

# Transport and Infrastructure Net Zero Consultation Roadmap

## Take the survey

Department of Climate Change, Energy, Environment and Water

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Response received at:

July 25, 2024 at 10:30 AM GMT+10

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- 1 Confirm that you have read and understand this privacy notice.  
Yes
- 2 Please indicate how and if you want your submission published.  
Public
- 3 Published name  
Industry Skills Australia
- 4 Confirm that you have read and understand this declaration.  
Yes
- 5 First name  
Not answered
- 6 Last name  
Not answered
- 7 Email  
Not answered

- 8** Phone  
Not answered
- 9** Who are you answering on behalf of?  
Organisation
- 10** Organisation name  
Industry Skills Australia
- 11** What best describes you or your organisation?  
Industry
- 12** What sector do you represent?  
Not answered
- 13** What state or territory do you live in?  
Australian Capital Territory
- 14** Postcode  
2604
- 15** What area best describes where you live?  
City
- 16** 1. Do you support the proposed guiding principles?  
Not answered
- 17** 1.1 Please add details to your response.  
Not answered
- 18** 2. Do you support the use of the avoid-shift-improve framework as a tool to identify opportunities for abatement?  
Not answered

- 19** 2.1 Please add details to your response.  
Not answered
- 20** 3. Do you agree the development of a national policy framework for active and public transport will support emissions reduction?  
Not answered
- 21** 3.1 Please add details to your response.  
Not answered
- 22** 4. What should be included in a national policy framework for active and public transport and how should it be developed?  
Not answered
- 23** 5. What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to ensure the movement of people contributes to transport emissions reduction?  
Not answered
- 24** 6.1 What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to ensure that the movement of goods contributes to transport emissions reduction?  
Not answered
- 25** 6.2. How would these actions address the identified challenges and opportunities for emissions reduction in the movement of goods?  
Not answered
- 26** 7. Do you agree with the proposed net zero pathway for light road vehicles?  
Not answered

- 27 7.1 Please add details to your response.  
Not answered
- 28 8. The Australian Government is currently developing an Australian New Vehicle Efficiency Standard and has already begun to implement actions in the National Electric Vehicle Strategy.8.1 What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to reduce light vehicle emissions?  
Not answered
- 29 8.2 How would these actions address the identified challenges and opportunities to reduce light vehicle emissions?  
Not answered
- 30 9. Do you agree with the proposed net zero pathway for heavy road vehicles?  
Not answered
- 31 9.1 Please add details to your response  
Not answered
- 32 10. The proposed pathway for heavy road vehicles relies on a mix of battery electric, hydrogen fuel-cell and low carbon liquid fuels.Rank from 1 to 3, the order in which these should be prioritised for emissions reduction.  
Not answered
- 33 10.1 Please add details to your response. Why did you rank them in that order?  
Not answered
- 34 11. What role should low carbon liquid fuels play in the heavy vehicle

decarbonisation?

Not answered

35 12. What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to reduce heavy vehicle emissions?

Not answered

36 13. Do you agree with the proposed net zero pathway for rail?

Not answered

37 13.1 Please add details to your response.

Not answered

38 14. The proposed pathway for rail relies on a mix of battery electric, hydrogen fuel-cell and low carbon liquid fuels. Rank from 1 to 3, the order in which these should be prioritised for emissions reduction.

Not answered

39 14.1 Please add details to your response. Why did you rank them in that order?

Not answered

40 15. What role should low carbon liquid fuels play in rail decarbonisation?

Not answered

41 16. What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to reduce rail emissions?

Not answered

42 16.1 How would these actions address the identified challenges and

opportunities to reduce rail emissions?

Not answered

43 17. Do you agree with the proposed net zero pathway for maritime?

Not answered

44 17.1 Please add details to your response.

Not answered

45 18. The Australian Government is engaging in consultation as part of the development of the Maritime Emissions Reduction National Action Plan and those consultations will also inform the final Roadmap and Action Plan. 18.1 What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to reduce maritime emissions?

Not answered

46 18.2 How would these actions address the identified challenges and opportunities to reduce maritime emissions?

Not answered

47 19. Do you agree with the proposed net zero pathway for aviation?

Not answered

48 19.1 Please add details to your response.

Not answered

49 20. The Australian Government has already engaged in consultation on aviation decarbonisation through the development of the Aviation White Paper and those consultations will also inform final Roadmap and Action Plan.

Not answered

- 50 20.1 What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to reduce aviation emissions?  
Not answered
- 51 21. Do you agree with the proposed net zero pathway for transport infrastructure?  
Not answered
- 52 21.1 Please add details to your response.  
Not answered
- 53 22. What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to reduce transport infrastructure emissions and ensure that transport infrastructure is ready for and enables low-emission transport modes?  
Not answered
- 54 22.1 How would these actions address the identified challenges and opportunities to reduce transport infrastructure emissions?  
Not answered
- 55 23. What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to ensure the energy mix is ready to support transport emissions reduction?  
Not answered
- 56 24. How should the use of low carbon liquid fuels (LCLFs) be prioritised across different transport modes over time to achieve maximum abatement?  
Not answered

- 57 25. What are the best ways for the Australian Government to work collaboratively with industry, business, governments and communities to implement the proposed pathways?  
Not answered
- 58 25.1 What are good domestic or international examples of partnership and collaboration on transport and transport infrastructure emissions reduction that could inform the final Roadmap and Action Plan?  
Not answered
- 59 25.2 What opportunities can Government leverage to show leadership in Australia and internationally?  
Not answered
- 60 26. What measures and metrics should be used to evaluate the final Transport and Infrastructure Net Zero Roadmap and Action Plan?  
Not answered
- 61 26.1 What other data and evidence could governments use and how could this offer further insights on the pace, scale and location of transport emissions reduction pathways?  
Not answered
- 62 27. Do you have any feedback on the proposed review process?  
Not answered
- 63 28. Do you have any further feedback on the Consultation Roadmap and proposed pathways?  
Not answered
- 64 28.1 Is there anything missing? Are the sections appropriately integrated? Is the Roadmap appropriately ambitious?  
Not answered

65 29. Is there any further information or documentation that you wish to be considered with your submission?

Not answered

66 Would you like to upload a document?

Yes

67 Have you removed any identifying information from your submission?

Yes

68 Upload a submission

Transport and Infrastructure Net Zero Consultation Roadmap Written Response.pdf

69 Upload a submission

Not answered

70 Upload supporting file

Not answered

71 Upload supporting file

Not answered

# TRANSPORT AND INFRASTRUCTURE NET ZERO CONSULTATION ROADMAP SUBMISSION

## Context

Industry Skills Australia (ISA) welcomes the opportunity to provide input to the Transport and Infrastructure Net Zero Consultation Roadmap. ISA is one of ten Jobs and Skills Councils (JSCs) appointed by the Australian Government. We cover the supply chain sectors including Aviation, Maritime, Rail, Transport and Logistics; as well as the emerging Space Transport and Omnichannel Logistics.

The Net Zero Roadmap consultation survey questions relate to specific decarbonisation initiatives that transport and infrastructure enterprises are better placed to provide feedback on. Therefore, ISA is providing broad submission outside of the survey.

The primary purpose of ISA providing feedback is contained under the *'Capturing workforce requirements in the Roadmap'* heading. We believe JSCs should be considered a partner in implementing the final Roadmap to ensure that Australian workers are equipped with the required skills and knowledge to support the actions contained within the Roadmap.

Other JSCs that have industry coverage relevant to the Roadmap include: Powering Skills, BuildSkills, Manufacturing Industry Skills Alliance, and the Mining and Automotive Skills Alliance. ISA, together with these other JSCs, are well placed to plan for and support the workforce and skilling requirements that will underpin implementation of the Roadmap.

## The role of JSCs

JSCs have been established by Department of Employment and Workplace Relations (DEWR) to provide industry with a stronger voice to ensure Australia's skills system delivers better outcomes for learners and employers. They bring together employers, unions and governments in a tripartite arrangement to find solutions to skills and workforce challenges.

JSCs have four formal roles which can all support implementation of the Net Zero Action Plan:

- Industry Stewardship which involves gathering industry intelligence to reliably represent the views and needs of industry back to the skills system and its decision-makers
- Workforce Planning which enables industry to identify its workforce development issues and design high-impact solutions
- Training Product Development which focusses on improving the quality, speed to market and responsiveness of training products to employer and workforce needs
- Implementation, promotion and monitoring which involves supporting training providers, promoting careers, and monitoring how well the skills system is performing.

Workforce Planning is the strategic centrepiece for JSCs to inform and establish each of their other functions. Workforce Plans are submitted to DEWR around March each year. The Workforce Plans:

- diagnose current challenges but also anticipate future trends and opportunities
- begin the groundwork for ongoing workforce and skills system evaluation and strategy refinement

- are collaborative, emphasising the value of stakeholder input by incorporating diverse perspectives from industry experts, policy makers, and practitioners
- seek to better understand current, emerging and future workforce challenges and opportunities, including skills gaps and shortages for all industries within Industry Skills Australia's remit, including small, niche and regional sectors

## Capturing workforce requirements in the Roadmap

While there are references to 'employment opportunities' in the Consultation Roadmap, these are not quantified and there's no detail on possible workforce skills gaps/shortages and the responses that may be required to address them. This is understandable given the Roadmap's primary focus is on changes to transport modes, fuel types, technology and practices that will support reducing emissions.

JSCs will be able to undertake workforce gap analysis, and develop responses in partnership with industry, unions, governments and training/education providers once actions are determined in the final Roadmap. These responses would then be included in JSC Workforce Plans and implemented as targeted workforce projects as part of JSC Activity Schedules.

It would be useful for the relevant JSCs to be further consulted as final Roadmap actions are formed to ensure they are articulated in a way that facilitates appropriate coverage in Workforce Plans that will enable high quality response planning and implementation.

It would also be worthwhile to specifically reference the role of JSCs in the final Roadmap recommendations as the organisations who will plan and implement the required workforce development initiatives.

## Relevant coverage in the 2024 ISA Workforce Plans

The following is provided for information only to demonstrate how decarbonisation is currently described in ISA's 2024 Workforce Plans. Depending on the timing of the Roadmap being released we will hopefully be able to make direct reference to it in the 2025 Workforce Plans.

Decarbonisation is referenced in the four ISA 2024 Workforce Plans (Aviation, Maritime, Rail and Transport & Logistics), but there are currently no specific projects directly related to decarbonisation proposed or underway. In some instances, we are awaiting pilots/trials of alternate fuels/equipment to be completed before determining what skills system architecture and/or programs may be required to support actions taken after the pilots/trials.

Following is a very brief summary of relevant content from the 2024 Workforce plans:

### General Content (in a megatrends section):

- Australian Government is investing \$24.9 billion in the next seven years to support the development of new clean energy industries and the decarbonisation of existing ones.
- The transport industry was responsible for nearly a quarter (24.6%) of energy consumption in 2020-21 and will be a major focus of emissions targets.
- The Australian Government has committed to more than \$525 million to invest in regional hydrogen hubs and \$500m for electric vehicle charging infrastructure and hydrogen highways
- About a quarter of Australian businesses have reported an increasing need for emerging skills related to the green economy.

## Road transport

- In the years to 2050, emissions from Transport can be reduced by electrification of the light vehicle fleet (EVs expected to increase from < 2% of Australian car sales to >55% by 2030).
- Decarbonisation of long distance and heavy transport is expected to accelerate through 2030-2040 with trials for zero-emissions hydrogen fuel-cell battery and electric battery trucks.
- The passenger transport sector's transition is well underway with battery electric or hydrogen fuel cell buses already introduced into fleets across the country.
- The majority of states and territories have established policy commitments to transition their public transport fleets to zero emission vehicles with set target dates.
- The T&L WFP notes further research is required to determine skill requirements related to Net Zero, and that this will be informed by the Net Zero Roadmap and associated action plan.

## Maritime

- The International Maritime Organization (IMO) has set targets to reduce shipping emissions intensity by at least 40% by 2030 and reduce to net zero by around 2050.
- The use of hydrogen and fuels such as ammonia is also gaining traction in the maritime industry with trials already underway.
- The Maritime Emissions Reduction National Action Plan (MERNAP) will set strategic direction and recommend actions to achieve net zero emission.
- Certification and training to ensure safety standards and regulatory compliance will need to reflect alternative fuels that are adopted.
- Whilst not directly related to this Roadmap, the Maritime WFP notes that further research is required to determine skills requirements for the maritime sector related to offshore wind.

## Aviation

- The International Civil Aviation Organization (ICAO) adopted the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) in 2016
- SAF (Sustainable Aviation Fuel) is expected to play a significant role in the decarbonisation of the aviation industry to 2050.
- Qantas has developed Australia's first SAF Coalition program to support the development of a domestic SAF sector
- Electric, hydrogen-electric, and hydrogen powered fixed wing aircraft are considered the most attractive long-term solution to full industry decarbonisation
- CSIRO research on hydrogen adoption in the aviation industry also highlights that the adoption of hydrogen for ground support equipment by 2025 is feasible.
- Australia's first commercially produced electric aircraft has also recently been unveiled in South Australia.
- The introduction of alternate energy powered aircrafts (electric and hydrogen) and associated ground infrastructure will have implications for workforce skills in the medium and long-term (e.g. new job roles such as SAF specialist)

## Rail

- Rail transport using electricity is projected to double by 2050 from 12% in 2020 (the vast majority of passenger rail is electrified, it is rail freight that is largely diesel).



- Battery electric trains and hydrogen fuel cells are emerging options to displace the existing diesel fleet. Various configurations are currently being trialled by rail freight operators (e.g. Aurizon trialling battery electric loco for short trips, electric loco with battery tender medium trips, and electric loco with hydrogen tender for long trips).
- Bio fuels are being trialled internationally.