



**Australasian
Railway
Association**

SUBMISSION

PRODUCTIVITY COMMISSION

INVESTING IN CHEAPER, CLEANER ENERGY AND THE NET
ZERO TRANSFORMATION

INTERIM REPORT

Australasian Railway Association
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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 Productivity Commission's request for feedback on the interim report. The Productivity Commission has been tasked with identifying the highest priority reform areas under five key pillars with the potential to boost Australia's productivity growth. One of these pillars is *investing in cheaper, cleaner energy and the net zero transformation*, which has been identified as an area of opportunity to not only enable gains in productivity and living standards, but also as an avenue to reduce greenhouse gas emissions in line with national and global ambitions and targets.

The rail industry provides an inherently sustainable, low emissions mode of transport for both freight and passenger services. 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.

The ARA is pleased to provide our feedback on the draft recommendations in the Productivity Commission's interim report, alongside identification of opportunities for the rail industry to support and enable the Productivity Commission's objectives of identifying affordable net zero solutions for Australia's transport sector.

REDUCING THE COST OF MEETING EMISSIONS TARGETS

Draft recommendation 1.1: Reducing emissions in the electricity sector after 2030

Electrification of fossil-fuel consuming activities is a well-established avenue towards emissions reduction; however, this relies on the timely and simultaneous decarbonisation of the energy and electricity sector. It is understood that increased electrification will increase electricity demand – meaning that the capacity to

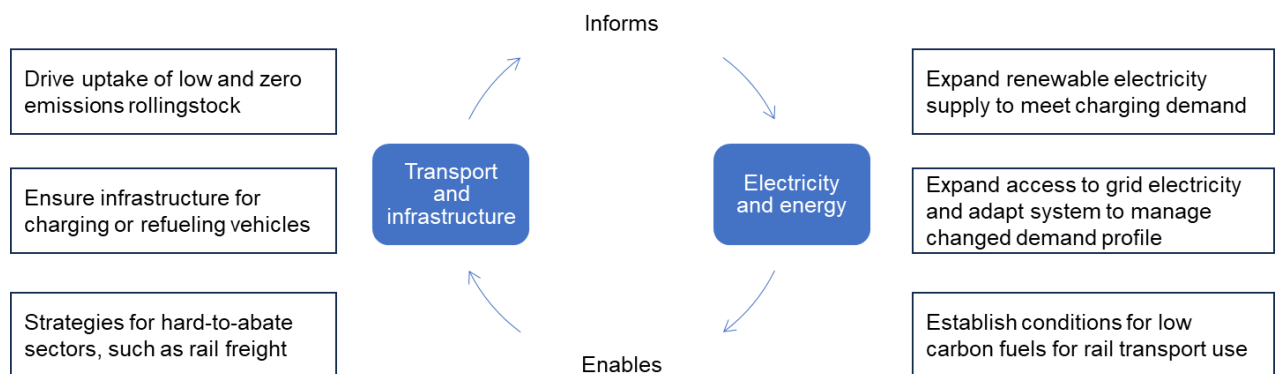
obtain, store and distribute renewable energy will need to be increased in tandem with electrification efforts. The interim report identifies the need to drive the ongoing decarbonisation of the electricity sector, to support continuing emissions reductions as other sectors electrify.

In the rail industry, urban electrified rail networks have already started to move to renewable energy sources. In NSW, the Sydney Metro, as well as heavy rail network operations across Sydney Trains and NSW TrainLink stations, depots and trains are powered by 100 per cent renewable electricity through the purchase of renewable energy certificates, a transition which began in 2021. In Victoria, Melbourne's tram network is also 100 per cent offset by renewable energy generated by two Victorian solar farms, a transition which began in 2019. The full transition of existing electrified networks to renewable energy sources will require continued investment in renewable energy to ensure sufficient supply to reliably power the rail network.

While electrification of rail networks will not be a viable solution in all cases, the introduction of new technologies such as battery-electric hybrid locomotives offer an opportunity to extend the range of electrified rail services where electrification of the entire line is not feasible.

The transport sector and the electricity sector are already tightly interlinked, and will become more so as the transport sector continues to decarbonise. The ARA recognises the need for collaboration and communication between the two sectors to support their simultaneous decarbonisation. This was identified in our submissions towards the Government's Net Zero Sector Plans for the [electricity and energy sector](#), and for [the transport and infrastructure sector](#), as outlined in the graphic below.

Addressing the decarbonisation of Australian rollingstock in national sector plans



Source: GHD, adapted from DCCEEW 2024

A clear national strategy for delivering renewable energy sources across the country will be essential to help direct investment in energy infrastructure. This strategy should consider the potential alignment with high energy users, including transport networks, to maximise the outcomes of energy infrastructure investment.

To facilitate co-location of renewable energy infrastructure and the transport network, collaboration will be required between Government, the energy sector, rail managers and network operators to identify suitable locations for electrification and charging facilities. Government should also collaborate with the energy industry to explore options to upgrade power networks that will accommodate the increased take-up of battery charging and distribution infrastructure.

It should also be noted that the rail industry includes large industrial assets, such as intermodal terminals and other rail facilities, that would have significant capacity to produce renewable energy through measures such as roof-top solar. Consideration should be given to the role these industrial areas could play in the decarbonisation of the supply chain or stabilisation of the grid, and

opportunities for strategic, co-development opportunities in partnership with government. This should include consideration of renewable energy generation opportunities in the design and development of new rail facilities.

Draft recommendation 1.2: The Safeguard Mechanism should cover more industrial facilities and carbon leakage provisions should be improved

The Safeguard Mechanism provides a well-established policy incentivising emissions reductions in traditionally hard-to-abate sectors. The interim report identifies the opportunity to reduce Safeguard Mechanism thresholds to capture more of heavy industry emissions, and to ensure facilities captured under the current thresholds remain incentivised to continue emissions reduction activities.

In the transport sector, the Safeguard Mechanism does not evenly apply its incentives to all modes. The interim report notes that in 2023-24, the Safeguard Mechanism covered 71 per cent of emissions from domestic aviation and 82 per cent from rail, but only a small share of emissions from heavy vehicles. The report further identifies that this creates a risk of “leakage” and unintended incentives for Safeguard-covered rail freight to shift into more emissions-intensive road freight, which is not currently covered by a carbon price or policy. As it stands, the Safeguard Mechanism does not incentivise mode shift to support emissions reductions in the transport sector. Opportunities to further incentivise emissions reduction in heavy vehicle transport are discussed under draft recommendation 1.3, below.

The ARA agrees with the Productivity Commission’s recognition that a reduced Safeguard Mechanism threshold will result in a higher demand for Australian Carbon Credit Units (ACCUs). The ACCU methodology which the rail industry is best positioned to support was the Land and Sea Transport (LST) methodology, which sunsetted earlier this year. The ARA has advocated for the method to be remade in the future, and has provided feedback to the Emissions Reduction Assurance Committee on potential avenues for improving the method. An updated LST methodology should better incentivise modal shift through the lens of decarbonising the transport sector as a whole. Further opportunities for rail-specific ACCUs, or other policy levers which acknowledge the significant sector-wide emissions reduction opportunities presented by rail in the immediate-term, should also be considered.

Draft recommendation 1.3: Introduce an emissions-reduction incentive for heavy vehicles and phase out policy overlaps for light vehicles

The Productivity Commission has correctly identified the transport sector as an emissions-intensive area which presents significant opportunity to decarbonise. The transport sector is currently the third-highest emitting sector nationally, and without intervention is projected to become Australia’s highest emitting sector by 2030. Heavy vehicles, light commercial vehicles, and passenger cars made up 83 per cent of the sector’s total emissions in 2023-24, while rail contributed just four per cent. Mode shift from road to rail therefore offers an immediate and near-term solution for reducing emissions intensity across the transport sector as a whole, for both passenger and freight transport.

The mode shift opportunity

Research by the Australian Climate Council¹ 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. However, there are no national mode shift targets in place to incentivise this transition. Currently, Victoria is the only state with a mode shift target in place, aiming for 25 per cent

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/>

active transport by 2030. This target applies only to passenger transport, with no mode shift targets for freight currently provided in any state. The recently released National Freight and Supply Chain Strategy identifies mode shift to rail as an opportunity to reduce transport emissions, however, stops short of setting numerical targets for this mode shift. Dedicated freight strategies released over recent months in Victoria, NSW and South Australia, and under development in QLD, also identify the opportunity to quickly and efficiently reduce freight sector emissions through mode shift. Targets for freight mode shift from road to rail for import-export and intermodal freight was highlighted as a potential opportunity for the Australian Government to utilise to achieve net zero for freight in the ARA's submission to the Transport and Infrastructure Net Zero Consultation Roadmap. Systemic change, including government policy, is needed in order to drive and enable the mode shift necessary to reach our emissions reduction targets.

Freight transport represents the backbone of the broader supply chain nationally. 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 across Australia will further support mode shift opportunities into the future.

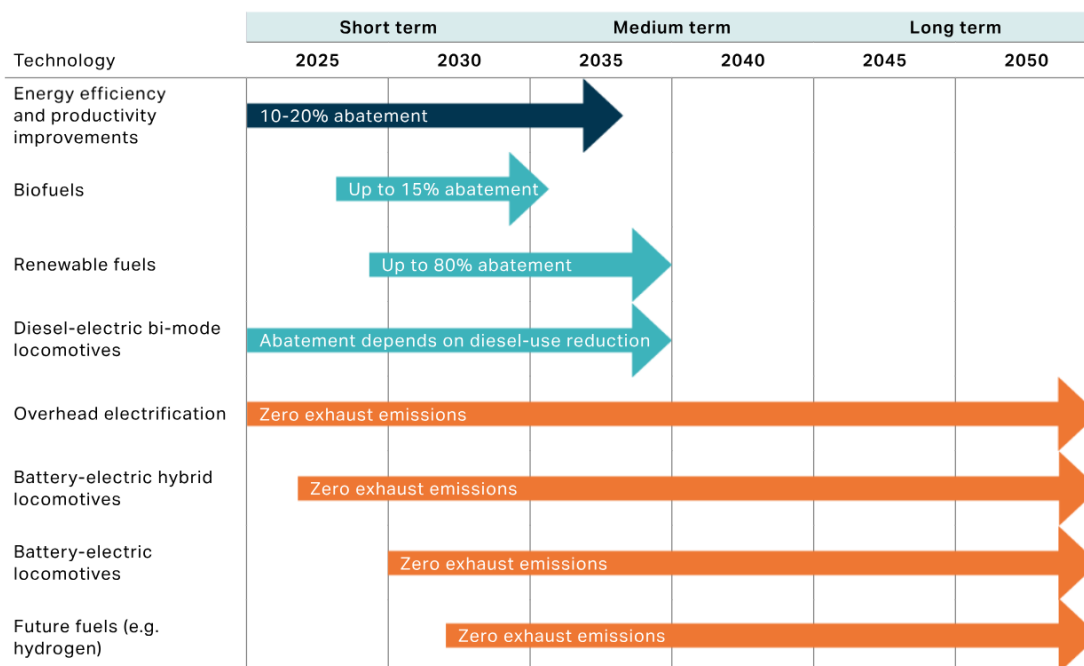
Further opportunity for rail transport decarbonisation

The interim report identifies the barriers faced by heavy vehicle operators in switching to low or zero emissions vehicles. These include the long asset lifespan, lack of charging and/or refuelling infrastructure, and high costs in an already cost-competitive industry. It is essential to recognise that these same barriers and challenges are shared by the rail industry. While road vehicles present the largest share of emissions from the transport sector collectively, the rail industry itself will also need to decarbonise in the longer term as we progress towards national net zero objectives.

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.

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 Australia'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. Given the varied use cases of low carbon technologies, no single 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.

Options for further incentivising emissions reduction in transport

The interim report proposed five options for potential emissions-reduction incentives for heavy vehicles. While all options offer possible solutions to accelerating the decarbonisation of the heavy transport sector, the ARA most strongly supports option four – a targeted policy for low carbon liquid fuels. This policy option is the most mode-agnostic, with adoption of LCLFs offering a low to zero carbon solution for both road and rail transport.

However, if this option is pursued, it will be important to balance supply across transport modes, to ensure equitable access, availability, and pricing. The cost of LCLFs is often greater than the cost of an equivalent volume of diesel, which can be a barrier to uptake, particularly in the tightly cost competitive freight sector. Support and incentives to lower the pricing gap are needed to aid uptake and demand.

The ARA also supports option one – a carbon component integrated within a future road user charging scheme. Inefficient pricing of road access for heavy vehicles impacts the efficiency of the broader freight infrastructure network. Where road freight has a pricing and regulatory advantage, particularly for short-haul and port-rail shuttle services, this distorts modal choice decisions and makes it harder for alternative modes, including rail, to compete. This leads to suboptimal infrastructure utilisation and emissions outcomes.

It is widely recognised in the rail industry that the disparity in pricing and regulatory arrangements between road and rail is a major constraint on the competitiveness of rail and barrier to mode shift. There are substantial differences in the current approaches used for road and rail network pricing and operation of the networks at a national level (interoperability and harmonisation). While it is acknowledged that pay-as-you-go charging structures largely cover the full ongoing cost of road provision (including construction and maintenance) that can be allocated to heavy vehicles, the approach of recovering all costs as they are incurred, measured over a seven year period, rather than recovering a capital charge based on an established value of the existing road networks, leaves open a question of whether the full value of existing major roads is properly reflected in these charges. There are also significant concerns over whether the

allocation of these costs to different types of vehicles properly reflects the different costs that they impose. Given rail primarily competes with large vehicles, this cross-subsidy impacts the ability to attract freight from road and impedes the decarbonisation of the transport sector. This is a long running, known, systemic deficiency in the current road pricing structure that has been the subject of numerous reviews over many years.

Draft recommendation 1.4: Apply frameworks to achieve emissions targets at least cost and improve transparency

The ARA supports the interim report's recommendation that ACCUs be maintained at high integrity and with enough supply to be capable of meeting future demand as the policy landscape shifts, including the potential future lowering of the Safeguard Mechanism thresholds. As discussed above under recommendation 1.2, a remade Land and Sea Transport ACCU methodology presents an opportunity to incentivise emissions reduction in the transport sector, and a potential avenue to incentivise mode shift away from high emissions intensity modes such as road.

SPEEDING UP APPROVALS FOR NEW ENERGY INFRASTRUCTURE

Draft recommendation 2.1: Reform national environmental laws

There is considerable overlap between requirements under the EPBC Act and State and Territory environmental approval processes. Streamlining the processes and reducing approval times has the potential to benefit all infrastructure projects, not only those related to the energy sector. However, it is important that the EPBC Act remain true to its purpose of protecting Australia's matters of national environmental significance, and environmental protections should not be weakened for the sake of speeding up development approvals.

Draft recommendation 2.2: Set up a specialist 'strike team' for priority projects

The ARA supports the concept of a "strike team" to accelerate approvals of priority projects, however, notes that consideration should be given to critical projects beyond clean energy generation.

Draft recommendation 2.3: Establish a Coordinator-General for priority projects

The ARA does not have feedback on this recommendation.

Draft recommendation 2.4: Consider the energy transition in approval decisions

The ARA does not have feedback on this recommendation.

ADDRESSING BARRIERS TO PRIVATE INVESTMENT IN ADAPTATION

Draft recommendation 3.1: Set up a climate risk information database covering all climate hazards

Changing climate and weather patterns in recent years have highlighted the importance of resilient infrastructure, including the rail network. This resilience is not only for the benefit of the industries that rail supports but for the communities across Australia which rely on rail for access to essential goods and services. The unpredictability, frequency, and the intensity of weather events are projected to increase in the coming years, and Australia's vulnerability to these events increases as networks and populations grow.

Readily available information on location-specific hazards and vulnerabilities will enable informed decision making by all industries responsible for planning, designing and constructing Australia's infrastructure. While the specific database described in the interim report is intended for use by housing developers, such a database could just as easily be applicable for transport land use planning, and other industries reliant on critical infrastructure, such as the energy and electricity sector.

The ARA is currently developing a Resilience Framework for the rail industry, of which information sharing will form a core component of collective resilience building. Access to a database for local climate hazards would therefore support this initiative. A resilience transport network will form a crucial component of Australia's resilient communities as whole, and transport planning shouldn't be ignored when considering the resilience of housing and communities.

Draft recommendation 3.2: Develop a nationally consistent climate resilience rating system for housing

The ARA does not have feedback on this recommendation.

Draft recommendation 3.3: Governments should agree on a series of actions to improve housing resilience over time

The ARA supports the idea that actions to improve housing resilience should be consistent and aligned across States. As identified under draft recommendation 3.1, readily available information on local hazards can support informed decision making and reduce the burden on individuals and organisations to conduct localised risk assessments where previous data already exists.

This resilience of transport infrastructure should be taken into account alongside any considerations into community-wide resilience. Transport infrastructure and systems play a key role in the connection of isolated areas, the movement of people, support and supplies in the event of an emergency, and the building of social cohesion which enhances community resilience as a whole. Any land use and development planning which aims to enhance resilience as whole should give due consideration to opportunities to improve resilience of transport networks as well.

Draft recommendation 3.4: Give the Climate Change Authority responsibility for monitoring, evaluation and learning regarding adaptation policy

The ARA does not have feedback on this recommendation.