Mining and Automotive Skills Alliance

Submission to Climate Change Authority on 2024 Issues Paper: Targets, Pathways and Progress

Submitted via consultation@climatechangeauthority.gov.au

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Jobs and Skills Councils
An Australian Government Initiative

2024 Issues paper: Targets, Pathways and Progress

The Mining and Automotive Skills Alliance (AUSMASA) welcomes the opportunity to provide feedback on the Climate Change Authority's 2024 Issues Paper: Targets, Pathways and Progress.

The submission covers the following information:

- Details on AUSMASA's role and the industries and workforces within its remit
- Insights into the mining and automotive workforces' transition to net zero
- Detailed responses to the Climate Change Authority's consultation questions.

In keeping with the Issues Paper's scope, this submission focuses on emissions that arise directly from activities in sectors within AUSMASA's remit (or scope 1 emissions).

Who we are and what we do

AUSMASA is the Jobs and Skills Council (JSC) responsible for Australia's mining and automotive industries. With a combined workforce of approximately 613,000 workers, our industry coverage spans the entire mining division (excluding oil and gas) and several automotive divisions within the Australian and New Zealand Standard Industry Classification (ANZSIC) (see Appendix 1).

Our role is to identify current and future workforce requirements in the mining and automotive sectors while also considering related industries. A key focus of this work is ensuring the vocational education and training (VET) system, is fit for learners, employees, and employers. We are also responsible for the following nationally recognised training products:

- AUM - Automotive Manufacturing
- AUR - Automotive Retail, Service and Repair
- RII - Resources and Infrastructure Industry (mining)

AUSMASA recognises the evolving demands of climate change and the transition to net zero as a significant opportunity and challenge for Australia's mining and automotive workforces now and in the future.

Overview of the mining and automotive workforces

As outlined in the Issues Paper, Australia's resources sector currently contributes over 13% of GDP while accounting for just over 2% of total employment.[1] Based on AUSMASA's industry coverage, we estimate that this equates to a mining workforce of approximately 292,627 workers in:

- Coal mining – 50,353 workers
- Metal Ore Mining – 143,326 workers
- Non-Metallic Mineral Mining and Quarrying – 21,143 workers
- Exploration and Other Mining Support Services – 77,805 workers (see Appendix 1).

AUSMASA considers that the transition to net zero has important ramifications for coal mining since fugitive emissions arising from underground coal mines are the largest source of scope 1 emissions in our remit. We also consider the transition to net zero has important implications for 320,151 workers in manufacturing, wholesaling, retailing and other automotive services (see Appendix 1).

Mining workforce transition

Fugitive emissions are the primary source of scope 1 emissions in the resources sector, and they mostly arise from underground coal mining.[2] To abate these emissions, new technologies for Ventilation Air Methane (VAM) must be deployed to capture, destroy, or even use methane that would otherwise be released as fugitive emissions.[3] To assist the development and commercial viability of this technology, state governments have funded various projects and the Commonwealth recently created the Resources Methane Abatement Fund for prototype and demonstration projects.[4]

While this technology is relatively new, past VAM projects have illustrated the importance of collaboration between project teams and a coal mine's workforce to safely abate fugitive emissions.[5] However, this could be problematic if current skills shortages persist into the future – with the 2023 Skills Priority List identifying 8 of the coal mining industry's top 10 most common occupations, including all of the industry's top 5 occupations, as experiencing a shortage.[6] The projected closure of up to 240 mines by 2040 could also risk displacing workers and exacerbating such shortages.[7]

A diverse workforce is an important factor for ensuring a sufficient labour supply to meet the needs of the transition to net zero.[8] At present, the demographics of Australia's coal mining workforce include underrepresentation in some areas, with low rates of female (14%) and First Nations employment (5%), along with a heavily concentrated workforce near coal reserves in Queensland (53%) and New South Wales (39%). In addition, the delivery of VET Resources and Infrastructure Industry (RII) training packages for coal mining is heavily concentrated in Queensland (86%).

Under- and overrepresentation throughout the workforce represents an important opportunity for diversification, to address skills shortages and meet the demands of the transition to net zero. In

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1 Climate Change Authority. Issues paper: Targets, Pathways and Progress. 2024.
2 Climate Change Authority. Issues paper: Targets, Pathways and Progress. 2024.
3 CSIRO. Mine ventilation air methane abatement. 2021.
4 Australian Government. Methane abatement technology projects receive $4.35 million. 2023.
5 Global Methane Initiative. Coal Methane Success Story. 2013.
6 Jobs and Skills Australia. 'Skills Priority List'. 2023
7 CSIRO. Enabling mine closure and transitions: Opportunities for Australian industry. 2023.
8 Climate Change Authority. Issues paper: Targets, Pathways and Progress. 2024.

some cases, the VET system is already working to meet these challenges – for example, enrolments by female students in coal mining RII training packages increased two-fold between 2015 and 2022, and by 48% year-on-year from 2021 to 2022. However, ensuring that this growth continues and is translated into real labour supply in the workforce could be an ongoing challenge for the industry.

Automotive workforce transition

Similar issues and opportunities also exist where the mining and automotive workforces intersect. After coal mining's fugitive emissions, the next largest source of scope 1 emissions in the resources sector is fuel combustion, with most of these emissions associated with the use of diesel for heavy automotive and mining equipment.[9] Other sources of emissions in the resources sector include the use of diesel by trucks, other vehicles, and by pit crushing and conveying equipment.[10]

Given most diesel emissions originate from heavy haulage and mining equipment, technologies that can abate these emissions are critically important. Liebherr's recent 'repower' of its R 9400 excavator represents one example of the technology the industry can use to reduce its emissions. For this project, the excavator's conversion from diesel-drive to electric power was timed to coincide with other maintenance, reducing costs, downtime, and ultimately, the waste and embodied carbon emissions that would otherwise result from full replacement with a new electric system.[11]

While Liebherr noted the repower process was not overly complicated, they said that they needed to draw on expertise from their factory in France to support local Australian workers.[12] This is linked to a broader, key issue for the wider automotive industry – with a recent survey finding that across the industry, 29% of vacancies were eventually filled via visa sponsorship, rising to 41% for motor mechanics (general) and 93% for vehicle body builders.[13] These industry insights illustrate skilled migration's importance to a range of automotive worker shortages and vehicle types, both of which will be transformed as part of climate change and their transition to net zero.

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9 Climate Change Authority. Issues paper: Targets, Pathways and Progress. 2024.

10 Climate Change Authority. Issues paper: Targets, Pathways and Progress. 2024.

11 Liebherr. Groundbreaking 2 | 2023. 2023.

12 Liebherr. Groundbreaking 2 | 2023. 2023.

13 Deloitte Access Economics. Skills shortages in the Australian automotive industry. 2024.

Consultation question responses

Questions	Responses
How should the authority take account of climate science and Australia's international obligations in considering possible emissions reductions targets for 2035?	AUSMASA acknowledges Australia's coal industry, in particular, will come under increasing pressure as the world acts to reduce emissions based on well-established climate science. For example, the International Energy Agency's Net Zero by 2050 Roadmap calls for no additional final investment decisions for new unabated coal plants, for the least efficient plants to be phased out by 2030, and for any plants still in use by 2040 to retrofitted.[14] AUSMASA agrees with the Authority's assessment that, as Australia fossil fuel exports decline, there are risks that other nations may 'fill the gap' by increasing their exports.[15] While this would lead to emissions that are largely beyond Australia's control, we agree that the Authority should account for them when considering our international obligations and potential emissions reduction targets.
How should the authority weight the goals of ambition and achievability in considering possible emissions reductions targets for 2035?	
How can Australia further support other countries to decarbonise and develop sustainably?	Given AUSMASA's remit, which is to support Australian employers, unions, and governments to find solutions to domestic skills and workforce challenges, we consider that this question is largely outside of our role as a Jobs and Skills Council.
What technologies are important for each sector's pathway to net zero and why?	Projects for VAM and electric hydrogen/powered haulage are key technologies for the mining and automotive sectors' transition to net zero. As outlined earlier, this is because the deployment of these and similar technologies would reduce the two largest sources of scope 1 emissions from mining. In addition, technologies that facilitate the transition from diesel to electric/hydrogen-powered trucks, vehicles, and other equipment are important to both the mining and automotive sectors' wider transition.
How can governments use mandates, rules, and standards to accelerate Australia's decarbonisation? Is more planning by	An appropriate balance of government planning, coordination, and private investment is needed for the mining and automotive workforces' transition. Private

[14] International Energy Agency, Net Zero by 2050 - A Roadmap for the Global Energy Sector, released May 21.
[15] Climate Change Authority. 2035 Emissions Reduction Targets. 2024.

governments needed? If so, how should this be coordinated, and how can this be done while making the transition inclusive, adaptive, and innovative?	and publicly stimulated investment has already brought 'dividends' in the form of new projects for VAM and electric hydrogen/power. However, successful prototypes and demonstration projects must be deployable at scale to meaningfully reduce emissions; which is where government planning and coordination may be required. For example, government could ensure that training for the mining and automotive workforces is sufficiently generic and standardised to support the deployment of a range of different emissions reduction solutions. Of note, AUSMASA has already partnered with the government to establish Australia's first TAFE EV Centre of Excellence alongside Tesla and Komatsu. Such partnerships on Automotive Industry Retail, Service and Repair (AUR) training packages are an important model for collaboration that can prepare trainees and apprentices to work on a range of emissions reduction solutions.
How can governments stimulate private finance needed for the net zero transition – are there innovative instruments that could be deployed or new business models that governments could support? Is there a bigger role for governments to play in coordinating the investment needed to transition the economy?	
How can governments better support markets, including carbon markets, to deliver emissions reduction outcomes?	
What further actions can be taken by governments (e.g. through public funding), the private sector and households to accelerate emissions reductions, including in relation to the deployment of technologies and access to new opportunities in the transition to net zero? What barriers stand in the way and how could they be overcome?	Unlike AUR training packages, which include TAFE providers and utilise government funding, all coal-specific RII training packages are delivered by private registered training organisations; and, almost all (92%) are delivered under fee-for-service arrangements (i.e., without government funding). As a result, the government may have fewer funding or other levers available to accelerate how coal-specific RII training packages engage with the deployment of emissions-reducing technologies. If this became a barrier to government-initiated actions, one solution may be direct partnerships between government and employers for certain training packages, which an organisation like AUSMASA could work to facilitate. In relation to allocating resources, the only other important point AUSMSA would re-emphasise is that the scalable deployment of any prototype technology or project requires a suitably skilled workforce.
How should governments decide upon the appropriate allocation of resources towards reducing emissions, removing carbon from the atmosphere, and adapting to climate change impacts?	
How can governments, businesses and people, including First Nations people, help ensure the	

benefits and burdens of the net zero transition are equitably shared?	AUSMASA agrees that a 'just transition' must be central to Australia's transition to net zero. This concept recognises that the impacts of climate change and climate adaptations, including their benefits and burdens, must be shared equitably. While this creates a role for all Australians in the transition to net zero, it also needs to reflect the unique place of First Nations Australians. As outlined in the Issues Paper, First Nations people work in emissions-intensive industries at a higher rate (3.4%) than average (1.9%), while working in clean energy at the average rate (1.4%).[16] More specifically, more First Nations people work in coal mining (5%) than mining overall (4.6%), which is also above their average for all industries (2.6%). The fact that the mining industry operates directly on the land of many First Nation peoples is also an important factor to consider here. As a result of this, and coal mining's role in fugitive emissions, there is a clear case for First Nations people to play a leading role in policies and actions for the coal industry's transition (e.g., projects for reducing VAM and other mining emissions). With respect to governments, businesses, and communities' broader role in the transition, another important example of where they and First Nations can collaborate is transition packages. While the coal industry will use new technologies to change and adapt in some cases, in other cases workforces and communities will require support to transition away from coal entirely. The Western Australian government's recently announced transition package for diversifying Collie's economy from a dependence on the coal industry is one such example.[17]
How can governments better ensure First Nations people are empowered to play a leading role in the development and implementation of climate change policies and actions, including as they relate to the ongoing curation of the Indigenous estate?	
How can Australian governments support the wellbeing of workers, communities and regions as the nation decarbonises, including in relation to cost of living, workforce and industry transition and access to low emissions technologies and services?	
How can governments help Australians prepare for and respond to the impacts of climate change?	
What else should the authority be considering in its advice to government?	It is important to note that many of the top occupations within the mining industry require a trade qualification, thereby being delivered via an apprenticeship and whose training package (and subsequent reporting) falls within the remit of other Jobs and Skills Councils. AUSMASA, therefore, encourages the Authority to use a joined-up system-level approach when considering the workforce and other issues arising from climate change and the transition to net zero.

[16] Climate Change Authority. Issues paper: Targets, Pathways and Progress. 2024.

[17] Western Australian Government. Collie Just Transition. 2023.

Appendix 1: AUSMASA's Workforce Backbone