2025 consultation

Submission type	Upload
Submitter	Australiasian Railway Association
Response ID	277413

Disclaimer

Australasian Railway Association

SUBMISSION

NSW NET ZERO COMMISSION

CONSULTATION PAPER

Australasian Railway Association
ABN: 64 217 489
www.ara.net.au

ABOUT THE ARA

The ARA is the peak body for the rail sector in Australia and New Zealand, and advocates for more than 220 member organisations across the industry.

Our membership covers every aspect of the rail industry, including the:

- passenger and freight operators that keep essential rail services moving;
- track owners, managers, and contractors that deliver a safe and efficient rail infrastructure network; and
- suppliers, manufacturers, and consultants that drive innovation, productivity, and efficiency in the rail industry.

Our members are driven to support vibrant, sustainable and connected communities through greater use of rail across Australia and New Zealand. We bring together industry and government to help achieve this ambition.

Our advocacy is informed by an extensive research program to ensure we offer solutions that are grounded in evidence and focused on delivering tangible value in our daily lives.

We believe the rail industry has a crucial role to play in Australia's journey towards net zero, and we know that the industry offers meaningful and rewarding careers for thousands of people in both cities and regional areas.

Our significant program of work is focused on supporting a strong advocacy agenda, and creating opportunities for the rail industry to network, collaborate and share information, and maximise the benefits we have to offer the wider community.

OVERVIEW

The ARA appreciates the NSW Net Zero Commission's request for feedback on the consultation paper. The Net Zero Commission will be responsible for providing independent monitoring and advice as NSW progresses in the state's emissions reduction targets. Community and industry feedback is a crucial element of this process, to ensure the Commission's advice reflects the expertise and experience of the industry. This consultation paper is a valuable first step in obtaining that industry feedback and ensuring alignment between pressing concerns for industry and the Commission's upcoming Work Plan.

The ARA has selected the questions from the consultation paper that are most relevant to our expertise to provide feedback.

TRANSPORT SECTOR

9. **What are likely to prove the most effective approaches to accelerate rapid decarbonisation across freight and passenger transport?**

<u>Mode shift to drive short term emissions reductions</u>

The transport sector is NSW's second-highest emitting sector, and the third-highest emitting sector nationally. If current trends are continued, transport is projected to become the nation's highest emitting sector by 2030. In NSW, road transport accounted for 87 per cent of the sector's emissions in 2022, while rail was accountable for only two per cent.

The rail industry provides an inherently sustainable, low emissions mode of transport for both freight and passenger services. Increasing rail's modal share therefore has the potential to significantly drive emissions reduction, particularly in the short to medium term. One commuter train has the capacity to take 578 personal vehicles off the road. In the freight sector, rail freight generates 16 times less greenhouse gas emissions than road freight, despite transporting more than half of Australia's national freight task.

Research by the Australian Climate Council[1] has highlighted that the share of passenger kilometres travelled by road needs to be 30 per cent lower in 2030 compared to 2020 levels, and one-third of road freight needs to be shifted to rail, in order for the Australian transport sector to play its part in limiting global warming to 1.5 degrees or less. NSW currently has no mode shift targets to encourage this shift away from passenger road vehicles. Victoria is the only state with a mode shift target in place, aiming for 25 per cent active transport by 2030. Systemic change, including government policy, is needed in order to drive and enable the mode shift necessary to reach our emissions reduction targets. This should include a focus on placemaking, that seeks to reduce travel distances and maximise active and public transport use in communities.

In the freight sector, Transport for NSW's report, *Delivering freight policy reform in NSW*, confirmed efforts to increase rail's modal share in NSW have been ineffective, despite the significant safety and sustainability benefits that could be realised by greater use of rail. The ARA recognises that moving more freight on rail is critical to both meeting future demand and reducing emissions in the freight sector, and has recommended NSW set a target to move 30 per cent of freight on rail. Achieving this shift will require policy change to improve rail's competitiveness. The ARA supports the report's recommendations to promote mode shift to rail. We note however that the relevant action is only to investigate an incentive scheme (based on emissions reduction) to encourage a shift to rail from road. With only two per cent of freight on rail between Melbourne and Sydney and three per cent between Sydney and Brisbane, and incentive schemes being implemented in other jurisdictions, the ARA seeks the establishment of the incentive scheme as a matter of urgency. The decarbonisation benefits of mode shift should be highlighted in support on policy measures to enable this transition.

Freight transport represents the backbone of the broader supply chain in NSW. With mode shift to rail presenting an immediate opportunity to reduce emissions intensity from the transport network, tools and incentives should be considered to better enable modal choice from freight customers, for a more integrated decarbonised supply chain. For example, digital tools or emissions calculators to enable producers to select the lowest emission freight pathways for their products, contributing significantly to reduction in scope 3 emissions, and reducing transport sector emissions as a whole. Identification and protection of long-term rail freight corridors in NSW will further support mode shift opportunities into the future.

Recommendation: That the NSW Net Zero Commission advocates for state mode shift targets prioritising active and public transport for passenger travel to deliver immediate emissions reductions.

Recommendation: That the NSW Net Zero Commission advocates for rail mode shift targets, and supports measures outlined in *Delivering freight policy reform in NSW* to help achieve these targets.

<u>Decarbonising rail operations</u>

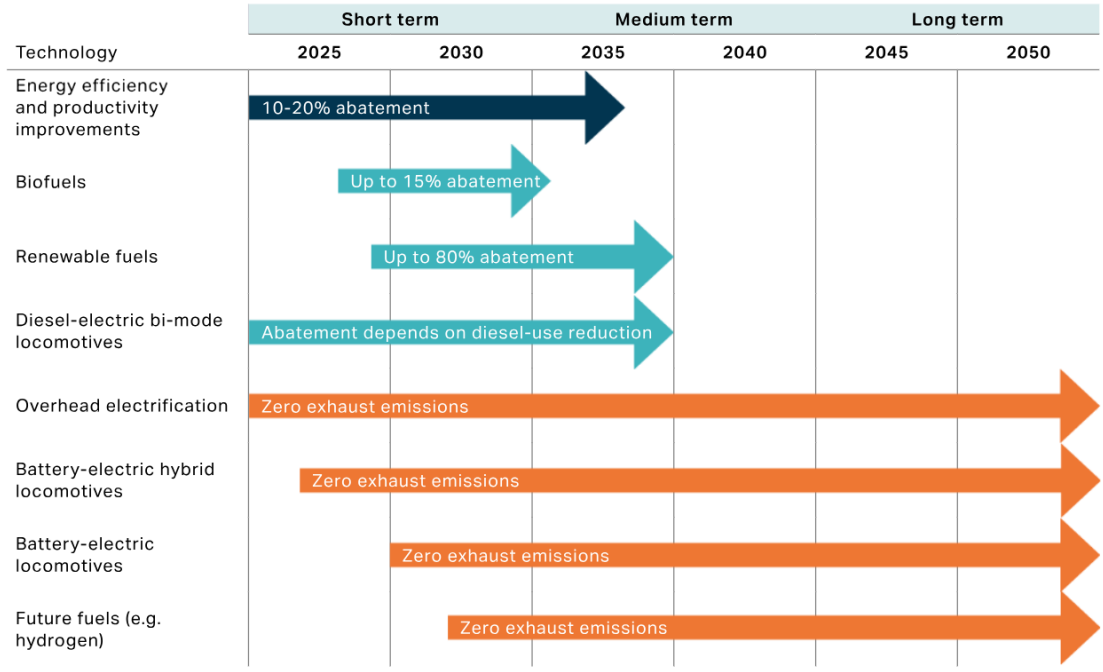
[1] Climate Council of Australia Ltd 2024. *Seize the Decade: How we empower Australian communities and cut climate pollution 75% by 2030*. https://www.climatecouncil.org.au/resources/seize-the-decade/

Although mode shift offers a shorter-term solution to reducing the overall emissions from the transport sector as a whole, the rail industry itself will also need to decarbonise in the longer term as we progress towards national net zero objectives, as well as NSW's specific targets of a 50 per cent reduction in emissions (when compared to 2005 levels) by 2030, and net zero by 2050.

In the rail industry, traction power is responsible for about 90 per cent of operational emissions (scope 1 and 2). While metropolitan passenger services are generally electric powered, regional passenger, freight and heavy haul are generally powered by diesel. NSW is already leading the way in this regard, with the electrified heavy rail network being the first in Australia to transition to 100 per cent renewable electricity in 2021. The light rail network and metro in Sydney are also run exclusively on renewable energy. However, regional passenger services and freight services in the state typically still operate on diesel-powered rollingstock.

Last year, the ARA published a major research project, titled The critical path to decarbonise Australia's rail rollingstock. This crucial piece of work highlighted a looming procurement window facing Australian rollingstock owners and operators, with approximately half of Australia's diesel-powered rollingstock due for replacement within the next eight to 13 years. Rollingstock procured during this period will be in operation well beyond 2050 and will need to include low and zero carbon technologies in order to meet NSW's net zero targets. Given the timeframes for rollingstock procurement, urgent action is needed to confirm technology pathways for diesel alternatives, to ensure these solutions are available and commercially viable in Australia when the procurement window is reached.

The graphic below outlines anticipated timeframes for different technology options to become available in Australia, alongside their carbon abatement potential. In the short term, renewable diesels and low carbon liquid fuels (LCLFs) present drop-in solutions to reduce emissions from existing rollingstock. Longer-term, solutions such as more widespread electrification, battery-electric locomotives, and hydrogen fuels could provide viable diesel alternatives, if first successfully trialled and enabled for the Australian context.



Source: ARA Rollingstock Decarbonisation Critical Path, 2024

**battery-electric hybrid refers to rollingstock able to run on overhead power on electrified networks where available, and on battery power where overhead is not available.*

The pathway to decarbonising rail operations is therefore likely to require a phased approach, as technologies evolve and are trialled in the Australian context. Give the varied use cases of low carbon technologies, no one technology is likely to be the sole solution. Rather, an overlapping range of technologies suited to different timeframes and contexts represents the most feasible pathway. The following table outlines the ARA's recommended key areas of focus in the leadup to net zero 2050.

2024 - 2030	Develop a shared, national vision to support the decarbonisation of rail operations, including a review of policy and regulatory settings impacting the industry's transition to low and zero emissions Complete additional research and Australian trials for low and zero emissions rollingstock Create industry certainty about access to abundant and affordable supply of low carbon liquid fuels (LCLF), battery electric charging infrastructure, and hydrogen Drive emissions reduction through energy efficiencies for existing rollingstock Transition to renewable energy sources for electrified sections of the rail network Facilitate mode shift to rail to reduce overall transport emissions
2030 - 2040	Commence procurement of low and zero emissions technologies at scale to support a move away from diesel-powered rollingstock Ensure supporting infrastructure, such as charging or additional fuelling facilities, is in place across the national rail network Increase use of LCLFs to reduce emissions from legacy rollingstock Continue to facilitate mode shift to rail to reduce overall transport emissions
2040 - 2050	Rollingstock with low and zero emissions technologies to become more prevalent Continued use of LCLFs for remaining diesel-powered rollingstock Continue to facilitate mode shift to rail to reduce overall transport emissions

Low carbon liquid fuels offer a clear short-to-medium term emissions reduction opportunity, but in many cases remain financially unviable compared to conventional fuels. Clarity on production and supply pipelines, policy settings which facilitate supply opportunities, and incentives for downstream uptake could further enable more widespread LCLF use and accelerate decarbonisation in the rail industry.

Government support for trials and upscaling of decarbonisation technology pathways can significantly reduce the burden of risk placed on individual entities looking to invest in low carbon alternatives to diesel. Information sharing from such trials can support broader industry confidence in the adoption of sustainable technology.

Recommendation: The NSW Net Zero Commission advocate for government funds to trial low and zero emission rollingstock technologies in consultation with industry.

In addition to the opportunities presented by decarbonising transport operations, the embodied emissions present in transport infrastructure represents a further opportunity to reduce emissions in NSW more broadly. The recently released draft Sustainable Construction Protection of the Environment Policy (PEP) offered metrics for measuring and reporting embodied carbon and use of recycled materials in infrastructure project in NSW. Reducing embodied emissions and encouraging circularity at the design stage of a construction project presents an opportunity for significant and permanent reduction in the overall emissions from any given infrastructure project. For more detail, the ARA's full submission on the draft policy can be found here.

While the NSW Net Zero Commission's focus areas are specific to state-based decarbonisation, alignment with the national approach will be critical for the long-term success of Australia's journey to net zero as a whole.

The decarbonisation of the transport sector will require collaborative action between industry and all levels of government. The ARA has previously recommended Federal and state governments develop a national network decarbonisation strategy to support the reduction of rail's operational emissions. The ARA recommends that this national strategy be led by the Federal Government, in partnership with state government agencies and key industry representatives.

The development of a national strategy would:

- Support national planning for enabling infrastructure to support new technologies, such as charging networks and new fuelling facilities
- Facilitate collaboration on research and trials to support greater information sharing and accelerate industry progress
- Provide a national approach to policy and regulatory reform to support the adoption of new technologies on the Australian rail network
- Develop improved data sharing to better plan for the industry's transition to new technologies, and track its progress
- Address skills and supply chain capability barriers and opportunities to support the transition to low and zero emissions technologies

The ARA has engaged with the Infrastructure Transport Ministers' Meeting on the potential to develop a national heavy transport strategy to support the implementation of enabling infrastructure and identify future fuels needs across the national transport network. The ARA supports this approach, and looks forward to supporting industry collaboration and engagement as part of this process.

Recommendation: The NSW Net Zero Commission aligns NSW transport decarbonisation pathways with national heavy transport decarbonisation planning.