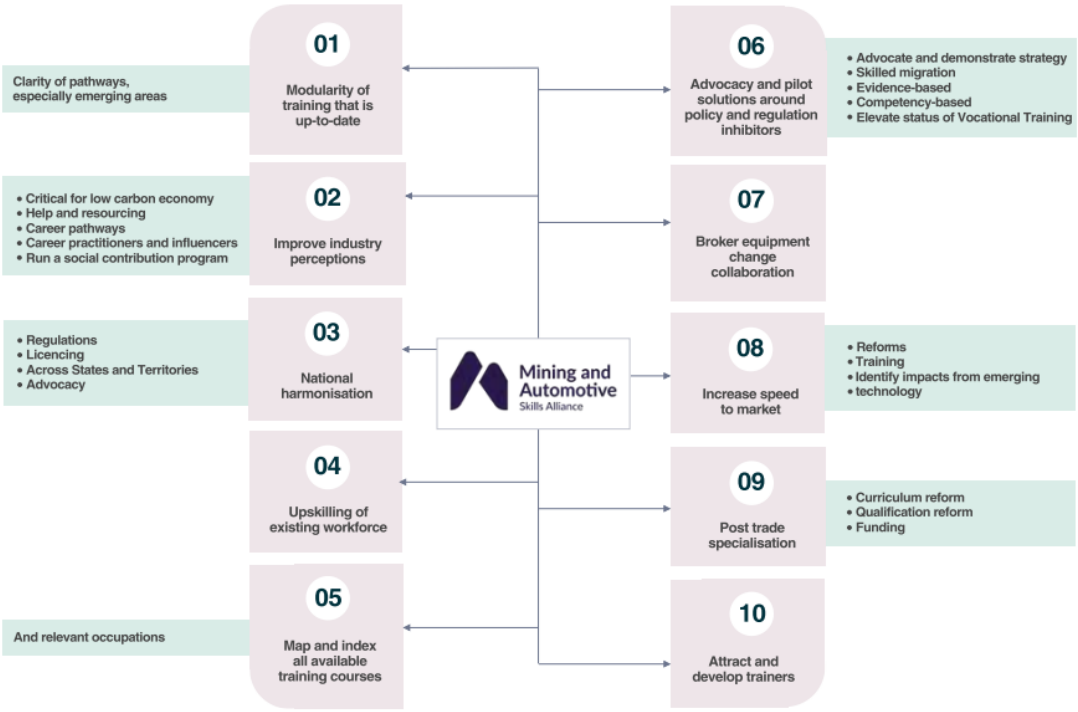
Australia has become a globally significant producer of raw and processed critical minerals. The country possesses 31 critical minerals, as defined by the Critical Minerals Strategy 2023-2030 from the Australian Government Department of Industry, Science and Resources.[22] These minerals are essential for modern technologies, economies, and national security, and their supply chains are susceptible to disruption.

The strategy emphasizes that achieving net zero by 2050 will require the expertise of the resources sector. The critical minerals industry needs more skilled workers for existing and new projects, especially in remote areas. This includes metallurgists, mining engineers, industrial chemists, and earth scientists. This presents a valuable opportunity for individuals at all career stages to explore diverse roles in the critical minerals sector and contribute to the net zero transition.[23]

Critical Minerals and Electric Vehicle (CMEV) Skills Summit 2023 forum

AUSMASA hosted the CMEV forum to provide an opportunity for stakeholders to collaborate in identifying key priorities for implementing the nation's strategies around critical minerals, electric vehicles, and the mining and automotive industries more broadly. Extensive workshopping throughout the day led to the establishment of a 10-point Plan focussing on the common issues and priorities for both industries.[24]

[21] Australian Renewable Energy Agency. "Battery Breakthrough Initiative," 2024.
[22] Department of Industry, Science and Resources. "Australia's Critical Minerals List and Strategic Materials List," 20 February 2024.
[23] Australian Government. "Critical Minerals Strategy 2023–2030," 2023.
[24] AUSMASA. "CMEV 10-Point Plan", 2023.



New Energy Apprenticeship and New Energy Skills Program

The program offers 10,000 eligible apprentices up to $10,000 to help with the cost of living during their apprenticeship, industry-based mentoring, peer support, and networking opportunities to assist in developing the next generation of skilled clean energy workers.[25]

National Reconstruction fund

The Australian government has committed $15 billion to establish the National Reconstruction Fund (NRF), which will provide finance for projects that diversify and transform Australia's industry and economy.[26]

The National Reconstruction Fund Corporation (NRFC) announced a $13 million investment in Australia's quantum technology sector. The funding will enable the industry to manufacture diamond technology in Australia, delivering more skilled jobs and strengthening the nation's position as a significant player in the global quantum technologies supply chain. The technologies have significant potential uses in the mining industries, national security, aerospace, healthcare, transport, and civil engineering.[27]

Theme: Technological Advancement & Digitisation

National Electric Vehicle Strategy

The National Electric Vehicle Strategy aims to boost EV adoption in Australia to reduce emissions and improve well-being. It focuses on increasing the supply of affordable EVs, establishing necessary

[25] Australian Government. "New Energy Apprenticeships Program" 2024.
[26] Department of Industry, Science and Resources. "National Reconstruction Fund: Diversifying and Transforming Australia's Industry and Economy," 26 October 2022.
[27] Australian Government. "NRF Backing Australia's Growing Quantum Sector | Ministers for the Department of Industry, Science and Resources," 10 December 2024.

infrastructure, and boosting demand. The strategy highlights the importance of the EV circular economy, mitigating environmental impacts by repurposing and recycling batteries. The transition to EVs offers significant job and skill development opportunities. Emergency service workers will receive specialised training to handle EV-related incidents safely, supported by government-funded guidance and demonstrations.[28]

End-of-life motor vehicle study

To manage new waste streams from EVs, the Federal Chamber of Automotive (FCAI) and the Motor Trades Association of Australia (MTAA) have partnered to produce the end-of-life motor vehicle study. This identified end-of-life vehicle waste, including EVs, to protect the environment and involve all stakeholders in the product lifecycle.[29]

According to the study, approximately five per cent of motor vehicles in Australia reach their end-of-life each year, amounting to 850,000 vehicles, collectively generating around 1.36 million tonnes of waste.

The implementation of the co-regulatory ELV scheme is divided into three phases. Phase 1 focuses on progressing and further defining the specifics of the scheme design, governance structure, and financial mechanisms in collaboration with key ecosystem stakeholders. Phase 2 involves legally establishing the co-regulatory scheme framework and equipping the Product Stewardship Organisation (PSO) with the necessary processes, governance, resources, technology, infrastructure, and legal/regulatory enablers to operationalize the framework. Finally, Phase 3 is dedicated to operating the co-regulatory ELV scheme, ensuring it is sufficiently supported by robust processes, governance, resources, technology, infrastructure, and legal/regulatory capabilities to achieve all scheme objectives.

Decommissioning Compliance Strategy 2024 – 2029

The Decommissioning Directorate released its Offshore Resources Decommissioning Roadmap in December 2024.[30] The roadmap sets out a path for Australia to:

- maximise the amount of decommissioning activity that happens domestically.
- improve the efficiency and transparency of planned decommissioning activities.
- grow Australia's industrial capability in decommissioning and materials management.
- create safe, high-quality jobs to service a growing decommissioning industry.
- ensure that the industry undertakes its decommissioning obligations in a timely, safe and environmentally responsible way.

The Commonwealth government has identified multiple growth opportunities for building Australia's strategic strengths, including the skilled domestic workforce currently employed in the oil and gas industry. Research commissioned for this roadmap plans out how the existing workforce can redeploy and re-skill for decommissioning projects to support Australia's energy transition. We welcome

[28] Australian Government. "National Electric Vehicle Strategy," 2023.
[29] Federal Chamber of Automotive Industries. "End-Of-Life Vehicles - FCAI," 27 August 2024.
[30] Department of Industry, Science and Resources. "Offshore Decommissioning Directorate," 10 December 2024.

comments and feedback regarding the relevance and effectiveness of this roadmap from our stakeholders via our consultation roundtables.

Mining and Automotive Skills Alliance

Mining

Australia's mining industry is a significant contributor to our economy, with a revenue of over $400 billion[31] and a total workforce of over 280,000. With approximately 70% of the industry's revenue sourced from exports, it has been affected by commodity price volatility, rising demand for coal, oil, and gas due to the Russia-Ukraine War, and reduced demand for iron ore used in steel production due to China's weakening property market.[32] However, as parts of the industry have responded with higher export volumes, new mines, and existing mine expansions, commodity prices are predicted to continue falling.[33] The coal, oil, and gas extraction workforce has experienced lower growth in recent years while exploration and other mining support services have grown. Similarly, the metal ore mining workforce has grown, partly in response to higher commodity prices and increasing demand for its broader base of commodities like critical minerals and strategic materials.

However, while critical minerals and strategic materials are essential for the development of renewable energy infrastructure and advanced technologies, as illustrated by a range of federal and state initiatives designed to support this, iron ore still comprises the single largest source of revenue (30%) for both the sector and the wider industry, followed by coal (24%) and oil and gas (23%).[34] As the industry is still working towards greater onshore processing and beneficiation of critical minerals in line with these initiatives, we consider that established sectors for iron ore, coal, and gas will continue to play an important and dominant role in the near term despite recent commodity price falls and longer-term projections of decreased employment in the coal, oil, and gas sectors.[35] However, it is essential to note that other metal ores, like copper and gold, and critical minerals like nickel, are increasingly essential and represent the fourth largest source of revenue for the sector (16%) – with a range of new mines and mine expansions linked to these commodities.[36] With the mining industry already providing tailored training outside of the VET system for specific, specialised roles and applications, we consider that the industry will make similar moves to support greater onshore processing and beneficiation of critical minerals, which we will monitor going forward.

Key Projects and Priorities for the Mining Industry

1. **AAS – 002 Review and update of the RII emergency response qualifications**: This project will undertake a comprehensive review of the Emergency Response qualifications, skill sets, and units of competency in the RII Resources and Infrastructure Industry Training Package. It will be conducted in collaboration with BuildSkills Australia.
2. **AAS—003 Resource Development: Certificate II in Autonomous Workplace Operations: This project developed resources for RII21222, Certificate II in Autonomous Workplace Operations,** which was extended to support national promotion.
3. **AAS—004 Review into VET training products with low and no enrolments: This project aims to identify low or no-enrolment** training products in the RII (Mining) training package, in addition to other packages in our remit, with a focus on industry engagement to understand the reasons for the lack of uptake.

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[31] IBISWorld, and Ryan Tan. "Mining." November 2024.
[32] IBISWorld, and Ryan Tan. "Mining." November 2024.
[33] IBISWorld, and Ryan Tan. "Mining." November 2024.
[34] IBISWorld, and Ryan Tan. "Mining." November 2024.
[35] Net Zero Australia. "Downscaling - Employment Impacts" 2023.
[36] IBISWorld, and Ryan Tan. "Mining." November 2024.

4. **AAS – 005 Training package review of superseded units of competency**: This project aims to conduct a nationwide study of the VET workforce in the automotive and mining industries to identify barriers and impacts of emerging trends.
5. **AAS-007 VET Workforce Blueprint**: This project aims to conduct a nationwide study of the VET workforce in the mining industry to identify barriers and impacts of emerging trends.
6. **AAS-009 Vocational degree and higher apprenticeships**: This project will research vocational degree and higher apprenticeships to address skills shortages in the mining industry.

Key Strategic and Workforce Issues in the Mining Sector

Skills Shortage

The mining industry has not seen a decline in job vacancies like other sectors.[37] Vacancies remain at record levels, surpassing peaks from the 2011-2012 mining boom. Every sector within mining is experiencing skills shortages, particularly in the top 20 occupations in each subdivision. AUSMASA is continuing research and stakeholder engagement to better understand the nature of these shortages and pathways to alleviate them. The subdivision-specific discussions provide further details, and we welcome stakeholder insights into the issue.

Higher Education and Pathway Opportunities

National enrolments in engineering-related degrees have been declining since 2019. Higher apprenticeships combining on-the-job training with formal study, leading to VET qualifications, are gaining attention to address skills shortages. These programs allow students to work within the industry while completing higher education courses, potentially attracting more students to the field.[38] AUSMASA plans to work with universities and other industry stakeholders to support and enable better-tailored tertiary degrees to suit industry needs, particularly with an eye to emerging and future skills needs. AUSMASA is working on putting up a project that will research vocational degrees and higher apprenticeships to address skills shortages in the mining industry.

Vocational Education and Training (VET)

The national average completion rate for apprentices and trainees started in 2018 at 55.8%, with mining traineeships slightly higher.[39] Concerns have been raised about the level of mentoring provided to apprentices. Changes to trainer qualification requirements have been enacted to address this. This problem is exacerbated for international students, as they cannot train during their study period (because of visa regulations). This leads to international graduates possessing lower skills and work experience than their domestic counterparts. This forces employers to invest in training international students once they are hired. AUSMASA has received stakeholder feedback, calling for better-aligned visa regulations that would enable international students to acquire training and education equivalent to that of domestic students.

Community Perceptions

AUSMASA research shows that 56% of Gen Z would prefer the mining industry to decrease in size, and only 27% knew about lithium mining.[40] The industry must address these perceptions to facilitate

[37] AUSMASA, Workforce Plan 2024.
[38] AUSMASA, Workforce Plan 2024.
[39] NCVER. Completion and attrition rates for apprentices and trainees 2022: data tables. Adelaide, November. 2024.
[40] AUSMASA Gen Z Perceptions of Mining, developed in partnership with Year13.

workforce growth. Especially given the importance of mining for the renewables, advanced manufacturing, and MedTech industries, any transition towards net zero or decarbonisation would be unlikely without the mining industry.

Skilled Migration

The current skilled migration system's high costs and processing times and Australia's housing shortage are barriers to introducing skilled migrants. The Australian Government aims to revamp the migration system to support national prosperity and security.[41] Skilled migrants are essential to the Mining workforce (Figure M1) and VET training (Table M1). AUSMASA continues to work with the government to influence the delivery of a migration system that is better aligned with the needs of the mining sector.

Figure M1: Permanent Skilled Migrants in the Mining Industry

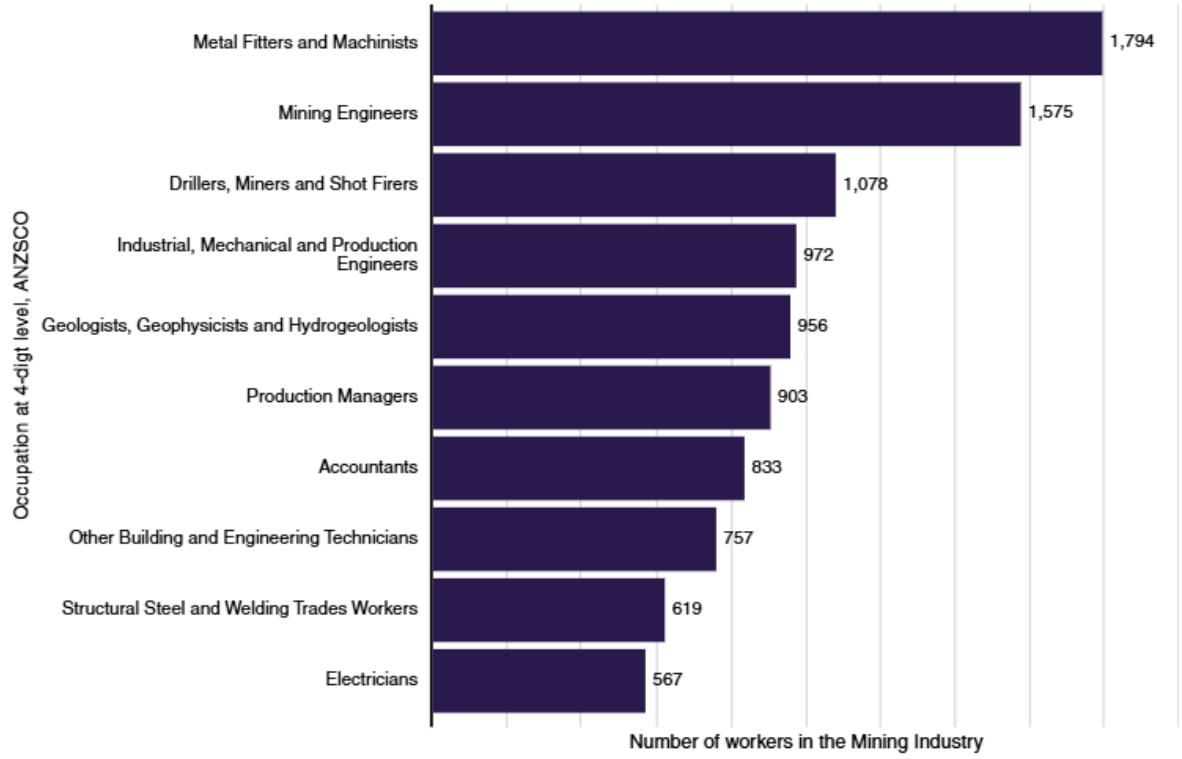


Table M1: International Students in VET Training[42]

YEAR	RII ENROLMENTS	AUR ENROLMENTS
2016	341	3605
2017	43	5558
2018	10	7761

[41] AUSMASA, Workforce Plan 2024.
[42] There are no international students enrolled in AUM.

2019	75	12093
2020	21	15560
2021	17	15604
2022	31	15913
2023	13	17382

Female Workforce, enrolments, and gender diversity

The female workforce makes up 27% of the overall mining industry. However, this is still below the national average of 48%.[43] Female enrolments in VET qualifications have increased by 29% since 2016, making up 15% of all RII enrolments in 2023. Despite improvements, the mining industry still has significant gender pay gaps, with 95% of employers having pay gaps in favour of men. AUSMASA continues to conduct research on gender diversity in the mining sector and will investigate pathways to improve both awareness of the wide breadth of careers and female participation in the industry.

Workplace Cultural Reform and Mental Wellbeing

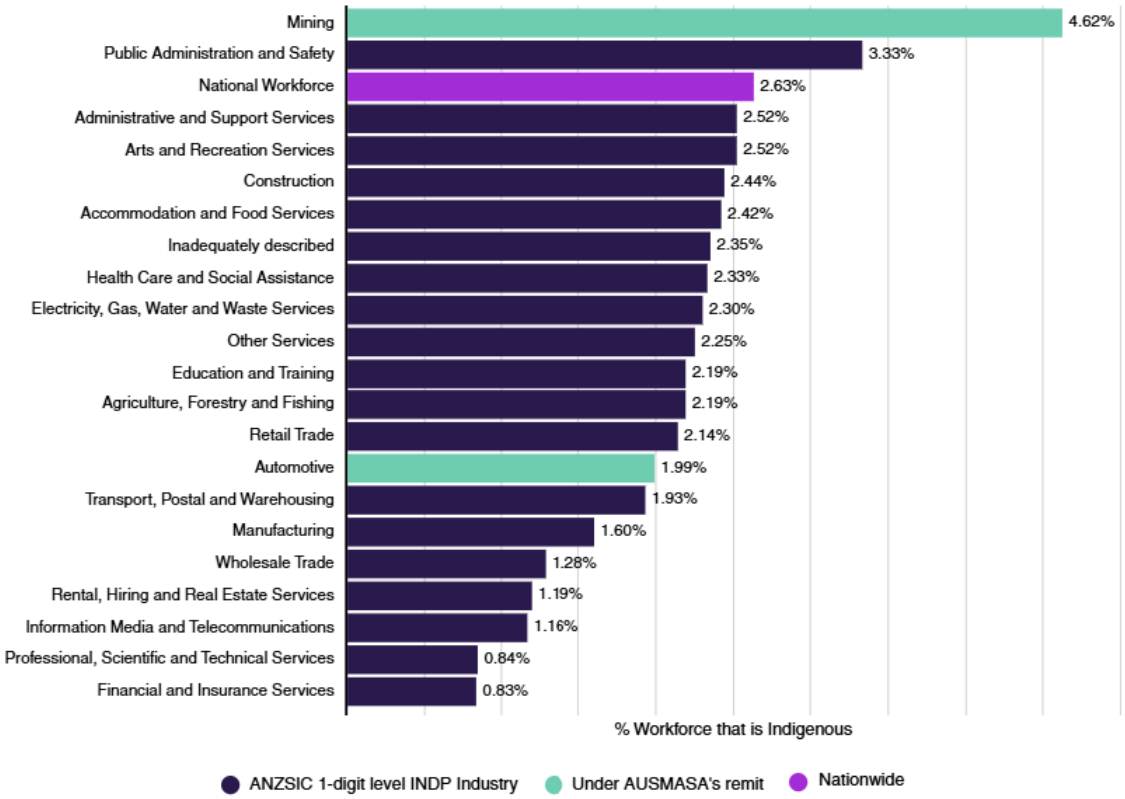
The industry has faced issues with workplace culture, including bullying, sexual harassment, and assault. 52% of stakeholders believe there have been moderate or significant improvements in workplace culture.[44] The Western Australian Government's Mental Awareness, Respect, and Safety (MARS) Program addresses mental health, workplace culture, and safety issues. AUSMASA will enable and support the development of accredited training programs for safe and respectful workplaces. The mental health of mining workers is a critical concern due to remote locations, long shifts, and physically demanding work. Further research is needed to understand the impact of mental health issues on productivity and compensation claims. As well-being is a key theme for AUSMASA, we will continue investigating pathways to improve workplace culture and mental well-being in the sector.

First Nations Employment and Engagement

First Nations people comprise 4.6% of the mining workforce, higher than the 2.6% average for all industries.[45] First Nations Australians represent 12.3% of mining apprentices and trainees, compared to the 6.1% average for all industries (Figure M2).[46] First Nations completion rates for trade apprenticeships are lower than non-indigenous students, indicating a need for additional mentoring and support.

[43] Australian Bureau of Statistics(ABS), Labour Force, Australia, Detailed, Oct 2024. Data Trended by AUSMASA.
[44] AUSMASA, Workforce Plan 2024.
[45] Australian Bureau of Statistics. 2021 Census - DataBuilder - Indigenous Employment by Industry. 2023
[46] NCVER. Apprentices and trainees 2023 - March quarter DataBuilder, Contract status, Employer industry 2-digit by Indigenous status, 12. 2023.

Figure M2: Proportion of Indigenous workforce by industry



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.

AUSMASA is committed to advancing Indigenous employment by working with industry to enable the design and implementation of employment and training programs tailored to First Nations communities. These programs are essential for fostering participation and success in the year ahead. AUSMASA will continue to research this space to better understand the nuances around the opportunity.

Technological advancements in the mining industry

The mining industry continues to implement high-technology solutions and systems into its day-to-day operations. As autonomous and artificial intelligence (AI) supported technology continues to be deployed and advanced, there is potential for many workers in more traditional roles (e.g., drillers, miners, shot firers, and mobile plant operators) to be displaced. However, given the sector's ongoing shortage of workers, any roles displaced by technology create opportunities for retraining and redeployment, maximising the retention of experienced employees in the process. With the shift to greater digital skills and literacy, AUSMASA will continue to work closely and collaboratively with the JSC responsible for digital skills – the Future Skills Organisation – to support this and other work.

Electrifying the mining industry

Mining is transitioning to electric technology, which many mines can support with the off-grid electricity they already generate in their remote locations – creating synergies between existing infrastructure

and the electrification of new vehicles and mobile plant equipment. However, mining faces challenges with transitioning its existing workforce of heavy diesel mechanics to electric alternatives and from diversification – with female students only comprising 4.1% of enrolments in the industry's *Certificate III in Heavy Commercial Vehicle Mechanical Technology* in 2022.[47] For these and other reasons, the role of heavy diesel mechanics is being reviewed as part of AUSMASA's Career Mapping Project; the results of the Careers Mapping project will be made available independently on the AUSMASA website.

Critical Minerals

Critical minerals are essential for various industries, but workforce needs are complex to assess due to classification and resolution issues in Australian (ANZSIC) data. Accurate data collection and refined classification systems are needed to effectively tailor training and recruitment strategies. The government's emphasis on more significant beneficiation of critical minerals highlights the need for the training and education system to support this goal. AUSMASA continues to advocate for greater visibility of the critical minerals industry, including advocating for a separate subdivision for the ABS to accurately identify the size and composition of the critical minerals industry.

Following the Critical Minerals and Electric Vehicle Skills Summit in 2023, AUSMASA has continued to follow through on the 10-Point Plan developed at the forum. Including;

1. Commencing a Careers Mapping project or key roles within relevant sectors to identify current and future skill requirements to inform the basis of proposed training product development activities.
2. Conducting research into Gen Z perceptions of the mining industry.[48]
3. Taking an active role in policy advocacy and meaningful engagement across various levels of government.
4. Greater research into the role of skilled migration, international education, and tertiary education as part of workforce planning.
5. Industry engagement with original equipment manufacturers (OEMs) to address the lack of suitable diagnostic tools and systems, particularly for EV technicians and modern mobile plan equipment in training.
6. Work on the VET Blueprint project to better understand the VET workforce as it relates to mining and automotive.

Metal Ore Mining

The metal ore mining sector currently employs 127,000 workers,[49] Representing an increase of 42,000 (+50%) total workers (Figure M3).[50] Full- and part-time employment increased by 39,000 (+42%) and 3,000 (+91%), respectively (Figure M4). Over time, the metal ore mining sector has seen an improvement in the ratio of male-to-female employment. In the early 2000s, the ratio was 6:1 for a decade before falling to 4:1 in 2024.

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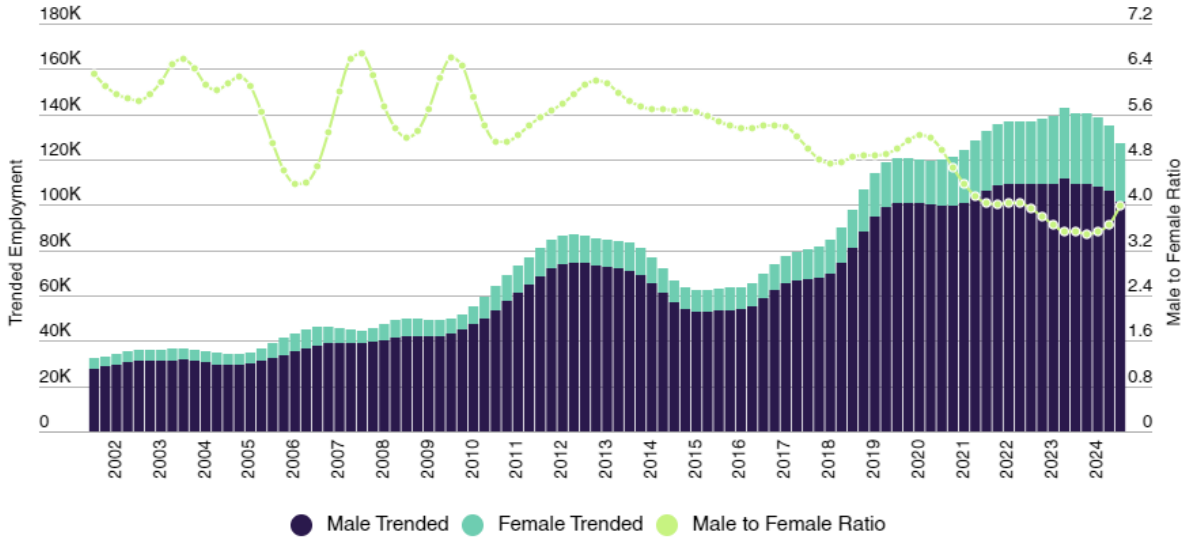
[47] AUSMASA, Workforce Plan 2024.

[48] Final report can be found here: www.ausmasa.org.au/gen-z-perceptions-of-mining/

[49] 16,000 fewer workers than a series high from May 2023

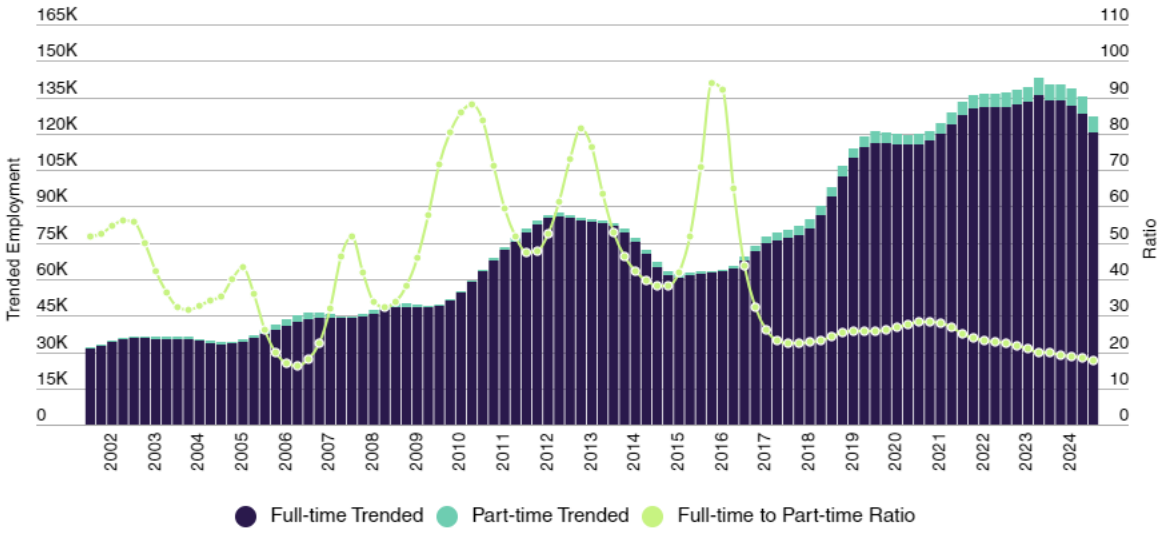
[50] Please refer to our dashboard for Oil and Gas Extraction for an in-depth view on workforce composition and trends, https://ausmasa.org.au/media/scxphb42/07-oil-and-gas.pdf

Figure M3: Composition and employment trends in metal ore mining



Source: ABS, Labour Force, Australia, Detailed, Oct 2024. Data Trended by AUSMASA

Figure M4: Composition and employment trends by status of the metal ore mining industry



Source: ABS, Labour Force, Australia, Detailed, Oct 2024. Data Trended by AUSMASA

On the Brink of an Aging Workforce

The age distribution of the metal ore mining industry is younger than that of the overall Australian workforce, with a median age of 40 (Table M2) compared to the Australian median of 42.[51] The age distribution of the workforce increased by one year between the census years. With 25% of the workforce over 50 years of age or older and 10% over 57 years of age, the average age of retirement

[51] ABS, "*Employment in the 2021 Census | Australian Bureau of Statistics*", 2022.

for all workers in 2023 was 57.[52] This likely indicates an aging workforce. Iron ore's importance, despite recent price decreases linked with economic uncertainties in China and that of critical minerals, means the sector will continue to require a steady stream of new workers.[53] While new entrants into the workforce are generally younger, with a median age of 30, an aging workforce will present more significant economic and strategic challenges for Australia, given iron ore's importance to the economy. However, this trend may be temporary as the Federal Government shifts to support on-shore processing and beneficiation of critical minerals.[54] Nonetheless, a better understanding of the iron ore mining industry, its attraction challenges, its support services occupation pathways, and the promotion of diverse career options in the sector is needed.

Table M2: Age distribution of the metal ore mining workforce

Percentile	2021 Census	2016 Census	Apprentices and Trainees in 2024 Age at the completion
25th	32	31	24
50th (Median)	40	39	30
75th	50	49	39

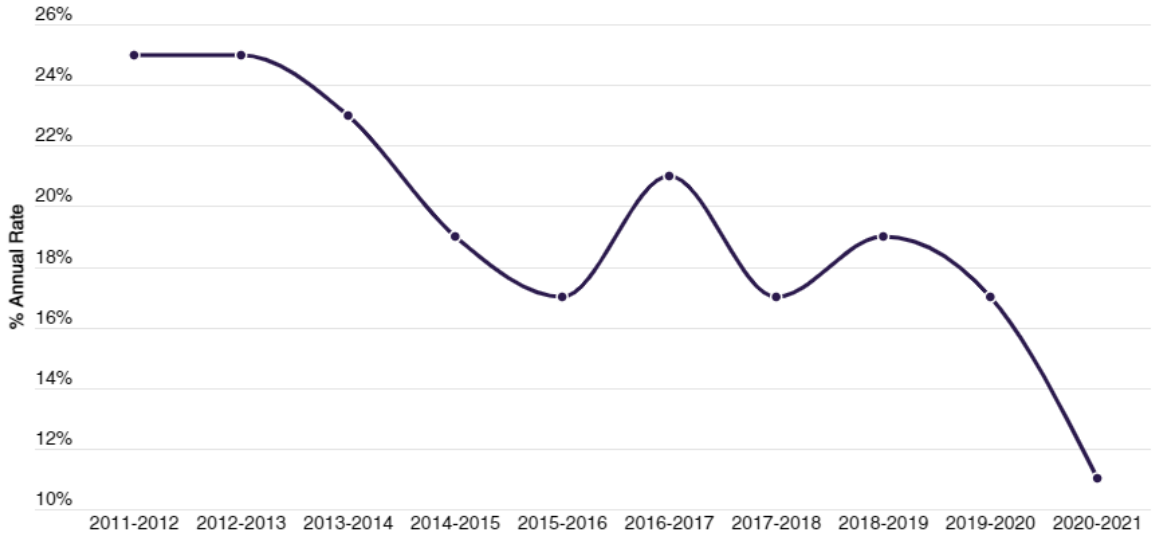
Source: 2021 Census - counting persons, 15 years and over; 2016 Census - Counting Employed Persons, Place of Work (POW); NCVER VOCSTATS, Apprentices and trainees - June 2024, Age by Type of training by Reporting period and Training contract status

Falling Labour Turnover

Labour turnover in the metal ore mining sector fell to a series low of 11% (-14%) in 2020-21 (Figure M5). This represented the largest fall in turnover by sector for the mining industry. This is positive as it indicates the workforce is increasingly able to stay in the sector compared to other sectors in the industry. AUSMASA will continue to study this phenomenon and derive lessons for the broader sector and future pathways to further reduce turnover.

[52] ABS, "Retirement and Retirement Intentions, Australia", 22 May 2024.
[53] Hays, "Mining Industry Report Australia FY24/25", 2024.
[54] DISR, "Critical Minerals Strategy 2023–2030", 2023.

Figure M5: Turnover in the Metal Ore Mining industry



Source: JSA, Data on Occupation Mobility, Jan 2024; Key Occupations by Sub-industry mapped by AUSMASA.

Job advertisements in the metal ore mining sector have steadily increased following the COVID-19 pandemic, rising by 21,400 (+84%) from January 2021 to March 2023. However, this trend reversed, with a decrease of 9,300 (-20%) from March 2023 to October 2024.

Electrifying Heavy Vehicles

With the largest workforce and number of key occupations in the mining industry, including several electrical-related roles, the metal ore mining sector is at the forefront of electrifying heavy vehicles and other mobile plant equipment. However, this also poses challenges to those who use, repair and maintain new equipment in electrical and automotive occupations. For example, a conversion of a Liebherr R 9400 excavator from diesel to electric relied on workers from a factory in France to undertake the conversion in Western Australia.[55] Feedback from industry stakeholders has also suggested that high-voltage electrical work on new and existing heavy vehicles, as well as mobile plant equipment, will likely require new, multi-skilled workers to avoid the need for separate workers for the former and more traditional repair and maintenance work. For example, there is work being undertaken with Curtin University on a block program that allows those with VET qualifications to secure an undergraduate certificate. This means the current workforce can upskill without leaving the industry and risk industry-level productivity. Similar creative solutions are required to address existing and future workforce challenges. However, such situations will require synchronised mobilisation of both higher education and VET education providers. VET changes and reforms are straightforward compared to higher education due to the centralised nature of VET implementation. On the other hand, coordination from universities will require contribution and coordination from disaggregated university governing bodies, departments, and various accreditation bodies. However, such mobilisation's benefits are likely timely and significant for the mining sector. AUSMASA will endeavour to work with tertiary education institutes and industry to find and deliver such solutions.

[55] Liebherr, "Groundbreaking", 2023.

Table M3: Top 5 Metal Ore Mining Occupations

Occupations	Workforce Numbers in 2021 Census	5-Yr changes in IVI	Included in CSOL?	Shortage
Drillers, Miners, and Shot Firers	17,500	16.12%	No	RS
Metal Fitters and Machinists	9,100	45.92%	Yes	S
Other Building and Engineering Technicians	5,900	14.76%	Yes	S
Electricians	4,200	49.62%	Yes	S
Production Managers	3,700	64.97%	Yes	NS

Source: Jobs and Skills Australia, Internet Vacancy Index Oct 2024; Key occupations by sub-industry mapped by AUSMASA; Total workforce numbers are based on the Metal Ore mining snapshot in the workforce plan 2024, including Core Occupation Skills and Occupation Shortage List.

Notes: RS: Regional Shortage; S: Shortage; NS: Not in Shortage. Our conversations with the industry indicate that the Census numbers may be smaller than reality, and we welcome identifying data sources that can paint a more accurate picture.

Enrolments in Metal Ore Mining Qualifications

Trends in RII metal ore mining qualifications reflect the role of new VET students and upskilling for mining a range of metals, including iron ore, copper, gold, and some critical minerals like nickel. From 2016 to 2019, enrolments and completions fell to 497 (-45%) and 125 (-55%), respectively. However, from 2019 to 2023, enrolments and completions increased to 685 (+38%) and 339 (+171%), respectively. If completions continue to fall, it will reduce the potential supply for the workforce, and greater investigation into this declining trend will be required. Lower rates of full-time study, which can shift completions forward into later years, also suggest fewer completions going forward – as these rates had fallen 16 percentage points to 2% of enrolments by 2023.

While metal ore mining occurs across Australia, Western Australia accounts for 65% of the workforce, which partially differs from where qualifications were delivered. From 2016 to 2020, Western Australia accounted for an average of 45% of student enrolments yearly, followed by New South Wales with 39% and Queensland with 16%, respectively. However, Western Australia almost doubled this to an annual average of 83% of enrolments from 2021 to 2023, respectively, while the proportions decreased to an average of 11% for New South Wales and 5% for Queensland from 2021 to 2023. Although Western Australia's proportion of completions only averaged 34% from 2016 to 2020 and 45% from 2021 to 2023, Western Australia's recent enrolment increases suggest that it may benefit from more completions in the future compared to other jurisdictions.

Key Issues Identified in Metal Ore Mining

The global demand for critical minerals like nickel and lithium presents challenges for Australian miners, particularly against countries like Indonesia, which use carbon-intensive methods. This global competition has led to price volatility, with nickel prices dropping by 51% since early 2022. Due to ongoing challenges in the nickel industry, up to 10,000 workers could be affected.[56] While the broader metal ore industry is expanding, job losses in less concentrated mining areas like Tasmania are more complex to absorb. An in-depth investigation and study of career pathways for workers susceptible to

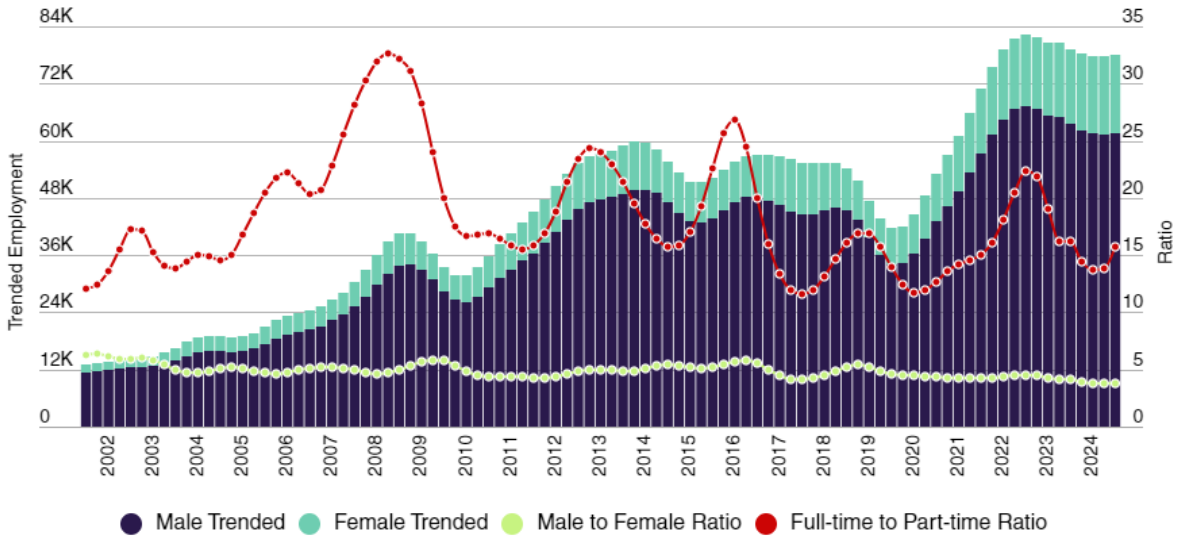
[56] Chamber of Minerals and Energy of Western Australia, "A Critical Juncture – Australia's Opportunities and Challenges in Nickel", 2024.

displacement are needed. AUSMASA will continue to work with stakeholders to identify such opportunities and solutions.

Exploration and Other Mining Support Services

The exploration and other mining support services' workforce has seen reasonable growth and gains in both male and female participation, while the male-to-female ratio improved from around 6:1 to 4:1.[57] The exploration and other mining support services sector employs over 78,000 workers, reflecting an increase of 22,600 (+41%) workers (Figure M6). Full- and part-time workers have seen an increase of 21,900 (+43%) and 700 (+19%), respectively. While increases in full-time roles are positive, as they show the sector continues to perform well with a strong labour market, the relatively smaller increases in women's employment are less positive as a lack of gender diversity can be associated with current or impending skills shortages.[58] The ratio of male-to-female employment in the sector remained largely consistent at around 6:1 from the early 2000s to 2019 before decreasing to 4:1 in 2023.

Figure M6: Composition and employment trends in exploration and other mining support services



Source: ABS, Labour Force, Australia, Detailed, Oct 2024. Data Trended by AUSMASA

A Younger Workforce

Between the census years, the age distribution of the workforce remained largely the same, with the median age being 40 and the oldest 25% of the workforce being above 50 (Table M4). This is slightly younger than the Australian workforce, as the median age of all Australian workers is 42.[59] Over 10% of the workforce was over 57 years old, noting that the average age of retirement was 57 for all

[57] Please refer to our dashboard for Exploration and other mining support services for an in-depth view on workforce composition and trends, https://ausmasa.org.au/media/yylfj415/10-exploration-and-other-mining-support-services.pdf
[58] JSA, "2024 Occupation Shortage List", 14 October 2024.
[59] ABS, "Employment in the 2021 Census".

workers in 2023.[60] While some other parts of the industry are skewed more towards older workers, the sector's key role in bringing onstream new supplies of resources like critical minerals and supporting downstream activities in other sectors means the industry will continue to require a steady stream of new and likely younger workers.[61] As many specialised occupations in the sector, like geologists, metallurgists, and mining engineers, require several years of higher education, younger workers may be better placed to commit to this level of training. The median age of new entrants is 28 years – which bodes well for the future of the workforce.

Table M4: Age distribution of the exploration and other mining support services industry

Percentile	2021 Census	2016 Census	**Apprentices and Trainees, 2024** Age at the completion
25th	31	31	25
50th (Median)	40	40	28
75th	50	49	33

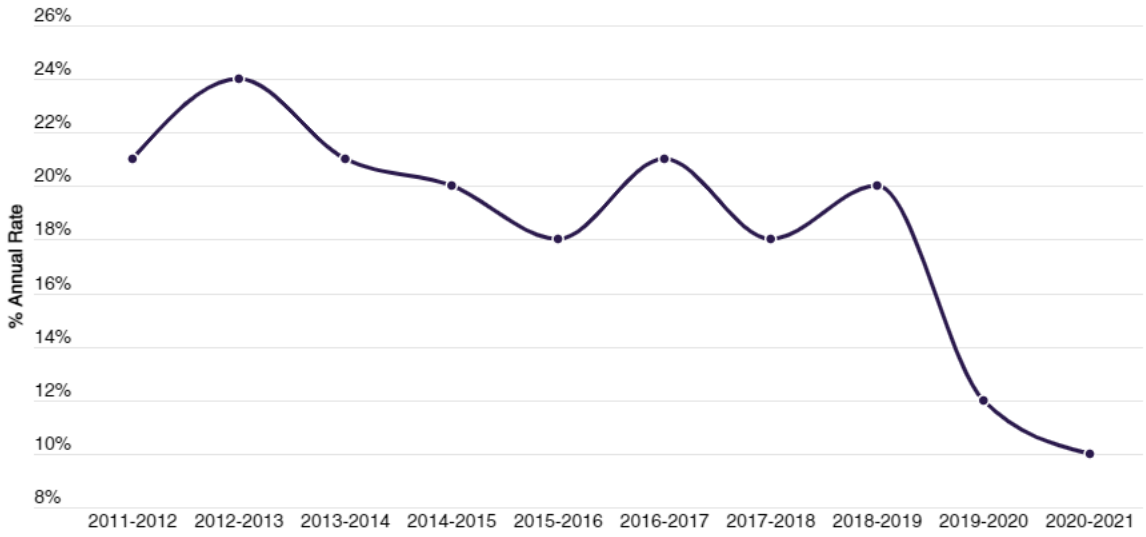
Source: 2021 Census - counting persons, 15 years and over; 2016 Census - Counting Employed Persons, Place of Work (POW); NCVER VOCSTATS, Apprentices and trainees - June 2024, Age by Type of training by Reporting period and Training contract status

Falling Labour Turnover

Labour turnover fell to 10% (-14%) in 2020-21 from a series high of 24% in 2012-13 (Figure M7). As the mining industry as a whole performed well, with almost no job losses during the onset of COVID-19, this data suggests that the sector performed even better than the industry overall.[62] – falling turnover indicates that the workforce is increasingly able to remain employed in the sector. AUSMASA will continue to study this trend and derive lessons for the broader industry on improving labour turnover.

Figure M7: Turnover in Exploration and Other Mining Support Services Industry

[60] ABS, "Retirement and Retirement Intentions, Australia".
[61] MCA, "Minerals-Plus", September 2024.
[62] AusIMM, "The supply and demand of mining, metallurgical and geotechnical engineers in the Australian resources industry".



Source: JSA, Data on Occupation Mobility, Jan 2024; Key Occupations by Sub-industry mapped by AUSMASA.

Job advertisements in the exploration and other mining support services industry have steadily increased following the COVID-19 pandemic, rising by 7,000 (+81%) from January 2021 to March 2023. However, this trend reversed, with a decrease of 2,700 (-17%) from March 2023 to October 2024.

Table M5: Key Exploration and Other Mining Support Services Occupations

Source: Jobs and Skills Australia, Internet Vacancy Index Oct 2024; Key Occupations by Sub-industry mapped by AUSMASA; Total workforce numbers are based on the Exploration and Other Support Services mining snapshot in the workforce plan 2024, including Core Occupation Skills and Occupation Shortage List.

Occupations	Workforce Numbers in 2021 Census	5-Yr changes in IVI	Included in CSOL?	Shortage*
Drillers, Miners, and Shot Firers	5,200	16.12%	No	RS
Metal Fitters and Machinists	2,100	45.92%	Yes	S
Geologists and Geophysicists	1,300	15.35%	Yes	S
Other Construction and Mining Labourers	1,200	46.04%	No	NS
Other Building and Engineering Technicians	800	14.76%	Yes	S

Notes: RS: Regional Shortage; S: Shortage; NS: Not in Shortage. Our conversations with industry indicate that the Census numbers may be smaller than reality, and we welcome the identification of data sources that can paint a more accurate picture.

From 2016 to 2023, more people have been enrolling in and completing mining-related qualifications. Enrolments went up by 198% to 7,210, and completions increased by 83% to 3,335.

However, most of this growth comes from students choosing shorter and lower-level courses (Certificate II), while the number taking longer, more advanced courses (Certificate III) has dropped. This shift means students may now have fewer skills and less experience, which could be a problem for the mining industry and its workforce needs.

Queensland accounts for 40% enrolments and 30% completions, and Western Australia accounts for 39% and 42%, respectively. This distribution aligns with the distribution of the workforce as Western Australia and Queensland account for 57% and 22% respectively.[63] Distribution is likely influenced by Western Australia's Skills Ready program that was launched in 2020,[64] and the Driller's Offsider Job Ready Program that was launched in 2022.[65] This is because the program subsidised one skill set (Driller's Offsider Job Ready Skill Set) and several Certificate II-IV qualifications for students to progress in Drilling Operations – including 3 of the 10 RII qualifications we categorise as exploration and other mining support services qualifications.

Key Issues Identified in Exploration and Other Mining Support Services

Workforce Plan 2024 identified that exploration and drilling expenditure fluctuates with commodity prices, leading to high workforce turnover rates, 2 to 3 times higher than other mining sectors, due to harsh conditions and job transiency. This creates significant workforce planning challenges.[66] However, JSA data suggests that Labour Turnover is falling in the sector which warrants further investigation. AUSMASA will continue to investigate this trend.

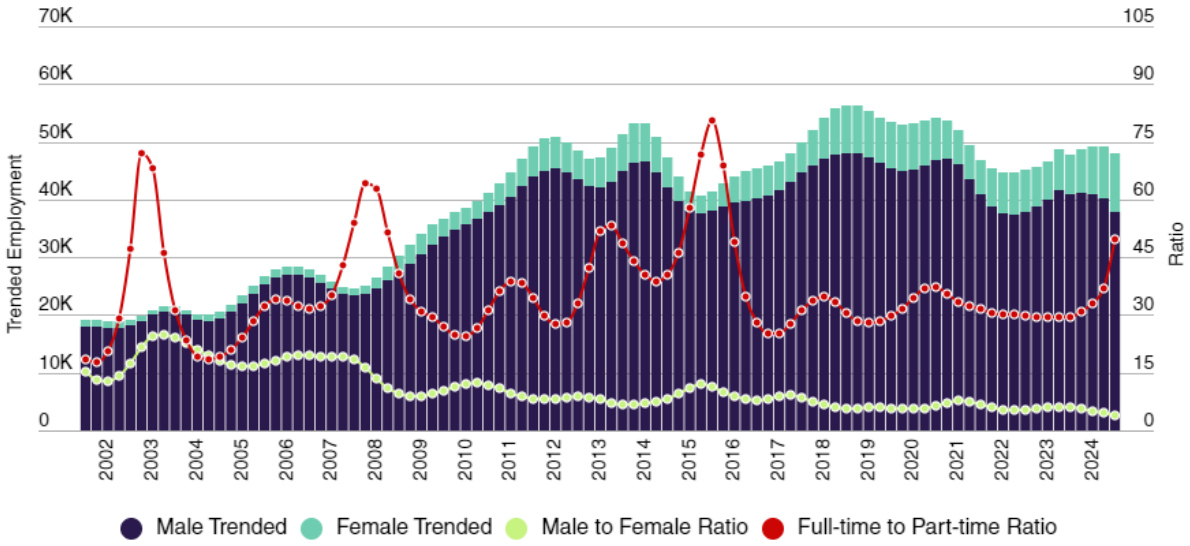
Furthermore, technological advancements, such as drones, unmanned aerial vehicles, and automatic data processing, are changing task performance. These innovations can help achieve more with the existing workforce, attract new entrants, and necessitate upskilling for higher digital skills.[67] Specifically, skill pathways for these higher digital skills need to be developed. AUSMASA will work with stakeholders to identify and deliver such pathways.

Coal Mining

The coal mining workforce has seen a notable decline in size, currently employing 48,000 (Figure M8).[68] However, none of the top 10 key occupations in coal mining saw a decrease in size, which is largely led by a decline in ancillary and support occupations in the sector. The sector also saw a trend favouring female employment and part-time workers.

[63] AUSMASA, "Workforce Plan 2024", 2024.
[64] JSWA, "Training", 2025.
[65] JSWA, "Driller's Offsider Job Ready Program", 2022.
[66] AUSMASA, Workforce Plan 2024.
[67] AUSMASA, Workforce Plan 2024.
[68] Please refer to our dashboard for coal mining for an in-depth view on workforce composition and trends, https://ausmasa.org.au/media/gpnmexev/06-coal-mining.pdf

Figure M8: Composition and employment trends in the Coal Mining Industry



Source: Australian Bureau of Statistics(ABS), Labour Force, Australia, Detailed, Oct 2024. Data Trended by AUSMASA.

An Aging Workforce

Between the 2016 and 2021 censuses, the age distribution of the coal mining workforce remained broadly consistent, only getting a year older for workers (Table M1). This reflects a robust but somewhat waning attraction rate of younger workers, particularly compared to the median Australian workforce age.[69] Indicating entrenched community dependence on the coal mining sector, the recruitment trends require further investigation to determine whether coal-dependent communities and towns are driving this trend. However, regardless of the source of the trend, it creates the need for significant upskilling and redeployment in the coal mining workforce. As the country moves towards net zero, the proportion of the workforce needing re-skilling will only increase. Greater automation and technological change will continue to reduce demand for labour. They may result in a natural decrease in labour demand for roles like labour workers and machinery operators in favour of those more specialised or 'skilled'.[70]

Better Perception needed from Younger Workers

On the other hand, the 25th percentile shifted up by a year between the census years. While minor, these shifts could also be seen as indicators of an attraction issue. AUSMASA's research on Gen Z found negative perceptions of mining were primarily associated with coal.[71] Most respondents were less interested in 'traditional' mining occupations and unaware of opportunities in more specialised or 'skilled' areas critical to the sector's future. More consideration should be given to how to bolster the number of younger workers going forward. Further improvements in turnover and retention can also come from supervisory practice, as various industry stakeholders, particularly in Queensland, call for better implementation of the Brady Review's findings around concerns of appropriate supervision,

[69] ABS, "Employment in the 2021 Census", 30 November 2022.
[70] Hays, "Hays Mining Industry Report Australia FY24/25", 2024.
[71] Mining and Automotive Skills Alliance (AUSMASA), "Gen Z Perceptions of Mining", 10 April 2024.

consistency and relevance to critical control management. AUSMASA has commenced work on putting up a project that will address supervisor training.

Table M6: Age distribution of the Coal Mining Workforce

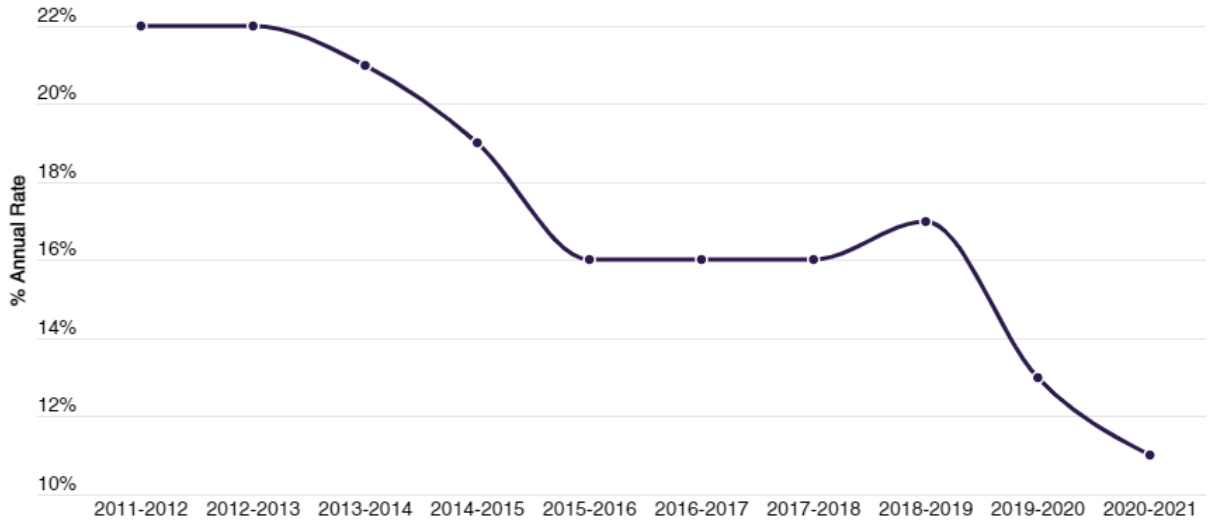
	2021 CENSUS	2016 CENSUS	APPRENTICES & TRAINEES, 2024 AGE AT COMPLETION
25TH	33	32	22
50TH (MEDIAN)	41	40	30
75TH	50	49	36

Source: 2021 Census - counting persons, 15 years and over; 2016 Census - Counting Employed Persons, Place of Work (POW); NCVER VOCSTATS, Apprentices and trainees - June 2024, Age by Type of training by Reporting period and Training contract status.

Falling Labour Turnover in Coal Mining

Labour turnover in the coal mining sector decreased from a high of 22% in 2011-12 to a low of 11% at the start of COVID-19 in 2020-21 (Figure M9). Falling labour turnover is a positive sign, particularly in a tight job market, as it indicates the workforce increasingly prefers to stay in the sector. With a range of new coal mines set to open,[72] workers will be drawn to the sector to find employment. AUSMASA will continue to research and investigate these trends to understand better how to enhance turnover and retention.

Figure M9: Turnover in the coal mining industry



Source: Jobs and Skills Australia, Data on Occupation Mobility, Jan 2024; Key Occupations by industry sub-division mapped by AUSMASA.

[72] Hays, "Hays Mining Industry Report Australia FY24/25", 2024.

Advertisements for key occupations in the coal mining sector have steadily increased following the COVID-19 pandemic, rising by 12,900 (+87%) from January 2021 to March 2023 (Table M7). However, this trend reversed, with a decrease of 5,200 (-19%) from March 2023 to October 2024.

Table M7: Top 5 Coal Mining Occupations

Occupations	Workforce Numbers in 2021 Census	5-Yr changes in IVI	Included in CSOL?	Shortage*
Drillers, Miners, and Shot Firers	15,900	16.12%	No	RS
Metal Fitters and Machinists	6,200	45.92%	Yes	S
Other Building and Engineering Technicians	2,900	14.76%	Yes	S
Electricians	2,600	49.62%	Yes	S
Truck Drivers	2,400	75.69%	No	S

Source: Jobs and Skills Australia, Internet Vacancy Index Oct 2024; Key occupations by sub-industry mapped by AUSMASA; Total workforce numbers are based on the Coal mining snapshot in the workforce plan 2024, including Core Occupation Skills and Occupation Shortage List.
Notes: RS: Regional Shortage; S: Shortage; NS: Not in Shortage. Our conversations with the industry indicate that the Census numbers may be smaller than reality, and we welcome the identification of data sources that can paint a more accurate picture.

Enrolments in Coal Mining RII Qualifications

From 2016 to 2021, coal enrolments in RII fell to 2,024 students (-13%) before increasing to 3,361 (+63%) in 2023. Female participation increased as the share of female enrolments rose roughly 12% (+5%) from 2016 to 2023 – these recent increases have not (yet) flowed through to the rise in female completions. However, completions increased to 523 (+127%) from 2022 to 2023.

At the jurisdictional level, it should be noted that these national trends were also almost entirely driven by Queensland – since the state accounted for 83% of enrolments on average each year between 2016 and 2023 and is home to a larger share of relevant RTOs. However, the wider workforce distribution is split between Queensland with 61% and New South Wales with 33%.[73] At the same time, this trend was less pronounced in completions, as Queensland accounted for 46% of student completions on average each year from 2016 to 2023, while New South Wales notably accounted for an average of 51% of completions. We consider these differences linked to the Underground Coal Mine Safety Skill Set, which can provide credit towards various Certificate II and III RII qualifications and other Queensland requirements for specific workers.

Key Issues for Coal Mining Sector

Australia's coal industry faces increasing pressure due to global climate change targets. The International Energy Agency's Net Zero by 2050 Roadmap calls for no new unabated coal plants, phasing out the least efficient coal plants by 2030, and retrofitting remaining plants by 2040.[74]

The transition away from coal-fired power stations will impact nearly all coal mines. Governments are investing in helping affected communities transition to clean energy jobs, requiring large-scale re-

[73] AUSMASA, "Industry Workforce Plan Moving ahead together 2024", August 2024.
[74] International Energy Agency, "Net Zero by 2050 - A Roadmap for the Global Energy Sector", May 2021.

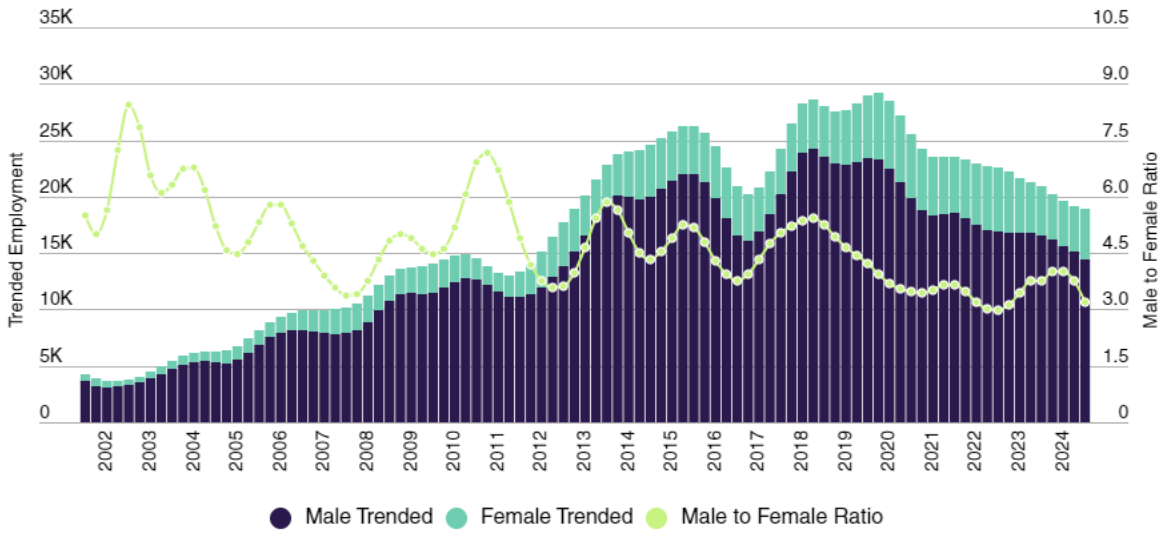
skilling with more complex and digital skills.[75] However, a greater understanding of the nature of skills required in this transition and in enabling the decommission of mines is required. AUSMASA welcomes insight from stakeholders on these issues and will continue to work on identifying and actioning such insights to better align today's workforce for tomorrow.

Oil and Gas Extraction

The oil and gas extraction sector currently employs over 19,000 workers, a decrease of 9,300 (-33%) total workers since February 2018 (Figure M10).[76] The number of full and part-time workers both decreased by 9,100 (-34%) and 200 (-17%), respectively, from February 2018 to August 2024 (Figure M11). This overall decrease may suggest a reduced demand for workers following the peak in 2018 – likely driven by the movement to Net Zero. The decline in employment was largely driven by decreases in the size of the Chemical, Gas, and Petroleum Generation Plant Operators and other support occupations. No other key occupation in the sector saw a decrease in employment.

The ratio of male to female employment reached its peak at 8:1 during the 2011-2012 mining boom before its present 4:1. The decrease was largely driven by the shrinking workforce, maintaining a steady proportion of female workers as male employment fell. However, AUSMASA research and stakeholder consultation show that the sector needs to further improve female representation by way of improved employment outcomes, visible and practised career progression, greater work flexibility, and mentoring opportunities.

Figure M10: Composition and employment trends in Oil and gas extraction

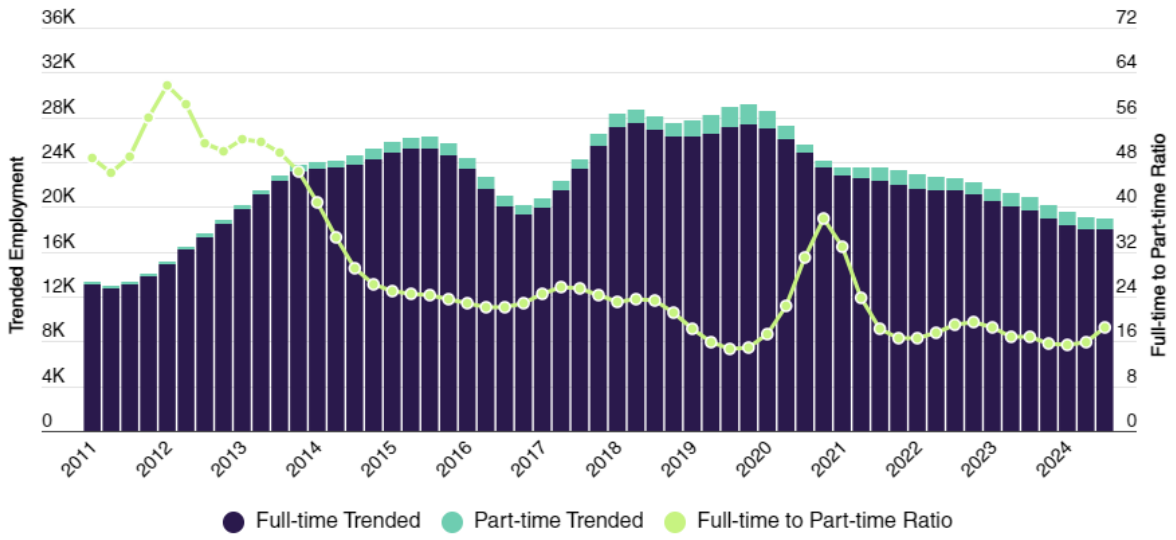


Source: ABS, Labour Force, Australia, Detailed, Oct 2024. Data Trended by AUSMASA.

Figure M11: Composition and employment trends by employment status in the oil and gas extraction industry

[75] AUSMASA, Workforce Plan 2024.

[76] Please refer to our dashboard for Oil and Gas Extraction for an in-depth view on workforce composition and trends, https://ausmasa.org.au/media/scxphb42/07-oil-and-gas.pdf



Source: ABS, Labour Force, Australia, Detailed, Oct 2024. Data Trended by AUSMASA

Onset of an Aging Workforce

The age distribution of the oil and gas extraction industry is largely similar to the overall Australian workforce, with a median age of 42 (Table M8). With only 5% of workers below the age of 26, there is a clear risk of the industry facing an aging workforce.[77] Over the census years, the median age has increased by 2 years; robust retention typically retains the median age. Additionally, 25% of the sector's workers were 35 years old or younger as of the 2021 census, which is 3 years older than in 2016. This aging trend is likely a manifestation of underlying workforce attraction issues. Given that the oldest 25% of the incoming workforce (Table M8) is above the age of 30, as older workers retire, the workforce may decline and age.

Table M8: Age distribution of the Oil and Gas Extraction workforce

Percentile	2021 Census	2016 Census	Apprentices and Trainees in 2024 Age at the completion
25th	35	32	22
50th (Median)	42	40	25
75th	50	48	30

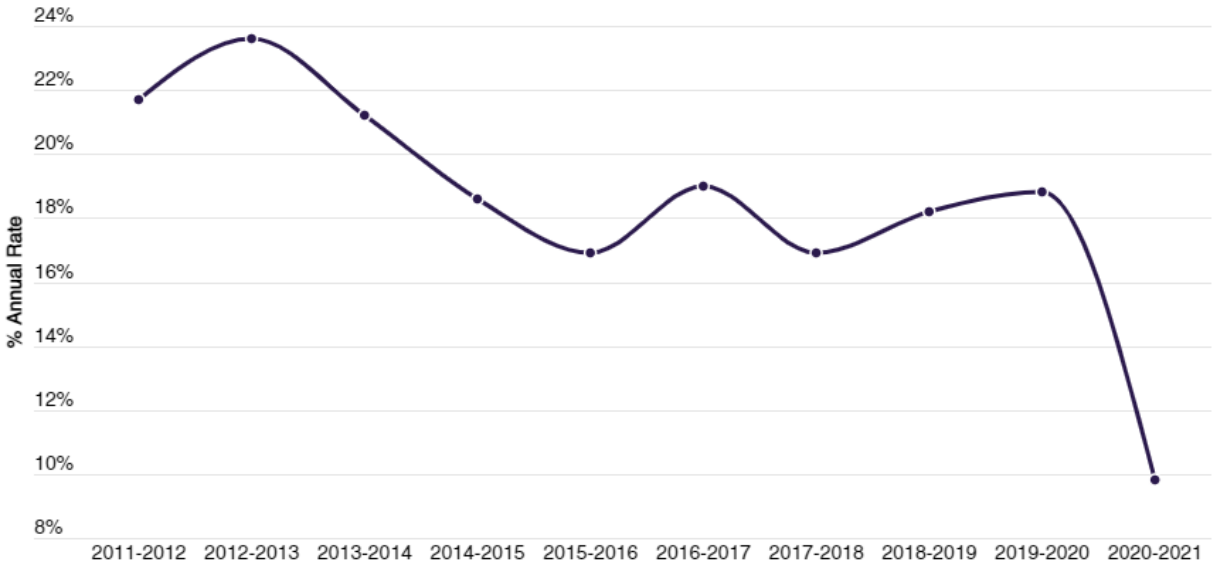
Source: 2021 Census - counting persons, 15 years and over; 2016 Census - Counting Employed Persons, Place of Work (POW); NCVER VOCSTATS, Apprentices and trainees - June 2024, Age by Type of training by Reporting period and Training contract status

Labour turnover in the oil and gas extraction sector fell to a series low of 9.8% in 2020-21 (-11.8%) (Figure M12). Given the shrinking and aging of the sector's workforce, the lower turnover is a positive sign, indicating lower attrition and allowing the industry more time to attract younger workers.

[77] AUSMASA, "Industry Workforce Plan Moving ahead together 2024", August 2024.

AUSMASA will continue to research and investigate these trends to better understand how to improve turnover and retention.

Figure M12: Turnover in the Oil and Gas Extraction industry



Source: JSA, Data on Occupation Mobility, Jan 2024; Key Occupations by Sub-industry mapped by AUSMASA.

Job advertisements in the oil and gas extraction industry have shown a steady increase following the COVID-19 pandemic, rising by 8,400 (+90%) from January 2021 to October 2023 (Table M9). However, this trend reversed, with a decrease of 3,000 (-17%) from October 2023 to October 2024.

Table M9: Top 5 Oil and Gas Extraction Occupations

Occupations	Workforce Numbers in 2021 Census	5-Yr changes in IVI	Included in CSOL?	Shortage
Chemical, Gas, Petroleum and Power Generation Plant Operators	1,700	-5.00%	Yes	NS
Mining Engineers	1,100	4.72%	Yes	S
Drillers, Miners, and Shot Firers	1,000	16.12%	No	RS
Metal Fitters and Machinists	800	45.92%	Yes	S
Other Building and Engineering Technicians	600	14.76%	Yes	NS

Source: JSA, Internet Vacancy Index Oct 2024; Key occupations by sub-industry mapped by AUSMASA; Total workforce numbers are based on the Oil and Gas mining snapshot in the workforce plan 2024, including Core Occupation Skills and Occupation Shortage List.
Notes: RS: Regional Shortage; S: Shortage; NS: Not in Shortage. Our conversations with industry indicate that the Census numbers may be smaller than reality, we welcome the identification of data sources that can paint a more accurate picture.

Enrolments in RII Oil and Gas Qualifications

Enrolments in RII oil and gas qualifications have been volatile. From 2016 to 2019, enrolments only fell from 2,995 (-3%), to 2021, they fell further to just 698 (-77%). However, from 2021 to 2023 enrolments increased to 1,323 (+160%). Oil and gas completions were flat at approximately 520 from 2016 to 2019, before they fell to a low of 327 (-60%) in 2021, before increasing to a high of 959

(+174%) in 2023. Although enrolments and completions for female students followed a similar pattern to the overall figures, their figures were too low for any meaningful analysis. In 2023, there were 23 annual female enrolments and 5 completions. This suggests that the future female workforce will continue to stagnate unless efforts are made to increase diversity in the talent pool. AUSMASA will continue to investigate barriers around female participation in relevant qualifications and pathways to improve female participation.

Queensland's overrepresentation in this data is also a point of interest. While 30% of the entire oil and gas workforce is in Queensland, 42% in Western Australia and 14% in Victoria,[78] Queensland represented 97% of onshore RII oil and gas enrolments and 78% of completions on average each year from 2016 to 2023.[79] Queensland's large reserves of onshore coal seam gas, its User Choice Program, and its large number of RTOs offering these qualifications may account for these discrepancies. As early as 2017, this employment-based program has subsidized several related traineeships, with Priority 1 qualifications subsidized by 100% and Priority 2 subsidized by 87.5%.[80] Indigenous students were eligible for a 100% subsidy, with their percentage of enrolments and completions roughly doubling from 3%-4% in 2016 to 6-7% in 2023. For these reasons, we believe that Queensland's Program has likely supported and diversified its onshore oil and gas sector, which may warrant further investigation to support the training needs of other sectors.

Key Issues Identified in Oil and Gas Extraction

The oil and gas extraction industry workforce are predominantly middle-aged, with a median age of 42. Only 5% are under 26, and 6% are over 60. This reflects the specialised skills required and the remote, challenging working conditions.[81] These conditions prevent robust recruitment and retention. Further investigation is required to identify possible mitigation strategies.

Non-Metallic Mineral Mining and Quarrying

The non-metallic mineral mining and quarrying sector currently employs over 19,000 workers, reflecting an increase of 5,300 (+38%) total workers (Figure M13).[82] Full and part-time workers saw an increase of 5,260 (+42%) and 25 (+25%), respectively. As trends in favour of full-time and female employment are indicative of a strong and diverse labour market, both trends look to bode well for the sector and its workforce. Female participation in the sector has improved, with the ratio of male to female employment going from a series high of 16:1 in the early 2000s to 4:1 in 2024. There were almost no job losses in mining at the onset of the COVID-19 pandemic in 2020, which, in addition to gains in female employment, may explain the resilience of women's workforce participation in the sector.[83]

Figure M13: Composition and employment trends in non-metallic mineral mining and quarrying

[78] South Australia also accounted for 6% of the wider Oil and Gas workforce, followed by the Northern Territory with 2% and Tasmania and the Australian Capital Territory with 1%. https://ausmasa.org.au/media/5vxngfo2/ausmasa-industry-workforce-plan-2024.pdf#page=92

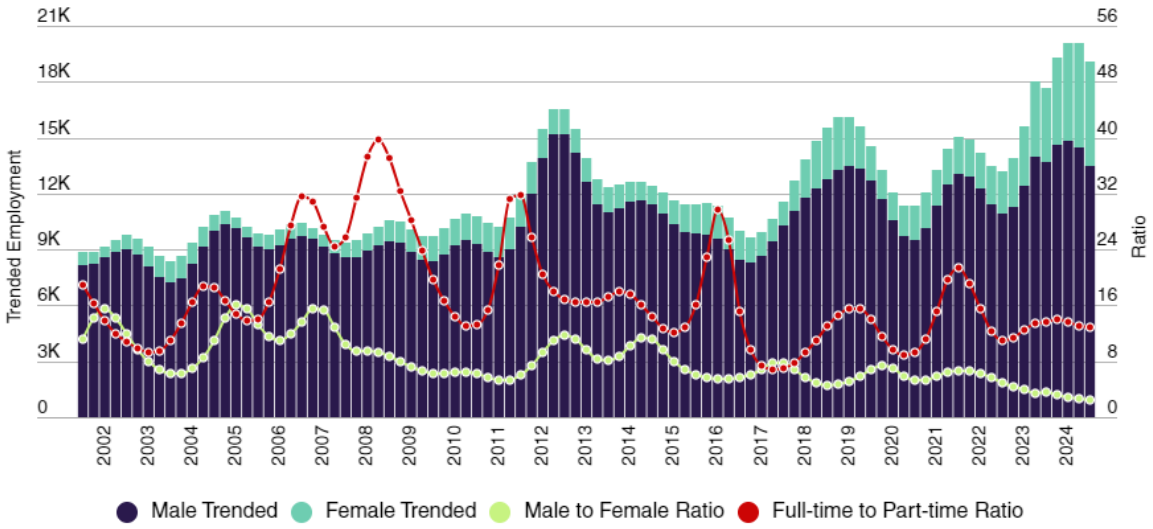
[79] AUSMASA, "Industry Workforce Plan Moving ahead together 2024", August 2024. https://ausmasa.org.au/media/5vxngfo2/ausmasa-industry-workforce-plan-2024.pdf

[80] Queensland Department of Trade, Employment and Training, VET Funding and pricing, June 2024.

[81] AUSMASA, Workforce Plan 2024.

[82] Please refer to our dashboard for Non-metallic mineral mining and quarrying for an in-depth view on workforce composition and trends, https://ausmasa.org.au/media/ms1do5jm/09-non-metallic-mineral-mining-and-quarrying.pdf

[83] AusIMM, "The supply and demand of mining, metallurgical and geotechnical engineers in the Australian resources industry", 2021.



Source: ABS, Labour Force, Australia, Detailed, Oct 2024. Data Trended by AUSMASA

An Aging Workforce

Across the census years, the median workforce age remained consistent at 45 – this is higher than the Australian median worker age of 42, and the oldest 25% of the workforce is above 55 – almost retirement age, with 20% of the workforce above the average age of retirement of 57 in 2023. (Table M10). It is important to note that the mining workforce typically has some of the lowest intended retirement ages,[84] which poses higher risks to the non-metallic mineral mining and quarrying sector due to its older age distribution. Aging workforces also experience higher rates of worker compensation claims, while sector issues like mine dust disease[85] may also contribute to worker attrition or early retirement. The sector also has a relatively higher 25th percentile compared to other mining sectors, with the median age of new entrants at 32 - all signs of an aging workforce. According to industry research, a similar trend is also apparent at the tertiary level for the industry, with fewer university entrants in mining-related qualifications and declines in enrolments and graduates since 2015.[86] This points to a clear sector and industry issue around attracting younger employees, which will need to be overcome if the sector is to contribute to increasing Australia's critical minerals capabilities and workforce needs.[87] Given that any national objectives involving critical minerals, medical technology, renewables, and advanced manufacturing are dependent on mineral mining, research into improving diversity and creating sustainable long-term career pathways for new entrants will be particularly important to ensure a thriving workforce and sector. AUSMASA will continue to investigate these issues and explore pathways to mitigate the effects of an aging workforce.

Table M10: Age distribution of the Non-metallic Mineral Mining and Quarrying workforce

[84] ABS, "Retirement and Retirement Intentions, Australia".
[85] Resources Safety & Health Queensland, "Queensland Mines and Quarries Safety Performance and Health Report", 2020.
[86] AusIMM, "The supply and demand of mining, metallurgical and geotechnical engineers in the Australian resources industry".
[87] Hays, "Mining Industry Report".

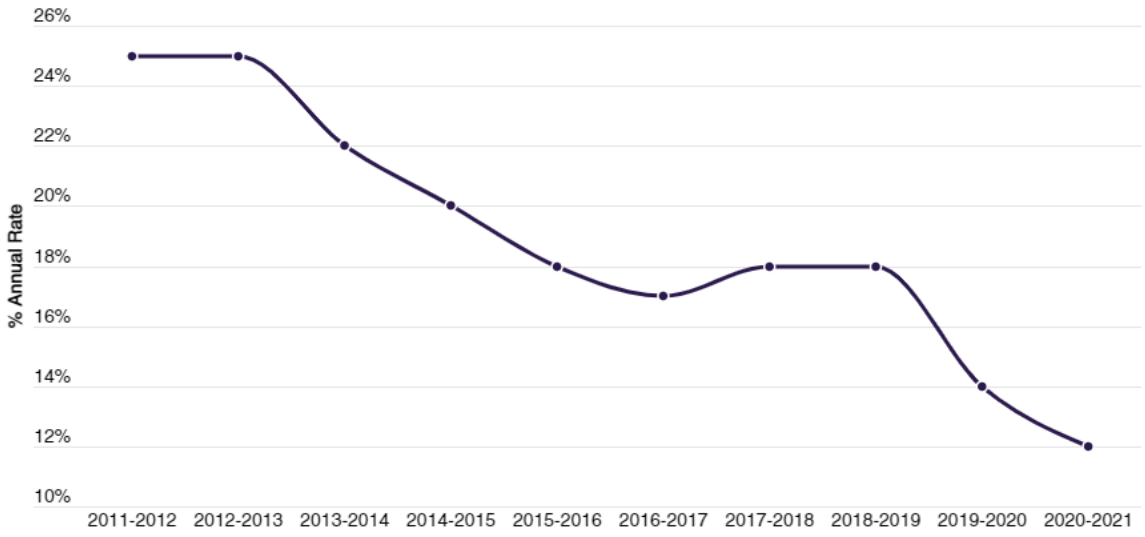
Percentile	2021 Census	2016 Census	Apprentices and Trainees in 2024 Age at the completion
25th	34	34	25
50th (Median)	45	45	32
75th	55	54	42

Source: 2021 Census - counting persons, 15 years and over; 2016 Census - Counting Employed Persons, Place of Work (POW); NCVER VOCSTATS, Apprentices and trainees - June 2024, Age by Type of training by Reporting period and Training contract status

Falling Labour Turnover

Labour turnover in the non-metallic mineral and quarrying sector fell to a series low of 12% (-13%) in 2020-21 (Figure M14). Falling labour turnover is a positive sign, particularly in a tight job market, as it indicates the workforce increasingly prefers to stay in the sector. This represented the second-largest fall in turnover by sector across the mining industry, also in line with the wider industry's trend. AUSMASA will continue to research and investigate these trends to better understand how to improve turnover and retention.

Figure M14: Turnover in the Non-metallic mineral mining and quarrying industry



Source: JSA, Data on Occupation Mobility, Jan 2024; Key Occupations by Sub-industry mapped by AUSMASA.

Job adverts in the non-metallic mineral mining and quarrying sector have steadily increased following the COVID-19 pandemic, rising by 3,100 (+76%) from January 2021 to March 2023. However, this trend reversed, with a decrease of 1,400 (-20%) from March 2023 to October 2024.

Occupations	Workforce Numbers in 2021 Census	5-Yr changes in IVI	Included in CSOL?	Shortage*
Truck Drivers	1,300	75.69%	No	S

Drillers, Miners, and Shot Firers	1,100	16.12%	No	RS
Production Managers	800	64.97%	Yes	NS
Earthmoving Plant Operators	700	31.15%	No	S
Metal Fitters and Machinists	600	45.92%	Yes	S

Table M11: Top 5 Non-Metallic Mining and Quarrying Occupations

Source: Jobs and Skills Australia, Internet Vacancy Index Oct 2024; Key occupations by sub-industry mapped by AUSMASA; Total workforce numbers are based on the Non-Metallic Mineral and Quarrying mining snapshot in the workforce plan 2024, including Core Occupation Skills and Occupation Shortage List.
Notes: RS: Regional Shortage; S: Shortage; NS: Not in Shortage. Our conversations with industry indicate that the Census numbers may be smaller than reality, we welcome the identification of data sources that can paint a more accurate picture.

Enrolments in Non-Metallic Mineral Mining and Quarrying Qualifications

Although many non-metallic mineral mining and quarrying qualifications support work in other sectors or industries, making direct comparisons between this qualifications data and the workforce difficult, this data still provides important insights relevant to the sector and the wider industry as they represent the largest group of RII qualifications in our remit.

From 2016 to 2021 enrolments and completions decreased to 19,201 (-51%) and 2,826 (-73%), respectively. With the decrease in enrolments and completions, coupled together with an aging workforce and older VET entrants, the sector is going to increasingly face workforce challenges. However, enrolments and completions increased to 21,976 (+15%) and 4,309 (+52%), respectively, from 2021 to 2023. Although positive, these trends only take enrolments back to levels from 2020, while completions sit around 2018 and 2019 levels. Notably, these trends also broadly held for Indigenous students who had the highest participation rates in non-metallic mineral mining and quarrying qualifications – averaging 9% of enrolments and 17% of completions each year from 2016 to 2023 – with their higher completions potentially reflecting less student attrition or deferrals, which would be positive. With Government focus on onshore processing and beneficiation of critical minerals,[88] further investigation of the sector is required. A separate ANZSIC classification relevant to critical minerals would aid in the investigation process, cutting across several data sets and providing improved resolution for in-depth analysis. AUSMASA is in the process of making a submission to the ABS to identify Critical Minerals as a separate subdivision.

Key Issues Identified in Non-Metallic Mineral mining and quarrying

The quarrying industry faces workforce retention challenges due to potential worker loss to coal, metal ore mining, and construction sectors. While it cannot match the wages of larger mining operations, it should highlight its unique aspects to attract workers. Attracting new workers, especially younger ones, and promoting the sector as a stepping stone to larger opportunities is crucial. Additionally, the industry could appeal to experienced mining workers looking to transition from larger operations, particularly those involving shift work and FIFO requirements.[89]

[88] DISR, "Critical Minerals Strategy 2023–2030".
[89] AUSMASA, Workforce Plan 2024.

Mining and Automotive Skills Alliance

Automotive

The automotive industry has undergone significant transformation following:

- The end of large-scale passenger vehicle manufacturing,
- The increasing adoption of Electric Vehicles (EVs),
- The increasing adoption of Plug-in hybrid electric vehicles (PHEVs), and
- Recovering global supply chains following COVID-19, which led to a structural undersupply of new vehicles.[90]

With a total workforce of almost 318,000 workers, 21 million registered vehicles in Australia, and revenue projected to reach over $180 billion in 2024-25,[91] the industry is a major employer and innovator. Through partnering with the federal government to increase EV uptake as part of the New Vehicle Efficiency Standard (NVES) and through more specialised vehicle and component manufacturing in place of large-scale passenger car manufacturing, the industry continues to drive innovation and evolve to an industry of the future. The industry has also responded to COVID-19-linked new vehicle supply issues and the associated structural undersupply, with a record 1,237,287 new vehicles sold in 2024, of which a further record of 23,163 (2%) were PHEVs and 91,292 (7%) were EVs.[92]

The retailing and wholesaling sector had the largest market share by far, based on both imported vehicle sales (66%) and parts and accessories (13%), alongside the second largest workforce. The repair and maintenance sector had the largest workforce, and the second-equal largest market share based on their services (13%). This was followed by automotive manufacturing, with both the smallest workforce and market share (7%) for locally manufactured vehicles, parts, accessories and other products.[93] Despite some challenges or volatility still associated with supply issues, newer and more affordable Chinese vehicles, and consumer sentiment, the industry is expected to be supported by technological advancements and a range of different incentives associated with the NVES and other similar federal and state initiatives. As such, industry profitability and revenue are expected to continue to grow, driven by increased imports, rising household income, and ongoing EV uptake.[94]

Key Strategic and Workforce Issues in the Automotive Sector

Community Perceptions

Many industry stakeholders have raised concerns about the negative perceptions of automotive work, particularly among female apprentices. To address this, AUSMASA conducted the AAS-001 Market research to understand the perceptions of automotive careers among priority cohorts, including females and youth.

[90] JSA, "Vacancy Report January 2024," 14 February 2024.
[91] IBISWorld, and Misaki Lishi. "Automotive Industry in Australia," August 2024.
[92] RACV. "Australia's Best-Selling Cars, Utes and SUVs for 2024 | RACV." RACV, 2024.
[93] IBISWorld, and Misaki Lishi. "Automotive Industry in Australia," August 2024.
[94] IBISWorld, and Misaki Lishi. "Automotive Industry in Australia," August 2024.

Change in ANZSCO terminology of motor mechanics

As identified in the Workforce Plan 2024, the Automotive industry strongly believes that the terms "Motor Mechanic" and "Diesel Mechanic" are outdated and detract from the vocation's appeal.[95] AUSMASA continued to advocate for an overhaul of designations and titles. The ABS with the new release of the Occupation Standard Classification for Australia (OSCA) in late 2024, replaced the title "Motor Mechanic" with "Automotive Technician," reflecting the government's consideration of industry feedback and AUSMASA's efforts.[96]

Skilled Migration and international students

Various occupations in the Automotive sector benefit from the migration system (Figure A1). However, there are significant barriers for international students to join the workforce, such as, the complexity and cost of the migration process.[97] Restrictions prevent international students from completing apprenticeships, leading to a lack of practical experience. Visa regulations also limit the programs that international students can participate in. There is industry consensus on the design of more appropriate visa pathways for international students to participate in apprenticeship and VET programs without restriction.

There are other challenges with bringing in skilled migrants; industry details problems with international certifications, where training is not adequate, and employers are forced to either upskill the new hire or find a replacement. Most automotive employers are also smaller businesses and cannot afford continuous recruitment and upskilling. A better-aligned migration system will mean employers are able to reduce turnover and recruitment costs, which will improve productivity and morale.

[95] AUSMASA, Workforce Plan 2024.
[96] ABS, "351131 Automotive Technician (General)", 2024.
[97] AUSMASA, Workforce Plan 2024.

Figure A1: Top 10 Occupations with permanent skilled migrants

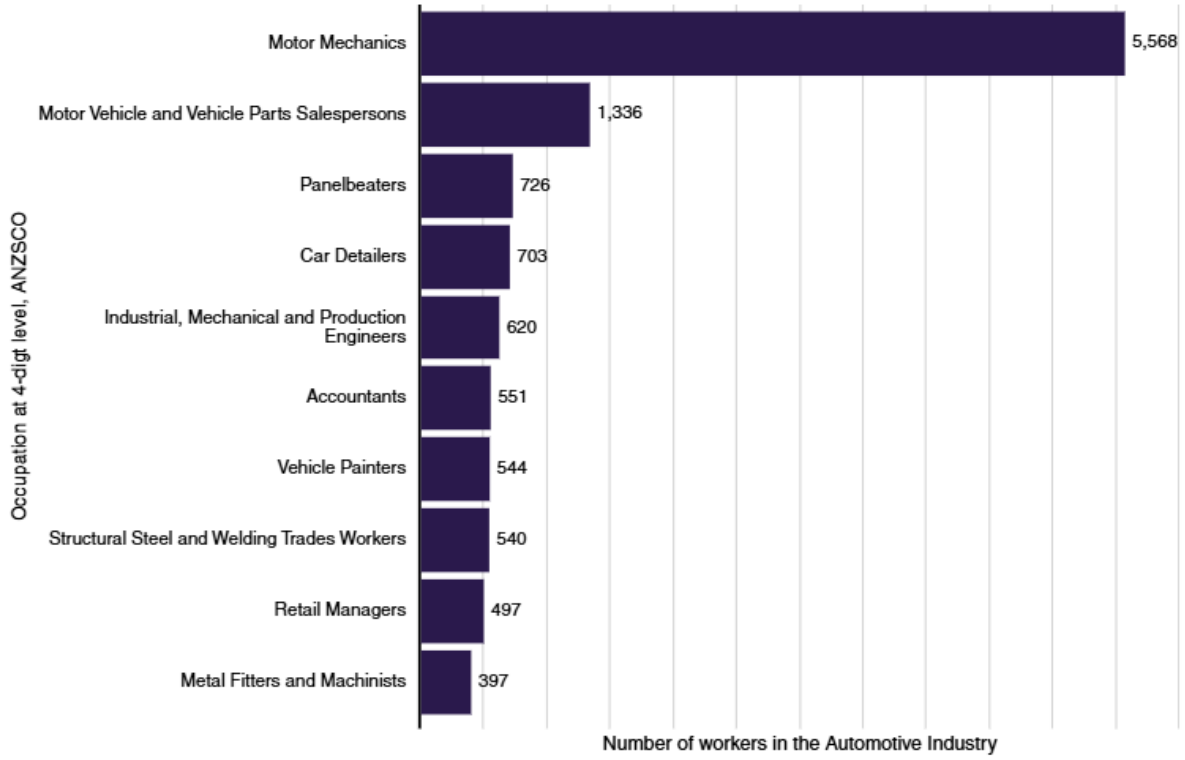


Table A1: International Students in VET Trainings[98]

YEAR	RII ENROLMENTS	AUR ENROLMENTS
2016	341	3605
2017	43	5558
2018	10	7761
2019	75	12093
2020	21	15560
2021	17	15604
2022	31	15913
2023	13	17382

Female Participation

Female participation is low in the automotive sector, with only 0.82% of automotive technicians being women. Additional research is needed to better understand the gender pay gap and initiatives that

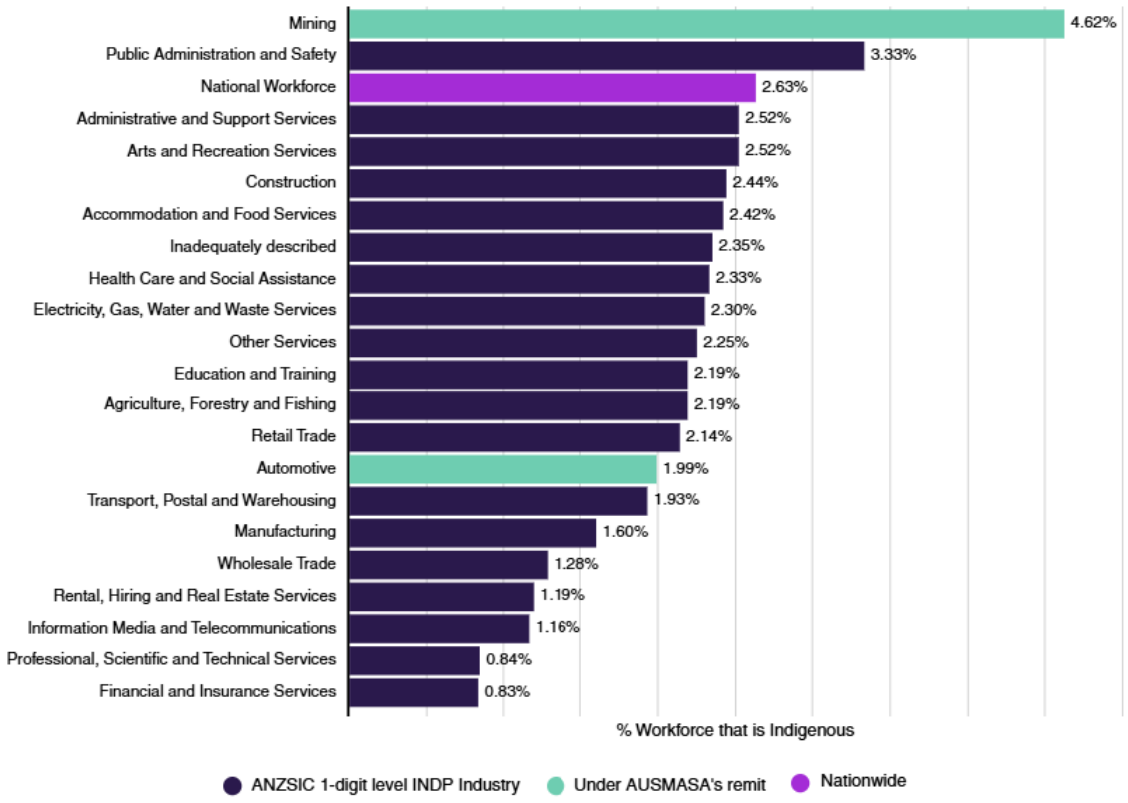
[98] There are zero international student enrolments in AUM.

can support women in the industry. Stakeholder engagement has revealed that many within the industry are calling for better mentoring programs, more growth and upskilling opportunities for women, and greater transparency about the diversity of careers available to women. AUSMASA is continuing to research this area.

First Nations Employment

First Nations employees make up just 2% of the workforce, below the national average (Figure A2).

Figure A2: Proportion of Indigenous workforce by industry



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.

The graph above highlights the underrepresentation of First Nations peoples in the automotive sector, where they make up only 1.99% of the workforce. This low representation reflects the broader challenges faced by First Nations peoples in accessing opportunities within this industry. AUSMASA is committed to advancing Indigenous employment by working with industry to enable the design and implementation of employment and training programs tailored to First Nations communities, which are essential for fostering participation. AUSMASA will continue to further research this space to better understand the nuances around the challenges.

Technological Advancements

Technological advancement and adoption outpace curated training responses. For example, Advanced technologies like ADAS attract new apprentices but pose challenges for VET providers due

to reluctance within the industry to share proprietary systems. There are also training concerns where RTOs and GTOs don't have the equipment necessary to train workers in the new technology. This absence can create a lag in adoption, meaning the technology will sit idle (or not be fully utilised) until training of the existing workforce is completed.

Electrification

Australia's automotive repair and maintenance sector faces significant challenges from servicing both existing and new EVs. Key workforce challenges include expanding EV-focused training and apprenticeships, transitioning the existing workforce to become qualified in multiple skills (or with limited qualifications in certain relevant skills) through retraining, and diversifying the workforce to ensure a sufficient labour supply for the transition to net zero. The sector needs to increase the uptake of EV-focused vocational education and training (VET) programs, with Certificate III in Automotive Electric Vehicle Technology currently being the only EV-focused qualification. While the Certificate III in Light Vehicle Mechanical Technology covers some EV training, retraining internal combustion engine (ICE) automotive technicians is critical.[99]

The challenges posed by electrification in the automotive manufacturing, retail, and wholesale sectors are less pronounced compared to the repair and maintenance sectors. This is due to the decline of large-scale passenger vehicle manufacturing in Australia and the rise of online EV purchases. However, there are opportunities for the repair and maintenance sector to explore worker retraining and deployment options.

AUSMASA welcomed the establishment of the Canberra Institute of Technology's (CIT) Electric Vehicle (EV) Centre of Excellence (CoE). CIT's EV CoE will specialise in innovative training for heavy hydrogen electric vehicles, vehicle retrofitting, battery repurposing, and charging installation, in addition to the broader development of safety training for a range of occupations with touch points across the electric vehicle industry. The Federal Government has also announced plans to refit the Wetherill Park TAFE college in South Australia. This will enable the training and upskilling of both existing qualified technicians and new vehicle technicians on how to depower electric vehicles for safe repair, and reinitialise them for full operation in a safe environment to work on high-voltage vehicles.[100] The refurbished TAFE facility will enable the delivery of a key skill essential for the automotive repair and maintenance industry and is a welcome development. However, detailed career mapping of roles and skills required for the net zero transition is required to identify other similar opportunities.

Key Projects and Priorities for the Automotive Industry

1. **AAS-001 Market research into youth perceptions of automotive careers**: This project undertook research to uncover the perceptions priority cohorts, including Gen Z and existing workers, have of the automotive sector and associated careers.
2. **AAS-004 Review into VET training products with low and no enrolments**: This project aims to identify low or no-enrolment training products in the AUR—Automotive Retail, Service and Repair Training Package, and AUM—Automotive Manufacturing Training Package, in addition to other training products in our remit.

[99] AUSMASA, Workforce Plan 2024.
[100] Damion Smy, "Electric car training centre opens in Sydney to meet rising EV demand," www.drive.com.au/news/

3. **AAS-005 Training package review of superseded units of competency**: This project aims to identify and update superseded units in the AUR and AUM Training Packages, in addition to other training packages in our remit.
4. **AAS-006 Automotive demonstration project**: This project tested a new approach to Qualification design for 15 Certificate II qualifications in the AUR Training Package.
5. **AAS-007 VET Workforce Blueprint**: This project aims to conduct a nationwide study of the VET workforce in the automotive and mining industries to identify barriers and impacts of emerging trends.
6. **AAS-008 Hydrogen Fuel Cell EV Training Products for the AUR Training Package**: This project will undertake national consultations to develop new Training Products for the safe handling and maintenance of H2-FCEV components.
7. **AAS-010 Review of Certificate II in Automotive Tyre Servicing Technology**: This project will consult nationally to review and update the Automotive Tyre Servicing Technology Training Products.
8. **AAS 011 - Advanced Driver Assistance Systems (ADAS) training product development**: This project is proposed to develop training products for ADAS relevant to the automotive sector.

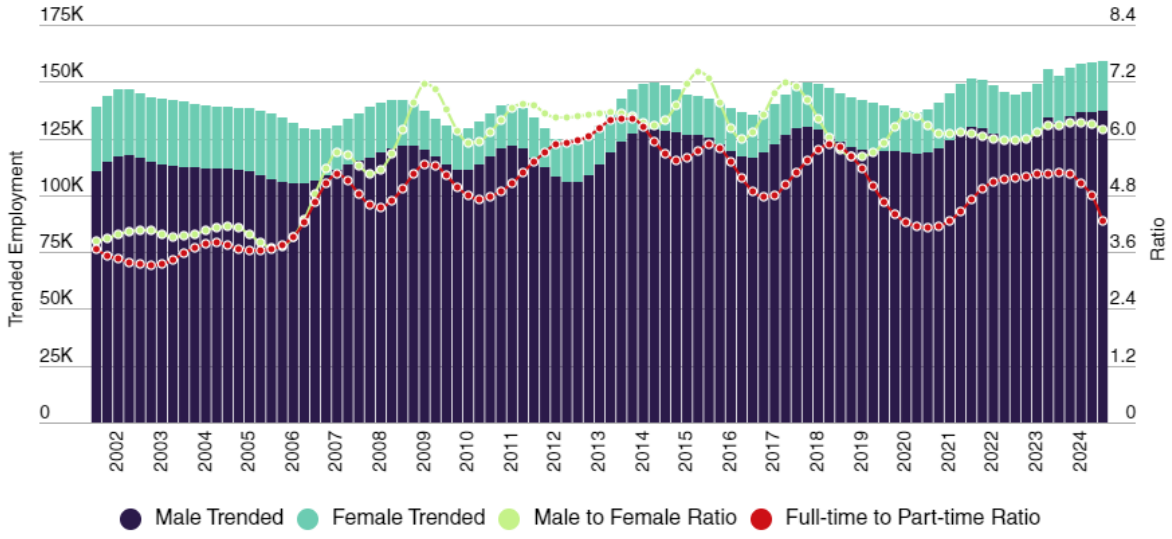
Automotive Repair and Maintenance

In the automotive repair and maintenance sector, employment is at a four-year high with 160,000 employees, driven by increases in male and full-time employment (Figure A3).[101],[102] However, the sector faces a skewed age distribution, with a median age of 38 and 25% of workers aged 51 or older, posing a risk of labour shortages as older workers retire. The sector also faces challenges with retaining VET apprentices, from commencement through to completion and employment, alongside gender diversity issues. In particular, there was a rise in the ratio of male to female workers since the 2009 Global Financial Crisis (GFC) - a less diverse labour pool can add to labour shortages – illustrated by the sector experiencing the largest increase in vacancies in the industry from 2021 to 2023.

Female participation in the repair and maintenance sector has remained largely consistent in recent years. The ratio of male to female workers was around 4:1 prior to the 2009 GFC, after which it increased to roughly 6:1 and has remained at this level into 2024. This suggests the sector may now need to make more significant changes to improve female workforce participation.

[101] From February 2018 to August 2024, female workers increased by 11%, or by approximately 2,300 workers. During the same time period, part-time workers also increased by 5%, or by approximately 10,500 workers.
[102] Please refer to our dashboard for Automotive repair and maintenance for an in-depth view on workforce composition and trends, https://ausmasa.org.au/media/c0iltsyo/94-automotive-repair_maintenance.pdf

Figure A3: Composition and employment trends in the Automotive repair and maintenance Industry



Source: ABS, Labour Force, Australia, Detailed, Oct 2024. Data Trended by AUSMASA

A Younger Workforce

Across both census years, the age distribution for automotive repair and maintenance workers was skewed towards younger workers, with a median age of 38 (Table A2). In contrast, the median age of all Australian workers was 42, which was also the same in both Censuses.[103] However, 25% of the sector's workers are aged 51 years or older, and the sector continues to grow. Labour shortages become increasingly likely as older workers transition to retirement, noting that the average age of retirement was 57 for all workers in 2023.[104] Research commissioned by AUSMASA shows that around 60% of all automotive workers plan on remaining in the industry for 5 years or less, with existing automotive technicians and other trade workers, reporting lower intentions to remain.

On the other hand, 25% of the sector's workers were 27 years old or younger as of the 2021 Census. Given the median age of apprentices in VET was 22 in 2021, and that most trade occupations are completed via apprenticeship pathways - apprentices are well-represented in this part of the workforce.[105] Yet, while 56% of apprentices have reported that they intend to remain in the industry for over 5 years in AUSMASA's research, only 21% saw themselves in the industry for their entire careers, compared to 44% for all automotive workers. Some issues raised by apprentices that may contribute to this include re-learning skills from work experience at RTOs or TAFEs and similar issues with re-learning and recognition of prior learning (RPL) for migrants.[106] Given apprentices' relative

[103] Australian Bureau of Statistics, "Employment in the 2021 Census | Australian Bureau of Statistics," www.abs.gov.au, 30 November 2022.
[104] Australian Bureau of Statistics, "Retirement and Retirement Intentions, Australia, 2020-21 Financial Year | Australian Bureau of Statistics," www.abs.gov.au, 29 August 2023.
[105] AUSMASA, "2023 and 2021 Apprentices," AUSMASA.org.au, 2025.
[106] National Centre for Vocational Education Research, "Exploring the Recognition of Prior Learning in Australian VET," 2020.

youth, their importance to the sector, and younger workers' higher rates of job mobility,[107] attrition amongst these workers is a likely risk. As such, the sector must prioritise retaining apprentices and younger workers, particularly since they can contribute more working years over time.

Table A2: Age distribution of the Automotive Repair and Maintenance Workforce

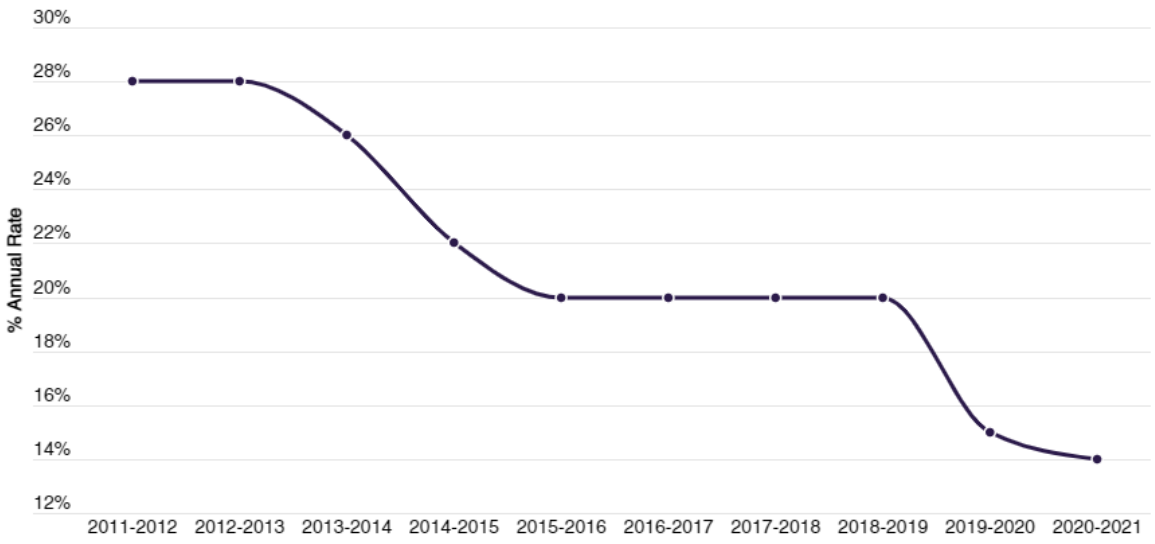
Percentile	2021 Census	2016 Census	Apprentices and Trainees in 2024 Age at the completion
25th	27	27	20
50th (Median)	39	39	22
75th	51	51	27

Source: 2021 Census - counting persons, 15 years and over; 2016 Census - Counting Employed Persons, Place of Work (POW); NCVER VOCSTATS, Apprentices and trainees - June 2024, Age by Type of training by Reporting period and Training contract status

Falling Labour Turnover

Labour turnover fell to a series low of 14% (-14%) in 2020-21 (Figure A4). Falling labour turnover is a positive sign, particularly in a tight job market, as it indicates that the workforce increasingly prefers to stay in the sector. Within the automotive industry as a whole, the repair and maintenance sector's labour turnover tended to be lower than other sectors within the industry. AUSMASA will continue to research what is needed to further reduce turnover and improve retention.

Figure A4: Turnover in the Automotive Repair and Maintenance Industry



Source: JSA, Data on Occupation Mobility, Jan 2024; Key Occupations by Sub-industry mapped by AUSMASA.

Job adverts for key occupations in the automotive repair and maintenance sector have steadily increased following the COVID-19 pandemic, rising by 14,000 (+81%) from January 2021 to March

[107] Australian Bureau of Statistics, "Job Mobility, February 2021 | Australian Bureau of Statistics," www.abs.gov.au, 30 June 2023.

2023. However, this trend reversed, with a decrease of 5,800 (-20%) from March 2023 to October 2024.

Table A3: Top 5 Automotive Repair and Maintenance Occupation Growth in Vacancies

Occupations	Workforce Numbers in 2021 Census	5-Yr changes in IVI	Included in CSOL?	Shortage
Motor Mechanics (Automotive Technician)	46,000	55.69%	Yes	S
Panel beaters	9,000	177.55%	Yes	S
Car Detailers	7,000	74.34%	No	No data
Vehicle Painters	7,000	155.36%	Yes	S
Motor Vehicle Parts and Accessories Fitters	5,000	101.87%	No	NS

Source: Jobs and Skills Australia, Internet Vacancy Index Oct 2024; Key occupations by sub-industry mapped by AUSMASA; Total workforce numbers are based on the Automotive Repair and Maintenance snapshot in the workforce plan 2024, including Core Occupation Skills and Occupation Shortage List.
Notes: S: Shortage; NS: Not in Shortage. Our conversations with industry indicate that the Census numbers may be smaller than reality, we welcome the identification of data sources that can paint a more accurate picture.

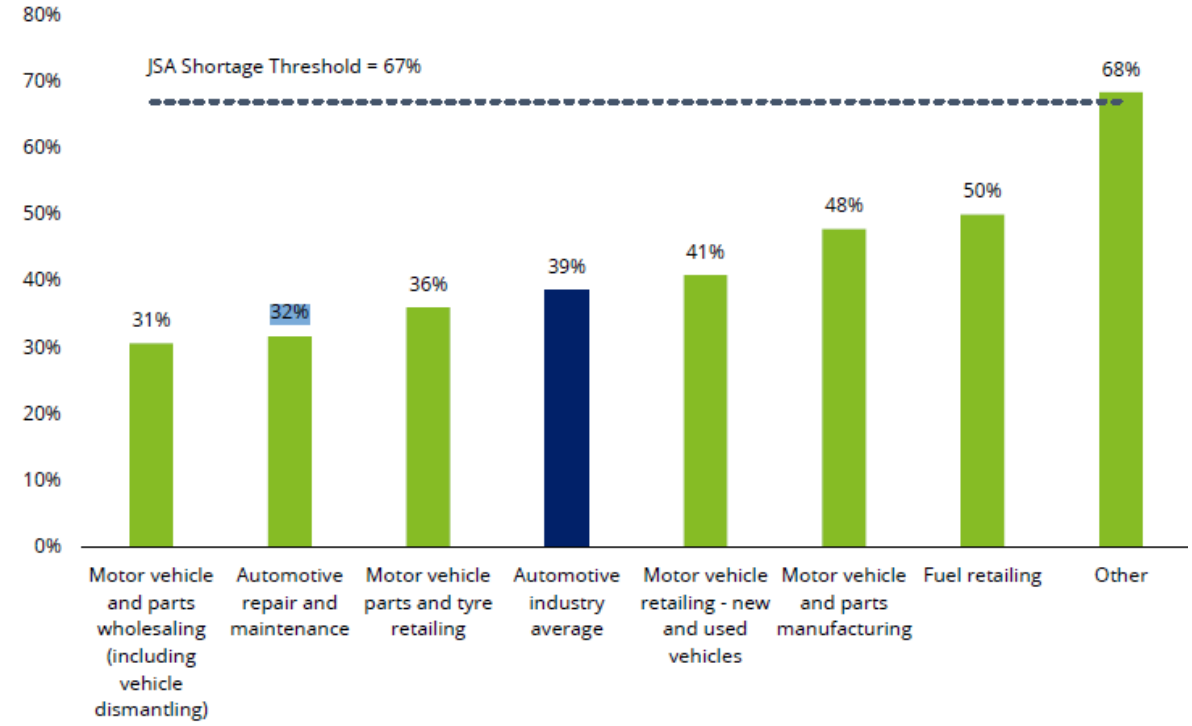
Employers' ability to fill vacancies is a primary measure of an occupation shortage used in JSA and industry research, with a fill rate of less than 67% associated with a higher chance of occupation shortages.[108] For example, JSA's research has found that occupations with 90% plus male workers, like those of Automotive Engineering and Trades Workers, have the lowest fill rates of any group at ANZSCO's sub-major-group level from 2021 to 2023.[109] Research from JSA and industry has found that these occupations, at ANZSCO's second lowest unit-group level, had some of the lowest fill rates of any occupations in their research. This was also associated with gender disparities, as 99% of Automotive Electricians, 98% of Automotive Technicians, and 98% of Panelbeaters were male by share of employment in 2021.[110] These low fill rates make sense when compared to increases in average vacancies from 2021-23. Further research is needed to better understand how to improve female participation in these occupations.

According to the AAAA, approximately 43% of service and repair workshops were non-employing (or sole operator) businesses in 2023. The number of non-employing businesses increased by 12 percentage points from 2021 to 2023 compared to a 3-percentage point increase in the number of employing businesses (Figure A5).[111] Since non-employing businesses are unable or less likely to utilise labour hire or online advertisements due to their cost, they often rely on word of mouth or advertisements placed on the door to secure additional staff and switch to becoming employing businesses. As such, their vacancies are not always captured in larger systematic studies and data can only be gained from industry-specific surveys, like the MTAA's that show lower fill rates for two of these key occupations. Industry research has also highlighted issues with fill rates specific to the repair and maintenance sector. According to the MTAA, the sector had a fill rate of only 32% in 2024,

[108] Jobs and Skills Australia, "2024 Occupation Shortage List," 14 October 2024.
[109] Jobs and Skills Australia, "Labour Market Update," March 2024.
[110] Jobs and Skills Australia, "Occupations," Jobs and Skills Australia, 15 October 2024.
[111] Australian Automotive Aftermarket Association, "AAAA State of the Industry 2024," October 2024.

below an industry average rate of 39% and the second-lowest rate in this research.[112] While the figures differ from JSA's, it is worth noting that the occupations with some of the lowest fill rates – like Panelbeater, Automotive Electrician, and Automotive Technician – were consistent and are common to the repair and maintenance sector.[113] Furthermore, the MTAA identified contributing factors like too few applicants, inadequate qualifications or experience, and inter-industry competition.[114] This issue extends to EVs, where industry discussions continue on restricting repair and maintenance work to those with electrical or dual trades experience and VET qualifications. Since many such occupations like Automotive Technician are also important to the wider industry, intra-industry competition may contribute to the sector's low fill rates.[115] AAAA research also supports this, with only half of an estimated 80,000 Automotive Technicians and 40% of 37,000 Automotive Technician apprentices working in the sector.[116]

Figure A5: Skills Shortages in the Automotive Industry



Source: Skills Shortages in the Automotive Industry Survey, Deloitte Access Economics (n= x responses), Questions: How many vacancies did your business advertise for in 2023?; on average, how many applicants applied for each vacancy your business advertised for in 2023?; and of the vacancies your business advertised for in 2023, how many were filled?

Enrolments in AUR Automotive Repair and Maintenance Qualifications

Over time, enrolments, and completions for AUR repair and maintenance qualifications steadily increased, with proportionally larger increases in enrolments. From 2016 to 2023, enrolments

[112] Motor Trades Association of Australia, "MTAA Core Skills Occupations List Supporting Analysis," 31 May 2024.
[113] Motor Trades Association of Australia, "MTAA Core Skills Occupations List Supporting Analysis," 31 May 2024.
[114] Motor Trades Association of Australia, "MTAA Core Skills Occupations List Supporting Analysis," 31 May 2024.
[115] Australian Automotive Aftermarket Association, "AAAA State of the Industry 2024," October 2024.
[116] Australian Automotive Aftermarket Association, "AAAA State of the Industry 2024," October 2024.

increased to 85,757 (+64%) students, while completions only increased to 26,595 (+55%) students. This disparity was larger for female students, as enrolments increased by over two and a half times from 2,246 to 5,671 students, while completions roughly doubled from 623 to 1,466 students. Lower growth in commencements than enrolments, and even lower growth in completions, points to a growing build-up of enrolled students taking more time to complete their studies. This is possibly caused by the minimal use of Recognition of Prior Learning (RPL) to shorten study duration for those with prior knowledge, where the AUR package as a whole had a rate of only 14.8% in 2018 – the lowest rate of 10 packages included in NCVER research.[117] Such issues have led some AUSMASA stakeholders to call for more funding and research into RPL, similar to work previously undertaken by the Council of Australian Governments.

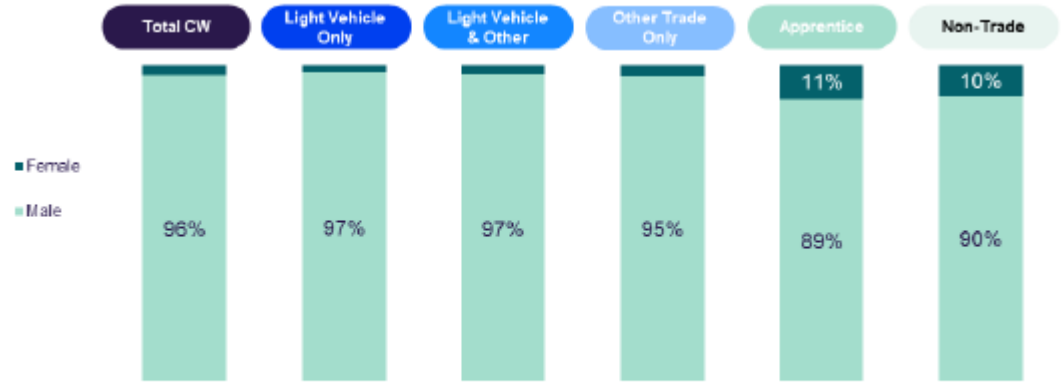
Another reason for this is illustrated by changes at the AQF level – with shorter Certificate II level qualifications falling to 26% (-5%) of enrolments from 2016 to 2023, balanced by a similar-sized increase in longer Certificate III level qualifications, which represented two-thirds of enrolments in 2023. While these changes may not be positive for near-term supply, the former indicates that more students are studying at higher skill levels, particularly through the Certificate III in Light Vehicle Mechanical Technology, which could be of more benefit to the sector provided the qualifications are ultimately completed.

Apprentices are critical to filling key occupations in the sector with both qualified and experienced workers.[118] The completion rate of repair and maintenance apprentices almost doubled from 3,613 in 2018 to 6,635 in 2023. However, with moderately declining 4-year completion rates for all automotive and engineering trades apprentices, this points to continued challenges associated with converting students and apprentices into real supply for the sector's workforce.

Although earlier data suggests that occupation and sector-specific shortages may persist, research AUSMASA commissioned shows some promising signs of change. 11% of apprentices surveyed in this research were female in 2024 (Figure A6). As apprentice roles also attracted the highest proportion of women amongst those surveyed, this suggests there are increasing numbers of entry-level opportunities for young women in the sector, given its high proportion of apprentices and a stable median age of 22 years for female apprentices in VET.[119] AUSMASA plans to continue to monitor these trends to better understand these changes.

[117] National Centre for Vocational Education Research, "Exploring the Recognition of Prior Learning in Australian VET," 2020.
[118] MTA Queensland, "State Election Blueprint Queensland," September 2024.
[119] AUSMASA, "2023 and 2021 Apprentices," AUSMASA.org.au, 2025.

Figure A6: Survey Composition



Base: All Current Workers (n=613), Light Vehicle Mechanic Only (n=340), Light Vehicle Mechanic & Other Trade (n=112), Other Trade Only (n=117), Apprentice (n=42), Non-Trade (n=160)

Key Issues Identified in Automotive Repair and Maintenance

Uncompetitive wages

Many key occupations in the automotive sector require trade qualifications, but the wages for these trade-qualified workers are often lower than those in other trades. Research by the AAAA shows that apprentice automotive technicians earn an average of $40,000 per year, compared to $55,000 for apprentice plumbers, electricians, and carpenters.[120] AUSMASA will continue to work with stakeholders and conduct research to better understand the nuances around this issue and potential solutions.

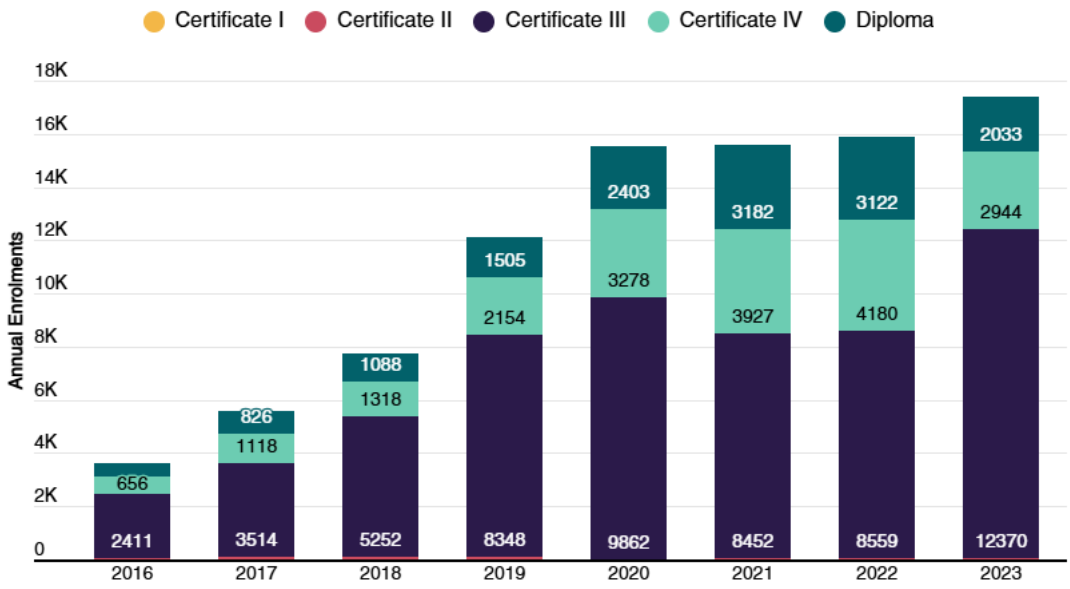
Lack of Mentorship for apprentices

Training providers have expressed concerns about the lack of workplace mentorship, coaching, and support for automotive apprentices due to chronic skills shortages. Workshops are often understaffed, making it difficult to provide holistic support for apprentices, who may also need help with personal issues. This has led training organisations to feel that the responsibility of mentoring has shifted back to them.[121]

[120] Australian Automotive Aftermarket Association. Technician Salary Benchmarking Research. 2023.
[121] AUSMASA, Workforce Plan 2024.

International Enrolments in AUR

Figure A7: International Enrolments in the AUR training package by Qualification level



Source: VOCSTATS, 'Total VET students and courses 2023', 2024

In 2023, 99% of international students were enrolled in the AUR qualifications above certificate level III (Figure A7). However, the qualification does not mandate any minimum number of practical workplace hours. International students generally cannot complete apprenticeships due to the eligibility rules requiring Australian citizenship or permanent residence. As a result, the industry has raised significant concerns about the lack of actual experience that international student graduates are bringing to the workforce. Many indicate that despite holding the required qualifications, graduates can rarely be employed as skilled automotive technicians.[122] AUSMASA will continue to work with industry to better understand potential solutions that can tailor entry pathways better suited to helping employers find qualified workers.

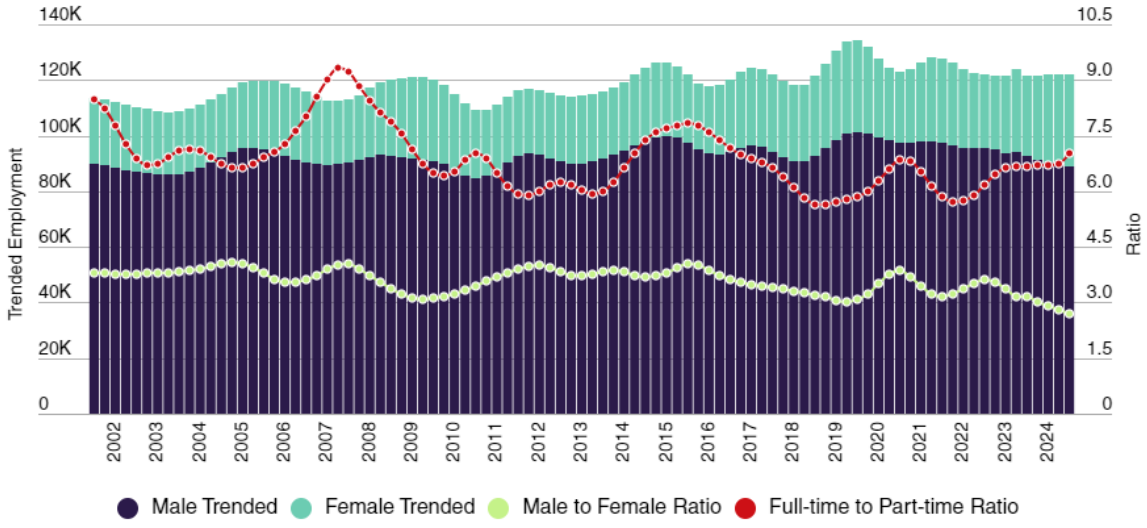
Automotive Retail and Wholesale

Although the automotive retail and wholesale sector has the second-largest workforce in the industry, with 121,000 workers, it has only grown by 3% over the last four years (Figure A8).[123] This recent growth was driven by higher female participation across the workforce and within VET and a shift in favour of more full-time roles. The sector faces issues with retaining existing workers in non-trades roles, as they report lower rates of intending to remain in the industry, despite high new vehicle sales and the need for workers in new digital and service-oriented roles. Latest industry research suggests an increasing proportion of women in the industry have shifted out of retail and office roles and into

[122] AUSMASA, Workforce Plan 2024.
[123] Please refer to our dashboard for Automotive retail and wholesale for an in-depth view on workforce composition and trends, https://ausmasa.org.au/media/2mrjokmz/3539-automotive-retail-and-wholesale.pdf

working 'on the tools'.[124] This is likely driven by the greater flexibility of work offered by automotive retail compared to office-based sales or retail jobs, for example.

Figure A8: Composition and employment trends in the Automotive retail and wholesale industry



Source: ABS, Labour Force, Australia, Detailed, Oct 2024. Data Trended by AUSMASA

On the Brink of Aging Workforce

As of the 2021 Census, the median age of workers in the automotive retail and wholesale sector was 40, comparable to the median age of 42 for all Australian workers (Table A5).[125] While 25% of the sector's workforce was aged 52 and over, retirement poses less of a risk as the sector's non-trade roles are less physically demanding.[126] This enables older workers to remain in the sector for longer, reporting lower rates of job mobility that are often associated with health and reskilling, as they approach retirement.[127] The size of the automotive retail and wholesale workforce has continued to decline, and growth is predicted to moderate over future years. By comparison, 25% of the sector's workforce was 29 years old or younger in the 2021 Census, which was also one year older than in the 2016 Census (Table A4). As the sector continues to shift from traditional sales to more digital and service-oriented roles, with more online vehicle purchasing and customisation, younger workers will shift to new and emerging roles. However, given younger workers have higher rates of job mobility,[128] retention could become problematic. Research commissioned by AUSMASA looks to support this view, given only 34% of automotive workers in non-trade roles saw themselves in the industry for their entire careers, compared to 44% for all automotive workers.

[124] Capricorn, "State of the Nation," Capricorn.coop, 2024.
[125] Australian Bureau of Statistics, "Employment in the 2021 Census | Australian Bureau of Statistics," www.abs.gov.au, 30 November 2022.
[126] Capricorn, "State of the Nation," Capricorn.coop, 2024.
[127] Australian Bureau of Statistics, "Left or Lost a Job," www.abs.gov.au, 24 May 2022.
[128] Australian Bureau of Statistics, "Job Mobility, February 2021 | Australian Bureau of Statistics," www.abs.gov.au, 30 June 2023.

Table A4: Age distribution of the Automotive Retail and Wholesale workforce

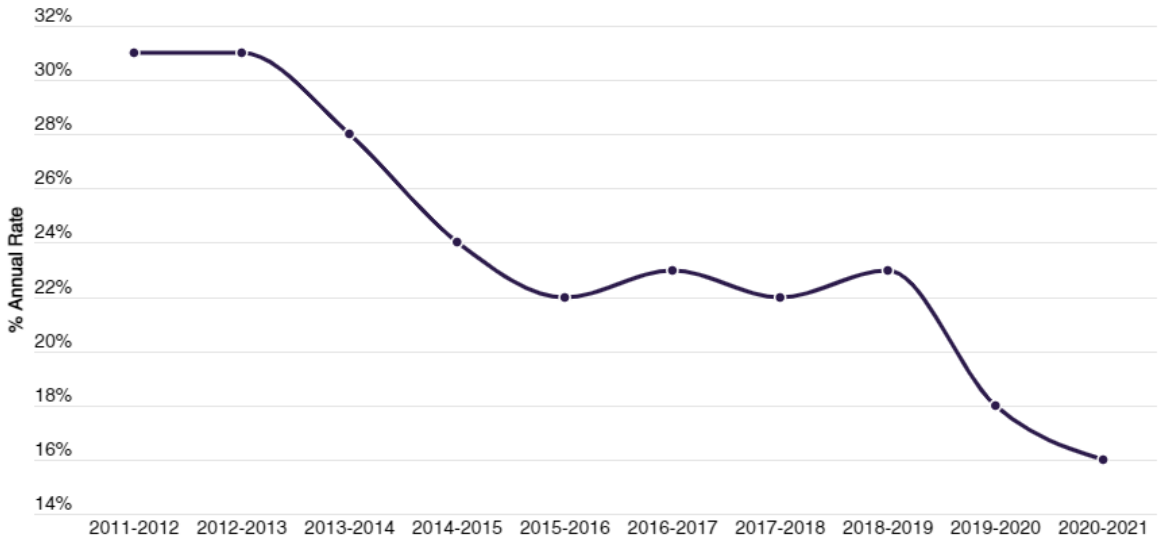
Percentile	2021 Census	2016 Census	Apprentices and Trainees in 2024 Age at the completion
25th	29	28	20
50th (Median)	40	39	24
75th	52	50	31

Source: 2021 Census - counting persons, 15 years and over; 2016 Census - Counting Employed Persons, Place of Work (POW); NCVER VOCSTATS, Apprentices and trainees - June 2024, Age by Type of training by Reporting period and Training contract status

Falling Labour Turnover

Labour turnover in the sector fell to 16% (-15%) in 2020-21 (Figure A9). Falling labour turnover is a positive sign, particularly in a tight job market, as it indicates that the workforce increasingly prefers to stay in the sector. Although positive, the sector's turnover started from a higher level and did not fall as low as that for all other industries, illustrating that its turnover was slightly above 'average.' Within the automotive industry as a whole, the retail and wholesale sector's labour turnover started and remained at a higher level compared to all other sectors within the industry. AUSMASA will continue to work with stakeholders to identify learnings from the sector on reducing labour turnover.

Figure A9: Turnover in the Automotive Retail and Wholesale Industry



Source: JSA, Data on Occupation Mobility, Jan 2024; Key Occupations by Sub-industry mapped by AUSMASA.

Job adverts in the automotive retail and wholesale sector have steadily increased following the COVID-19 pandemic, rising by 9,300 (+74%) from January 2021 to March 2023 (Table A5). However, this trend reversed, with a decrease of 5,000 (or -23%) from March 2023 to October 2024.

Table A5: Top 5 Automotive Retail and Wholesale Occupation Growth in Vacancies

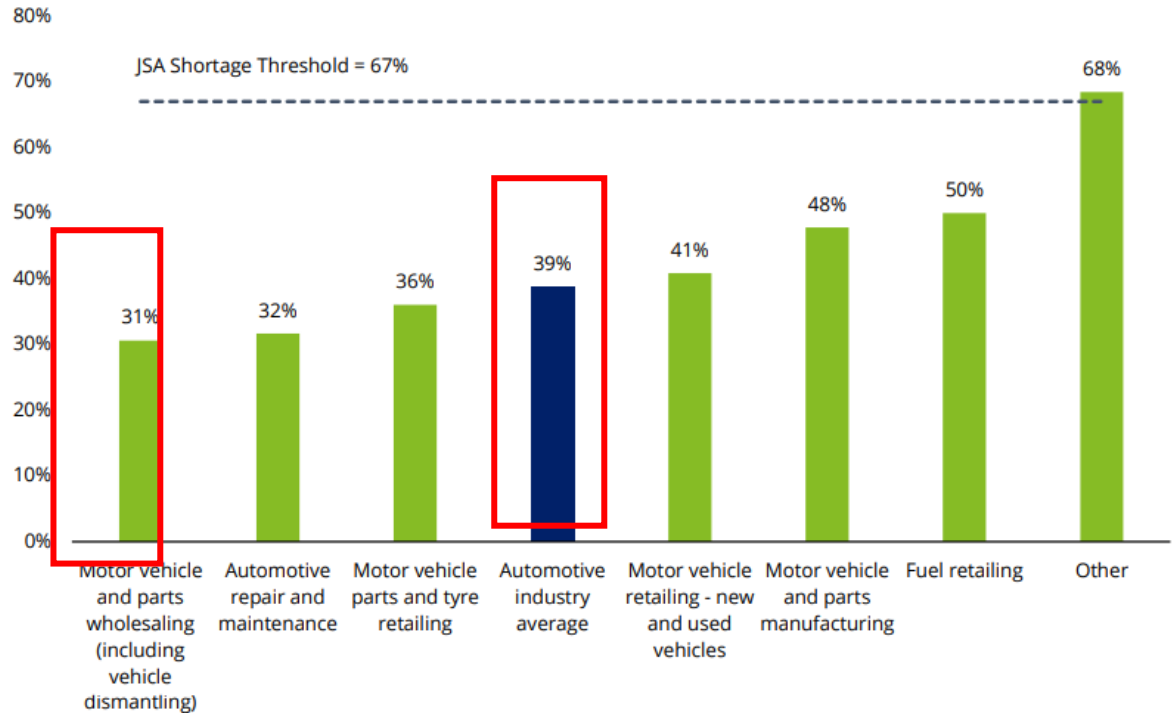
Occupations	Workforce Numbers in 2021 Census	5-Yr changes in IVI	Included in CSOL?	Shortage
Motor Vehicle and Vehicle Parts Salespersons	23,000	63.28%	No	NS
Motor Mechanics (Automotive Technician)	14,000	55.69%	Yes	S
Car Detailers	4,000	74.34%	Yes	NS
Sales Representatives	3,000	17.79%	No	No data
Storepersons	3,000	67.27%	No	NS

Source: JSA, Internet Vacancy Index Oct 2024; Key Occupations by Sub-industry mapped by AUSMASA; Total workforce numbers are based on the Automotive Retail and Wholesale snapshot in the workforce plan 2024, including Core Occupation Skills and Occupation Shortage List.
Notes: S: Shortage; NS: Not in Shortage. Our conversations with industry indicate that the Census numbers may be smaller than reality, we welcome the identification of data sources that can paint a more accurate picture.

Employers' rates of recruitment difficulty and ability to fill vacancies are two key measures of labour shortages used in JSA and industry research, with a fill rate of less than 67% associated with a higher chance of occupation shortages (Figure A10).[129] JSA research found recruitment difficulty had converged across ANZSIC's Wholesale and Retail Trade divisions, which capture workers across automotive retailing, wholesaling, and others, due to increases in difficulty for Retail Trade and decreases for Wholesale Trade over the four quarters to March 2024.[130] However, industry-specific research from the MTAA looks to go against the broader division-level trends, with fill rates for the automotive wholesaling subsector 10 percentage points lower than those for the automotive retailing subsector.[131] Since an inverse relationship between recruitment difficulty and fill rates can usually be expected,[132] both JSA and industry research suggest the automotive wholesaling subsector faces greater difficulties with recruitment and vacancies than automotive retailing and Retail Trade more broadly.

[129] JSA, "2024 Occupation Shortage List," 14 October 2024.
[130] JSA, "Labour Market Update," March 2024.
[131] Deloitte Access Economics, "Automotive Skills Shortages". 31 May 2024.
[132] JSA, "2024 Occupation Shortage List," 14 October 2024.

Figure A10: Sub-industry fill rates



Similarly, JSA data at ANZSCOs second lowest unit group level partially differs from more detailed industry data. For example, while Customer Service Managers had fill rates of 79%[133] and 78%[134] at the unit level in JSA research and the occupation level in the MTAA's, all Sales Representatives had a 69% fill rate in JSAs research,[135] compared to fill rates in MTAA's industry research of 48% for Sales Representatives (Motor Vehicle Parts and Accessories), 56% for Motor Vehicle Parts Interpreter / Automotive Parts Salespersons, and 78% for Motor Vehicle or Caravan Salespersons.[136] None of the sector-specific sales occupations were classified as being in a national shortage as part of JSA's Annual Skills Priority List.[137] Given the importance of these sector-specific sales occupations to automotive retailing and wholesaling, their sub-67% fill rates in industry research suggest the sector faces occupation shortages that are not always visible in JSAs research. AUSMASA will continue to advocate for better alignment of the migration system, and better resolution of skill shortages for industries within our remit.

Enrolments in AUR Retail and Wholesale Qualifications

Over time, enrolments, and completions for AUR retail and wholesale qualifications have remained flat, with some notable fluctuations. From 2016 to 2018, enrolments decreased by 30% from 2,423 to 1,688 students and remained flat until they increased by 40% from 1,730 to 2,471 students from 2021 to 2023. Female students followed the same decreasing and increasing trend, accounting for a steady

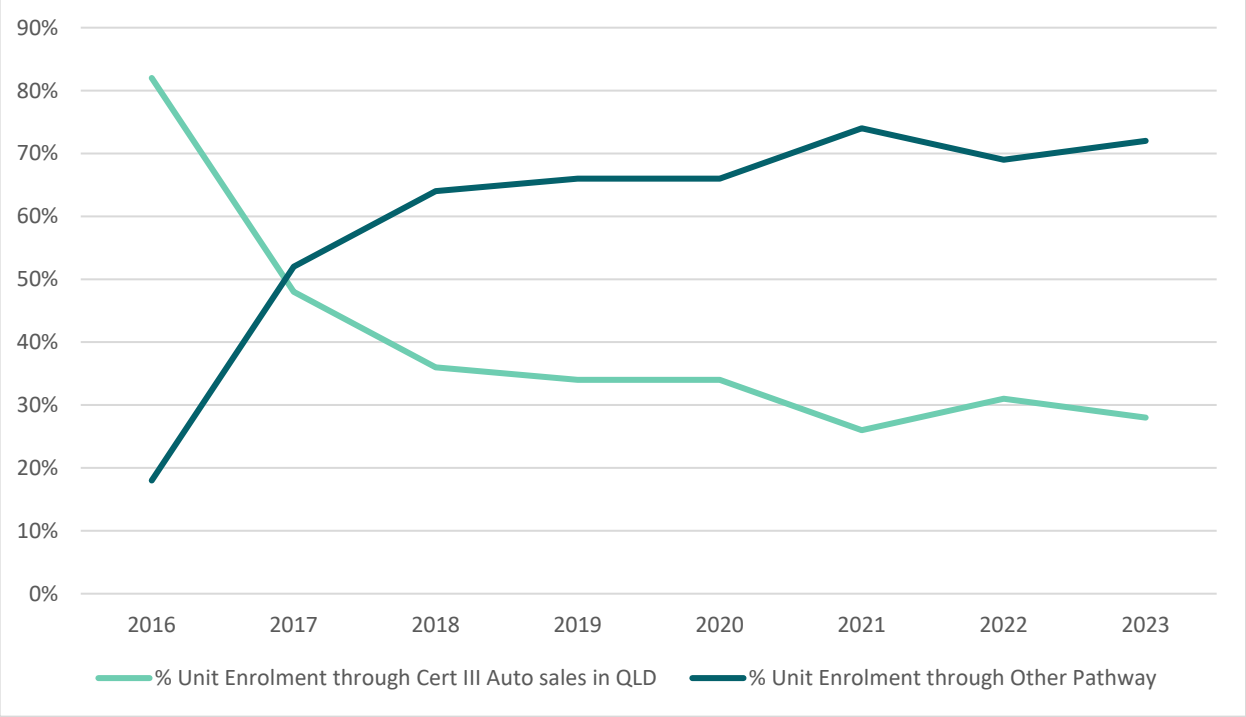
133 JSA, "2024 OSL Key findings report figures and tables," 14 October 2024.
134 Deloitte Access Economics, "Automotive Skills Shortages". 31 May 2024.
135 JSA, "2024 OSL Key findings report figures and tables," 14 October 2024.
136 JSA, "Vacancy Report January 2024," 14 February 2024.
137 JSA, "Vacancy Report January 2024," 14 February 2024.

average of 20% of enrolments from 2016 to 2023 – the highest proportion across all automotive qualifications. By comparison, from 2016 to 2018 completions almost doubled from 246 to 480 students, remaining near this level into 2020. However, completions notably fell 30% to 318 students in 2021 and largely remained at this level into 2022, before a large 86% increase to a new high of 652 student completions in 2023. As all AUR retail and wholesale qualifications are at the Certificate III level, and the proportion of part-time students remained steady at an average 96% of enrolments from 2016 to 2023, we cannot determine the exact reasons for the recent increase in completions from the data alone. However, increases in commencements and enrolments from 2022 onward likely contributed, with higher commencements and enrolments adding to higher completions in 2023 and future years, adding to the supply of the sector's workforce. We would welcome insight from industry and partners into supply and demand forces acting on the VET sector.

By jurisdiction, Queensland accounted for an outsized proportion of students (Figure A11). This is because the state accounted for 61% of enrolments and 50% of completions on average each year from 2016 to 2023, despite only accounting for 22% of the workforce. As noted in our 2024 Workforce Plan, such discrepancies are of interest to us as they suggest mismatches between VET supply and the wider workforce. In this case, it is worth noting that Queensland requires its motor dealers to hold a license that requires completion of one of two sets of several units from the Certificate III in Automotive Sales;[138] which in turn accounted for 92% of all student enrolments in retail and wholesale qualifications on average from 2016 to 2023. However, because Queensland only requires completion of the units for the license, enrolments in them via the qualification fell 54 percentage points from 82% of unit enrolments in 2016 to 28% in 2023, in favour of other pathways. As such, an increasing proportion of Queensland's students opt to avoid or withdraw from a full qualification in favour of the units only, which the state's lower proportion of enrolments and completions also looks to support – raising questions about completing a full qualification in the state.

[138] Queensland Government, "Apply for a motor dealer license", 26 November 2021.

Figure A11: Motor Dealer Unit Enrolment Pathway, Queensland



Key issues identified in Automotive Retail and Wholesale

The automotive retail and wholesale sector is experiencing gradual changes in consumer behaviour and how manufacturers bring products to market. The ability to complete vehicle orders online is becoming more common, particularly among EV brands like Tesla and BYD, which have replaced traditional dealerships with company-owned stores. This shift has reduced the role of salespersons to order fulfilment in some cases. These changes highlight the evolving landscape of the automotive retail and wholesale industry, driven by technological advancements and changing consumer preferences.[139] AUSMASA will continue to research and work with stakeholders to identify opportunities for workforce reskilling and redeployment.

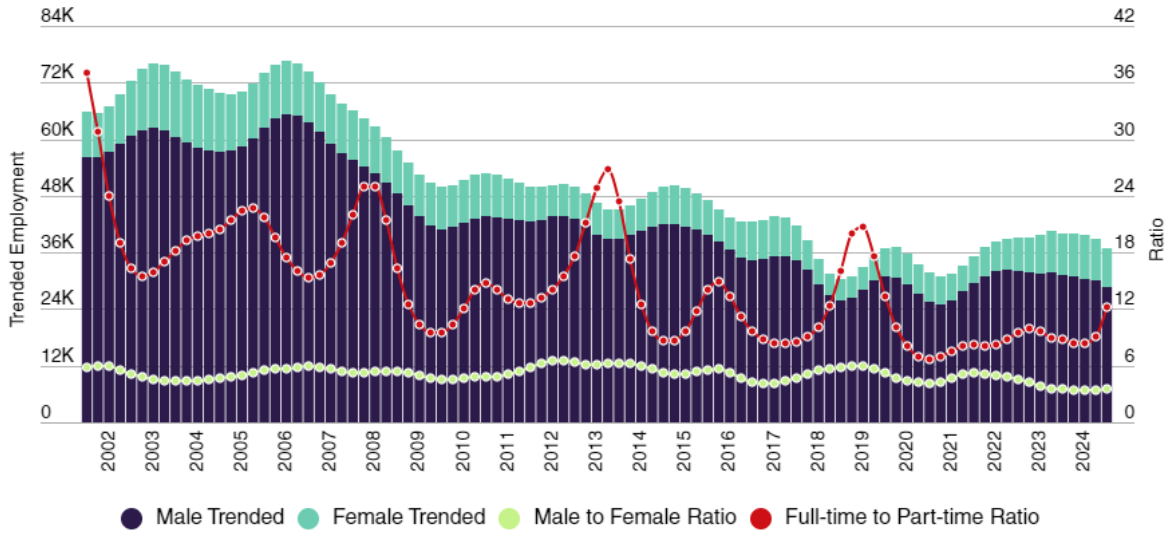
Automotive Manufacturing

The automotive manufacturing sector, employing 37,000 individuals as of October 2024, has seen a notable increase in female participation (Figure A12). The ratio of male to female workers fell from 6:1 in the early 2000s to 4:1 in 2024.[140] This sector has also shifted towards more full-time employment, which rose by 8% as part-time employment fell by 10%. However, despite these positive trends, the sector faces challenges with an ageing workforce, as a quarter of employees are over 52 years old, indicating potential future labour shortages as workers retire. Additionally, with VET enrolments and

[139] AUSMASA, Workforce Plan 2024.
[140] Please refer to our dashboard for Automotive manufacturing for an in-depth view on workforce composition and trends, https://ausmasa.org.au/media/k0if0dqc/231-automotive-manufacturing.pdf

completions remaining stable, the sector will likely require a greater contribution from VET to keep up with demand and support the shift towards specialized vehicle manufacturing and associated skills.

Figure A12: Composition and employment trends in automotive manufacturing



Source: ABS, Labour Force, Australia, Detailed, Oct 2024. Data Trended by AUSMASA

An Aging Workforce

The median age of automotive manufacturing employees went from 43 to 42 between the 2021 and 2016 censuses, compared to the Australian median worker age of 42.[141] The stability in the median age indicates robust fill rates in the industry. However, across the census years, the oldest quarter of the workforce was above 52 – nearing retirement. The sector's shift to manufacturing more specialised vehicles and components has required different skills and training.[142] This creates career path dependence and the potential for a retirement cliff. It also means that replacement workers have higher barriers to entry in terms of training and specialised training needs. As older workers transition into training and mentoring roles, it can affect their work experience and may cause higher attrition rates or lower productivity causing future labour shortages (Table A6).

Table A6: Age distribution of the automotive manufacturing workforce

Percentile	2021 Census	2016 Census	Apprentices and Trainees in 2024 Age at the completion
25th	31	33	20

[141] Australian Bureau of Statistics, "Employment in the 2021 Census | Australian Bureau of Statistics," www.abs.gov.au, 30 November 2022.
[142] AUSMASA, "Industry Workforce Plan Moving Ahead Together 2024," 2024.

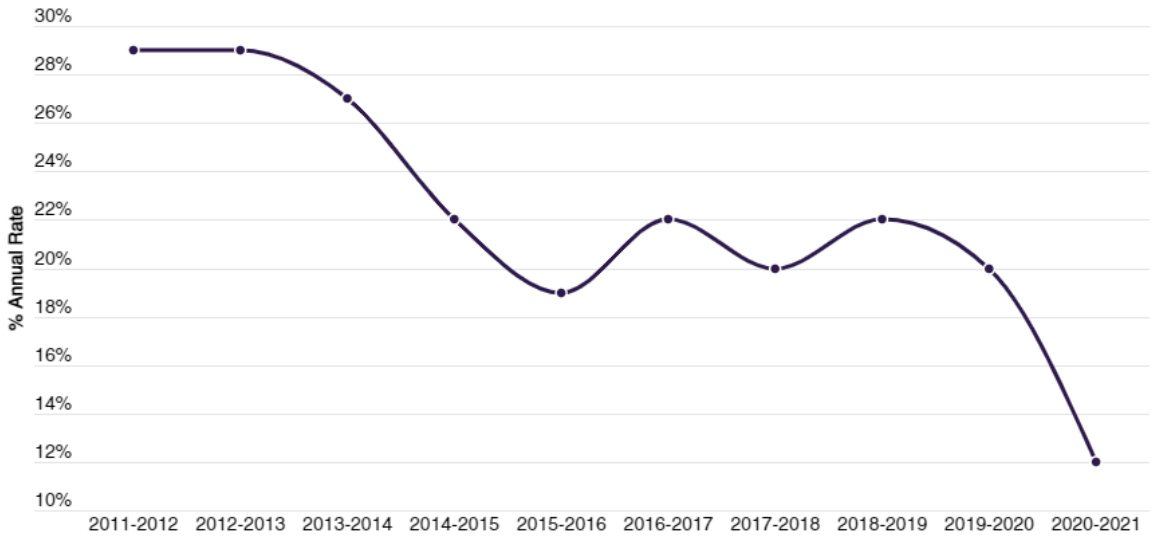
50th (Median)	42	43	22
75th	52	52	27

Source: 2021 Census - counting persons, 15 years and over; 2016 Census - Counting Employed Persons, Place of Work (POW); NCVER VOCSTATS, Apprentices and trainees - June 2024, Age by Type of training by Reporting period and Training contract status

Falling Labour Turnover

Labour turnover in the automotive manufacturing industry has fallen to 12% (-17%) in 2020-21 (Figure A13), representing the largest fall within the automotive industry. Falling labour turnover is a positive sign, particularly in a tight job market, as it indicates that the workforce prefers to stay in the sector, and in this case, in this sector more than the rest of the industry. AUSMASA will continue to research and work with stakeholders to better understand the learnings from this falling trend, which may be activated for the broader industry and used to further reduce turnover.

Figure A13: Turnover in the automotive manufacturing industry



Source: JSA, Data on Occupation Mobility, Jan 2024; Key Occupations by Sub-industry mapped by AUSMASA.

Job adverts for vacancies in the automotive manufacturing sector have steadily increased following the COVID-19 pandemic, rising by 13,300 (+77%) from January 2021 to March 2023. Subsequently, vacancies then fell by 6,400 (-21%) from March 2023 to October 2024.

Table A7: Top 5 Automotive Manufacturing Occupation Growth in Vacancies

Occupations	Workforce Numbers in 2021 Census	5-Yr changes in IVI	Included in CSOL?	Shortage
Structural Steel and Welding Trades Workers	3,600	23.42%	Yes	S
Product Assemblers	2,800	27.78%	No	No data
Vehicle Body Builders and Trimmers	1,800	30.38%	Yes	S
Industrial, Mechanical and Production Engineers	1,500	40.07%	Yes	S
Metal Fitters and Machinists	1,300	45.92%	Yes	S

Source: Jobs and Skills Australia, Internet Vacancy Index Oct 2024; Key occupations by sub-industry mapped by AUSMASA; Total workforce numbers are based on the Automotive Manufacturing snapshot in the workforce plan 2024, including Core Occupation Skills and Occupation Shortage List.
Notes: S: Shortage; NS: Not in Shortage. Our conversations with industry indicate that the Census numbers may be smaller than reality, we welcome the identification of data sources that can paint a more accurate picture.

Enrolments in AUM Automotive Manufacturing Qualifications

Student enrolments and completions for AUM automotive manufacturing qualifications have remained stable over time. From 2016 to 2020, enrolments and completions fell to 391 (-33%) and 78 (-10%), respectively. The fall in completions looks to be driven by changes at the AQF level, with the proportion of students studying Certificate III qualifications that take longer to complete increasing to 91% (+22%) from 2016 to 2018 and remaining stable into 2020. However, from 2020 to 2023 enrolments and completions increased, respectively, by 551 (+41%) to 103 (+31%) students. Although falls in completions may not be positive for more immediate workforce supply, it is worth noting that shifts in favour of longer, Certificate III qualifications mean students are studying at higher skill levels, which will likely be of more benefit to the sector in the long term.

By jurisdiction, Western Australia was well represented in this data, as it accounted for 27% of enrolments and 36% of completions on average from 2016 to 2023. Similarly, New South Wales and Queensland both accounted for 25% of enrolments, and 29% and 26% of completions, respectively, on average from 2016 to 2023. While Victoria also accounted for 23% of enrolments, it only accounted for 8% of completions on average over this time. In comparison, in 2016, Victoria accounted for closer to half of enrolments, while Western Australia, Queensland, and New South Wales accounted for closer to one-fifth of enrolments.[143] This change is of interest to us as Victoria still accounts for 54% of Australia's automotive manufacturing workforce, followed by Queensland at 21%, New South Wales at 11%, and Western Australia at 9%. The workforce in both New South Wales and Western Australia is smaller than the data on VET students would suggest.

Key Issues Identified in Automotive Manufacturing

Australia's adoption of EV technology is creating new automotive manufacturing opportunities and challenges. The industry is also poised to support local EV component manufacturing, including batteries if Australia's Critical Mineral Strategy is fulfilled.[144] This would increase demand for existing skills and require new, advanced skills linked to emerging technologies, ranging from EV technicians to programming and diagnostic experts who lead the implementation and development of complex safety and driving software.

[143] In 2016, Victoria accounted for 47% of enrolments, compared to 19% of enrolments for both New South Wales and Queensland.
[144] Mard Dean, "Rebuilding Automotive Manufacturing in Australia: Industrial Opportunities in an Electrified Future", 2022.

Appendix

Thematic coding for all 2024 Areas of Focus (AoFs).

AoF	Detailed Title	Theme
M1 - Mining	Reversing the trend of declining enrolments in engineering (especially mining-related) and Earth Sciences degrees is key. Initiatives such as Degree Apprenticeships may assist the higher education sector, and industry, to attract, support and retain students into such specialised fields. Industry would be well placed to work closely with the higher education sector in exploring how Degree Apprenticeships could be adopted.	Education & Pathways
M2 - Mining	AUSMASA will investigate initiatives such as higher apprenticeships. This work, coupled with ongoing work to identify the skills needs and career progression pathways for critical roles within the mining and automotive industries, will aim to offer innovative solutions for industry.	Education & Pathways
M3 - Mining	AUSMASA will monitor the changes to trainer qualification requirements in addressing trainer shortages and accessibility of vocational education and training, while also working closely with other JSCs to explore broader strategies required to encourage more people to consider engaging with the VET sector as a trainer and assessor.	Education & Pathways
M4 - Mining	AUSMASA will conduct further research into both the unequal geographical distribution and the longer-term decline of RII qualification enrolments within the metal ore mining sector.	Education & Pathways
M5 - Mining	AUSMASA will continue to work closely with industry and the National Careers Institute (NCI) to explore ways of better promoting the full breadth of career opportunities within the mining industry.	Workforce Attraction, Retention, & Wellbeing
M6 - Mining	The industry should continue to encourage and support female employment opportunities across all occupations within the mining industry, with the aim of addressing the existing gender pay gap and ensuring comprehensive workforce diversification.	Building Inclusive, Respectful, and Diverse Workplaces
M7 - Mining	AUSMASA, in partnership with industry and employee representatives, will ensure digitisation and automation training programs and support mechanisms are in place to harness each worker's existing skills and impart new skills.	Technological Advancement & Digitisation
M8 - Mining	Given digital skills and digital literacy is a core aspect of technological advancement, AUSMASA will continue to work closely and collaboratively with the JSC responsible for digital skills – the Future Skills Organisation – while conducting its own work around skills mapping.	Technological Advancement & Digitisation
M9 - Mining	AUSMASA will continue to work closely with industry and CRC TiME to define what VET programs could be developed to support this important workforce need.	Workforce Attraction, Retention, & Wellbeing

M10 - Mining	AUSMASA proposes to collaborate with other JSCs to develop an accredited training program, with supporting resources, for developing safe and respectful workplaces. This program would be made available across multiple training packages.	Building Inclusive, Respectful, and Diverse Workplaces
M11 - Mining	Research is required to quantify the effects of mental health issues on productivity and compensation claims within the mining industry.	
M12 - Mining	AUSMASA proposes to collaborate with other JSCs, especially HumanAbility, to investigate the appropriateness of current mental health training programs and packages for remote workers such as those in the mining industry.	Workforce Attraction, Retention, & Wellbeing
M13 - Mining	AUSMASA will continue to monitor First Nations training, apprenticeships, and job outcomes to identify best practices and assist in addressing the challenges faced by First Nations individuals in securing and thriving in mining careers. By analysing these outcomes, the industry will have the data it needs to implement targeted strategies and improve support.	Building Inclusive, Respectful, and Diverse Workplaces
M14 - Mining	While capturing the transition to electrification using ANZSCO presents some difficulties, AUSMASA welcomes the release of JSA's Clean Energy Capacity Study and looks forward to providing key insights into this workforce transformation challenge.	Technological Advancement & Digitisation
M15 - Mining	The VET sector must be ready and responsive to the future transformation of the coal industry workforce. AUSMASA will work closely with the industry to ensure innovative and engaging training programs are available.	Sustainability & Industry Transformation
M16 - Mining	Given the significant implications critical minerals will have on Australia's mining and economic future, AUSMASA proposes that the ABS consider creating a new ANZSIC code. This initiative will facilitate and allow accurate workforce planning data to be produced quarterly through the ABS's Labour Force survey.	Technological Advancement & Digitisation
M17 - Mining	A key priority for AUSMASA will be to work closely with industry and relevant government bodies in identifying any skills gaps within the current workforce and emerging skills required to assist in making these critical mineral strategies a reality. A particular focus will be on determining if current processing-related qualifications will be fit for purpose in relation to onshore refining and processing of critical minerals.	Sustainability & Industry Transformation
A1 - Automotive	While the automotive industry has several programs designed to attract and support a more diverse workforce, it must continue to prioritise this and lead from the top down. A diversified workforce will help further improve the industry's perception and consequently attract new entrants into automotive careers.	Building Inclusive, Respectful, and Diverse Workplaces
A2 - Automotive	Industry feedback will be important in relation to the challenges faced in trying to fill vacancies and the	Building Inclusive, Respectful, and

	importance that skilled migration plays in being able to meet skills demand.	Diverse Workplaces
A3 - Automotive	The ABS should consider adjusting its terminology within ANZSCO to replace the word 'mechanic' with 'technician'.	Workforce Attraction, Retention, & Wellbeing
A4 - Automotive	Consideration by government in relation to how industry can be better supported in the critical role of apprenticeship mentoring and support is seen as critical to improving retention and graduation rates. AUSMASA will continue to work with industry to advocate for government support that is targeted, and outcomes based.	Education & Pathways
A5 - Automotive	AUSMASA will work closely with industry to explore how automotive pathway programs can be better designed to address LLND barriers in addition to introducing industry skills and tasks.	Building Inclusive, Respectful, and Diverse Workplaces
A6 - Automotive	AUSMASA will investigate the possibility of embedding specific requirements for mandated workplace hours in key AUR qualifications to ensure students undertaking them outside of an apprenticeship pathway are provided the opportunity to apply their learnings and gain actual industry skills.	Workforce Attraction, Retention, & Wellbeing
A7 - Automotive	AUSMASA will collaborate with the industry to determine how the AUR training package can best support the introduction of ICE and EVs in an evolving repair and maintenance environment.	Education & Pathways
A8 - Automotive	AUSMASA will work with the ABS through its review of ANZSCO to advocate for the addition of EV Technician to the occupation list.	Technological Advancement & Digitisation
A9 - Automotive	Given the automotive industry's safety needs and their intersection with accident repair, AUSMASA will collaborate with PSA to investigate the development of an accredited training program for EV safety and emergency response.	Technological Advancement & Digitisation
A10 - Automotive	AUSMASA will work closely with industry to explore what unique skills are required for the dismantling and recycling of EV vehicles in an end-of-life setting.	Sustainability & Industry Transformation
A11 - Automotive	There are currently no nationally accredited training programs for the service, repair, and safe handling of hydrogen as it relates to vehicles within the VET system. Accordingly, AUSMASA is progressing a project proposal for the development of accredited training elements.	Sustainability & Industry Transformation
A12 - Automotive	AUSMASA will continue to work with industry to determine what changes to other qualifications or licensing may be required to empower automotive workers to perform some or all ADAS recalibration tasks.	Technological Advancement & Digitisation
A13 - Automotive	A key priority for AUSMASA will be to work with stakeholders in identifying the digital skills needs of the industry through use of the Australian Digital Capability Framework.	Workforce Attraction, Retention, & Wellbeing

A14 - Automotive	AUSMASA will continue to work closely with industry to explore what additional skills may be required to fully realise the opportunities of EV components.	Technological Advancement & Digitisation
A15 - Automotive	More information is necessary to improve the skilled migration system's efficiency and responsiveness to the automotive industry skills shortages.	Sustainability & Industry Transformation

Mining and Automotive Skills Alliance

The Mining and Automotive Skills Alliance (AUSMASA)
is a Jobs and Skills Council funded by the
Australian Government Department of Employment and Workplace Relations.