Australasian Railway Association

Submission to the Productivity Commission

Impact of Heavy Vehicle Reforms

14 January 2026

ABN: 64 217 302 489

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1. Introduction

1.1. Industry Representation

The Australasian Railway Association (ARA) is the peak body for the rail sector in Australia and New Zealand, and advocates for more than 240 member organisations across the industry. The ARA's freight membership encompasses rail freight operators, rail infrastructure managers (RIMs), ports, terminal operators and other businesses in the sector. Freight member organisations include OneRail Australia, Pacific National, the Australian Rail Track Corporation (ARTC), Arc Infrastructure, Queensland Rail, TasRail, National Intermodal Company, VicTrack, VLine, Port of Brisbane, Port of Melbourne, NSW Ports, Manildra Group, Rail First Asset Management, Queensland Transport and Logistics Council as well as state government transport departments.

This submission should be read in conjunction with that of the Freight on Rail Group (FORG) of Australia, a freight rail industry group representing nine major freight businesses: Pacific National, One Rail Australia, Aurizon, Qube Holdings, SCT Logistics, Arc Infrastructure, Watco Australia, Southern Shorthaul Railroad (SSR) and ARTC. The two submissions represent the views of the collective rail freight industry.

This submission has been prepared to inform the Productivity Commissions (PC) inquiry into the impacts of a heavy vehicle productivity reform package. The reform package aims to increase transport productivity for all heavy vehicles and support the uptake of heavy zero emission vehicles (HZEVs). There are five reforms in the package and the PC has been requested to provide an assessment of the economic and revenue impacts of the proposed reforms and the impacts on relevant industries and sectors.

Heavy vehicles and freight trains comprise the land transport component of the national freight and supply chain. These modes can be complementary, with road transport providing local pick-up and delivery (PUD) to and from the rail terminal as an efficient last-mile solution. However, heavy vehicle transport has become increasingly competitive in the intermodal freight market over several decades for transporting freight over the entire journey. As it stands today, the heavy vehicle sector completely dominates the intermodal freight market, with rail largely limited to the bulk and heavy haul sectors. As such the proposed reforms, which will further improve the productivity of heavy vehicles, will have impacts on the continued sustainability and viability of intermodal rail freight.

1.2. Rail as part of the national freight and supply chain system

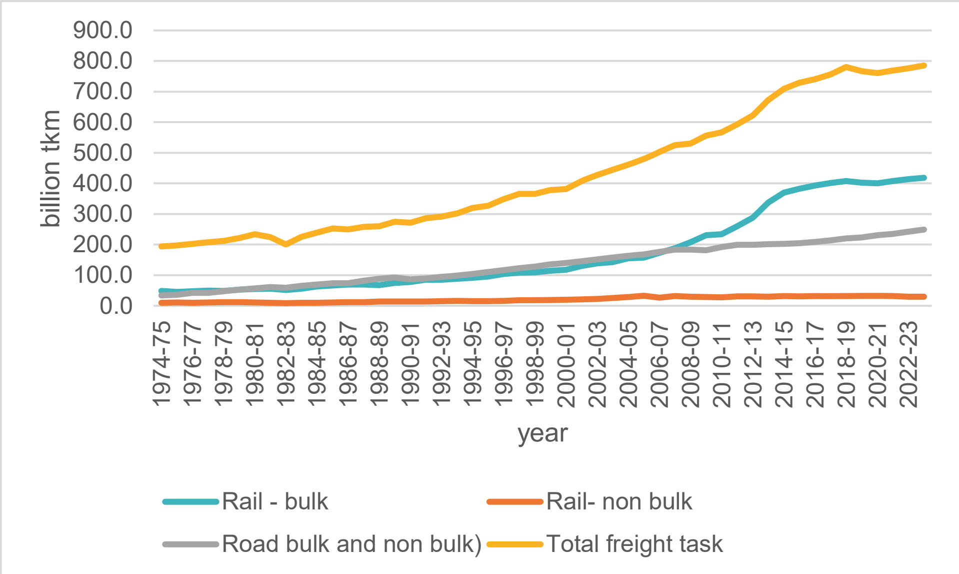
Australia's domestic freight task is carried using a combination of various transport modes including rail, road, air and shipping. From a rail perspective there are two broad categories as follows:

- Non-bulk (intermodal freight) – commodities moved individually and/or containerised, palletised and/or parcel sized configurations. The terms non-bulk and intermodal cargo are frequently used interchangeably, as when non bulk freight is transported by rail it is almost invariably 'intermodal' and usually containerised. (NB: In this submission intermodal is used).

- Bulk freight – single commodity movements in high volume or bulk configurations such as coal, minerals, bauxite, cement, grain and sugar. When on rail, bulk freight is usually moved using dedicated trains, operated by a single customer. Bulk freight may also be referred to as heavy haul.

Over the past five decades the Australian freight task has grown more than four-fold from around 127 billion tonne kilometres in 1970 to nearly 800 billion tonnes in 2019-20 – an average rate of growth of around 3.6% per annum. Over that period road freight volumes have increased eight-fold, from around 26 billion tonne kilometres in 1970-71 to around 223 billion tonne kilometres in 2019-20. Rail freight increased more than ten-fold, propelled almost exclusively by extraordinary growth in iron ore and coal exports (bulk freight), from around 40 billion tonne kilometres in 1970 to nearly 450 billion tonne kilometres in 2019-20. Non bulk rail freight during this time effectively flat lined (figure 1).

Figure 1 Domestic land freight growth 1974-5 to 2022-3[1]



Historically, until the 1960s railways dominated freight movement at every distance bar the shortest. By the mid-70s the shift to road was well underway with trains carrying only about 23% of domestic non-bulk freight (such as consumer goods) and trucks carrying 65.5%. By 2021-22, mode share had declined again with trucks carry almost 80% and trains carrying just 16.7% of non-bulk freight and only 11% across the eastern seaboard.

Between Sydney and Melbourne, the busiest freight route in Australia, mode shift has been so significant that only 2% of non-bulk freight moved by rail in 2020. Between Sydney and Brisbane rail's mode share was just 3% (Table 1).

While there is no more recent data on these specific corridors publicly available, anecdotal evidence suggests that rail's mode share has continued to decline, even on the east-west corridor where historically it has held a considerable competitive advantage over road freight. This overall decline across all corridors is confirmed in BITREs 2024 Infrastructure and Transport Statistics Yearbook where between 2020-21 and 2023-24 non-bulk rail freight had declined from 32.8 billion tonne kilometres to 29.7 billion tonne kilometres. In contrast non-bulk road freight increased from 162.8 billon tonne kilometres to 169.1 billion tonne kilometres.

Total domestic freight volumes are expected to grow by approximately 26% between 2020 and 2050[2] principally due to slower projected growth in bulk rail freight volumes (iron ore and coal). Rail freight volumes are expected to grow by around 5.7% (average annual growth of 0.18%). Road freight volumes in contrast are projected to grow by around 77% (average annual growth of 1.9%).

The reasons behind this dramatic mode shift from rail to road freight are varied, however some key factors include decades of underinvestment in rail infrastructure, significant investments in expanding

[1] *Data from BITRE Australian Infrastructure and Transport Statistics – Yearbook 2024*
[2] Bureau of Infrastructure and Transport Research Economics (BITRE) 2022, Australian aggregate freight forecasts – 2022 update, Research Report 154, Canberra, ACT.

highway networks, government policies boosting the productivity of heavy vehicles, as well as subsidies (explicit and implicit) for road freight.

Table 1 Mode share (%) by corridor (2020)

CORRIDOR	HEADHAUL			BACKHAUL		
Intermodal	Rail	Road	Sea	Rail	Road	Sea
East West	65%	17%	18%	77%	22%	1%
Adelaide – Perth	56%	42%	3%	63%	37%	-
Brisbane – Perth	45%	31%	24%	56%	44%	-
Sydney – Perth	68%	8%	24%	88%	11%	1%
Melbourne – Perth	70%	9%	17%	87%	11%	2%
North South	11%	88%	1%	7%	93%	-
Melbourne – Sydney	2%	98%	-	4%	96%	-
Sydney – Brisbane	3%	96%	-	2%	98%	-
Melbourne – Brisbane	28%	69%	2%	17%	83%	-
North Coast Line	53%	47%	-	42%	58%	-
Brisbane – Cairns	64%	36%	-	42%	58%	-
Brisbane – Tville	83%	17%	-	66%	34%	-
Brisbane – Mackay	38%	62%	-	21%	79%	-
Brisbane – Glad/Rock	12%	88%	-	24%	76%	-

1.3. Benefits of Rail Freight

There is a commonly held concern within the rail industry that not all of the external benefits of rail are properly taken into account in policy setting and government road/rail investment decisions. This has resulted in long term underinvestment in rail and a decline in productivity compared to road freight which has benefitted from an ongoing period of productivity reforms. Increased use of rail can provide strong economic benefits and transporting more freight via rail represents one of the most effective means of achieving the Australian Government's legislated emissions reduction target of 43% below 2005 levels by 2030, and 62-70 per cent below 2005 levels by 2035.

The rail freight sector directly contributed $6.3 billion to the Australian economy in 2024 and includes 900 businesses that employ 22,440 full-time equivalent workers. The rail freight sector also supports regional and rural Australians by facilitating efficient access to markets and ports, crucial for agricultural and mining exports. Rail freight (heavy haul) carries the majority of Australia's freight task by net tonne kilometres and does so while being the lowest emitting of all freight modes per tonne in CO_2 equivalent and PM 10.

The rail freight task (including bulk and intermodal freight) reached nearly 420 billion tonne kilometres in 2023 - over five times the road freight for trucks and about 1.8 times larger than the road freight task overall.

A one per cent shift of freight from road to rail will reduce crash, emission and health costs nationally by $80 million per year.[3]

[3] Unless otherwise stated statistics in this section are from Deloitte Access Economics (2025) Report prepared for the Australasian Railway Association *Value of Rail 2025*

Environmental benefits – rail freight is 16 times less carbon intensive than road freight per billion tonne kilometres of freight hauled. If an additional 0.85% of the existing non-bulk rail freight switched from road to rail, there could be a carbon saving of $220 million to the community for every 250km travelled. The carbon emission intensity of road freight (including proportion of light commercial vehicles, rigid and articulated trucks) is estimated to be 0.14kg of CO_2 equivalent per tonne kilometre travelled, which is much higher than 0.008kg of CO_2 equivalent per tonne kilometres travelled for rail.

Health benefits – Transport is one of the main contributors to air pollution in dense cities, resulting in negative health outcomes. Particulate matter causes breathing difficulties and exacerbates respiratory diseases, ultimately this leads to lower quality of life and reduced lifespans. Rail freight generates 90% less PM10 emissions than road freight for each billion tonne kilometres of freight moved. If 100,000 containers switched from road to rail freight between Sydney and Melbourne, there could be $12.5 million in health cost savings.

Safety benefits – There are many more fatalities and injuries from road freight vehicles compared to rail freight. This is evident from statistics on road deaths involving articulated and heavy road vehicles. On average there were 102 deaths involving articulated trucks and 82 deaths involving heavy rigid trucks over the ten-year period from 2015 to 2024 across Australia. In contrast, the Office of National Rail Safety Regulator Annual Report highlighted only a single fatality associated with freight train operations in 2022-23. Road crashes costs are over 20 times higher for every billion tonne kilometres of freight moved. If 100,000 containers of freight switched from road to rail between Sydney and Melbourne, there could be a crash cost savings of around $15million.

Congestion and productivity benefits- Every short haul train takes 41 B-doubles off the road, while one automated train in the Pilbara carries the equivalent of 631 B-doubles. Research into the economic costs of road congestion[4] in Australia has revealed that commuters from the outer suburbs of Sydney and Melbourne spend 41% of their commute time stuck in traffic, the equivalent of approximately 77 hours per year or roughly two full working weeks per year per driver. The economic costs of road congestion in Australia are estimated at $13.8 billion (US) for 2024, exceeding the cost of the UK (9.8B USD) with Brisbane and Melbourne being listed globally as the 10th and 21st most congested cities globally. Without major infrastructure changes and mode shift this cost is projected to more than double by 2030 reaching $27.6b USD[5]

Within our fast-growing cities, Sydney, Melbourne, Brisbane and Perth, congestion is a major barrier to the quality of life and economic prosperity of our communities. Congestion compromises Australia’s productivity by making the movement of freight slower and more unpredictable, choking our exports, damaging the performance of public transport, and turning our cities into less pleasant places to live, where it is simply harder to access daily needs[6].

1.4. Impacts of continued mode-shift from rail to road

There are both direct and indirect consequences (i.e. externalities) of the existing and continued loss of rail freight to road as follows:

[4] https://www.johnmangan.com.au/economic-costs-of-road-congestion-in-australia-and-how-to-reduce-it-part-i/australia/john_mangan/
[5] ibid
[6] Infrastructure Australia (2019) Urban Transport Crowding and Congestion.

	Factor	Why this factor occurs
Direct impacts		
Economic/financial	Increased maintenance costs of existing roads	Increased road usage by heavy freight vehicles adds to the 'wear and tear' on road infrastructure, with the rate of road damage increasing with increasing truck size and weight.
	Increased capital costs for new road construction	Increased reliance on trucks can result in higher demand for additional road capacity, either on existing or new routes. The need to construct roads to support high volumes of heavy freight vehicles increases the cost of road construction.
	Higher accident costs	Increased presence of trucks on roads and higher volumes of traffic increase the risk and consequences of traffic accidents.
	Higher average operating costs (road)	Increased demand for road freight creates further demand for trucks to carry freight, and requires larger fleets, increased operating costs in terms of fuel, tyres, repairs, maintenance and depreciation.
	Higher average operating costs (rail)	Train operating costs are largely fixed regardless of volume of freight on rail, with little opportunity to reduce costs in the absence of a decision to cease the train service. Therefore, average train operating costs are higher when train operators have lower capacity utilisation. Rail operating costs are valued in terms of train operating costs, infrastructure operating costs or maintenance costs
	Impact on freight reliability/availability, transit time (value of time savings) and final price	Rail typically provides for low freight reliability/availability and slower transit times – the costs associated with this reduced service quality should be offset against benefits from additional rail usage.
	Security, reliability and resilience of national supply chains	Significant disruptions to supply chains as has occurred over the past 5 years due to major flooding events, can have major consequences for the local communities and broader economic performance.
Indirect impacts		
Social	Increased traffic congestion from increased reliance on trucks	Social costs arise where high traffic volumes cause congestion. Congestion causes additional travel time and reduced reliability for all road users and can be measured based on the value of time for different categories of road users. Trucks removed from congested roads generate a positive externality where it results in fewer delays for other vehicles on the same roads.

	Reduced road user amenity due to presence of high truck volumes on roads	Road users typically have a preference against high truck volumes on roads. While in part this is due to the environmental, congestion and safety consequences of trucks, there is also a social cost associated with the loss of road user amenity that is not captured in these values.
	Reduced urban amenity due to high truck volumes in urban areas	Increased demand for roads (new roads or upgrades of existing roads to carry more traffic and/or support heavier trucks) reduces available space for other urban amenities (e.g. parks, sporting venues, business/housing construction) to support local communities.
Environmental	Increased greenhouse gas emissions, noise, air pollution from increased reliance on trucks	Road transport generally has higher environmental consequences than rail transport, with increased greenhouse gas emissions, air pollution and noise pollution. Environmental consequences are generally greatest in urban areas, particularly for noise pollution.
	Impact on nature and landscapes	This reflects the infrastructure footprint. For example, habitat loss, loss of natural vegetation or reduced visual amenity occurs as infrastructure is constructed.

1.5. The competitive disadvantage for rail freight

There is a large volume of “mode contestable freight” for which modal choice is influenced by both the nature of the transport task and characteristics of the transport service. The key factors behind mode choice for mode contestable (and/or intermodal) freight from a supply chain needs prism are:

- Reliability – which encompasses on time performance, confidence that the service will run as planned and risk of damage to freight.
- Frequency/availability – whether the service is available at times and frequency and with sufficient capacity to meet the customers’ requirements
- Transit time – end to end transit time is the critical consideration, including where applicable the time required for pickup and delivery to the freight terminal
- Price – price for end-to-end freight movement is a critical consideration, including where applicable pickup and delivery to the freight terminal

Other factors that influence mode choice decisions include:

- Sustainability – numerous companies have corporate policies in favour of reducing their carbon footprint, which may influence their preferred option
- Complexity – rail and shipping reflect a more complex transport solution that may require more management effort
- Risk/diversification – customers may prefer to maintain some diversification in their freight channels to reduce risk associated with reliance on a single mode.

Reliability, frequency and transit time equate to service quality. Where service quality is lower for rail than road the total cost to the customer for rail freight (including terminal and pickup and delivery (PUD) costs) will usually need to be well below the total cost to the customer of alternative road freight services.

The Future of Freight report highlighted that the non-price characteristics (transit times, frequency, reliability) for rail are usually inferior to road (although the extent to which this is the case can only be assessed on a route-by-route basis). Therefore, for rail to be competitive against road, the total cost to the customer for rail freight (including terminal and PUD costs) will usually need to be well below the total cost to the customer of alternative road freight services, in order to compensate for rail's poorer service quality and higher logistics complexity (the "hassle factor") compared to road. It is anecdotally considered that the discount compared to road freight costs that freight users seek for the "hassle factor" alone is in the order of 10%, before further trade-offs for poorer service quality are considered.

As a result, in competing for intermodal freight, rail operators generally need to 'price off road'. That is, rail prices need to be set with regard to road prices, but at a discount to road prices that compensates users for PUD costs and differences in service quality as well as the increase in logistics complexity and risk. However, rail operators' ability to offer competitive prices is hampered by the way that infrastructure use is priced.

Under the current system, rail access charges are based on a cost recovery method that considers the costs of building and maintaining rail infrastructure with rail freight users paying a higher percentage of the costs they impose on society (around 82%), while prices for heavy vehicle users does not fully recover road construction and maintenance costs. While heavy vehicles pay road user charges and high registration fees, multiple analyses suggest the revenue collected is less than the road damage they cause, with some figures estimating they contribute only about 8-12.5% to overall road costs.[7] This is partly because a significant portion of their fuel excise is refunded, and the charge does not fully account for the disproportionate damage a heavy vehicle inflicts on the road compared to lighter vehicles.

An unintended consequence of the current access pricing policy settings has been rail freight network access charges increasing significantly more quickly than road freight registration charges over a period when policy change and technology innovation have also worked to improve road's competitiveness and mode share.

Uneven pricing of rail and road networks has contributed to increased use of heavy vehicles for freight transport particularly on the key Melbourne – Sydney – Brisbane corridors. Rail's competitive position has also been impacted by falling costs of heavy vehicle operation over the same period. This reduction in costs has been in part due to:

- significant investment in roads including duplication of the Pacific Highway which materially reduced travel times and increased freight reliability on key east coast routes, and upgrades to the Newell Highway, improving interstate accessibility, freight efficiency and safety; and
- technological improvements such as improvements to systems and engines used in heavy vehicles and increased take up of high productivity vehicles (HPVs). PBS vehicles allow operators to move more freight using vehicles that occupy the same amount of road space as conventional vehicles. These vehicles provide substantial cost savings to operators. By 2034 it is estimated that truck operators will save $17.2 billion in costs using PBS vehicles.[8]

In the ten years to 2024, Australia's truck fleet grew 31% and became significantly heavier. Vehicles over 40t gross combination mass (GCM) rose from 57% to 71%; trucks with GCM >100t more than doubled.

The Safeguard Mechanism is a well-established policy that incentivises emissions reductions in traditionally hard-to-abate sectors. However, in the transport sector, the Safeguard Mechanism does not evenly apply its incentives to all modes.

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8 Bullock, P & Frost T (2021) Rethinking rail freight access: developing a new policy agenda. Australasian Transport Research Forum 2021 Proceedings

The Productivity Commission recently released an interim report on investing in cheaper, cleaner energy and the net zero transformation, which identified 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.

The overarching policy objective should be to create an environment that enables transport modes to operate efficiently and incentivises the use of the most economically efficient mode of transport for each freight task, having regard to not only the direct costs, but also the indirect (or external) costs of each mode. Importantly, road and rail are complementary as well as competitive, and efficient transport outcomes require an optimal combination of the modes.

2. Heavy vehicle reform package proposals

Increasing rail's contribution to the national freight task is not just desirable, it is critical to ensuring our transport infrastructure is able to meet Australia's freight needs. Road cannot fulfil the freight task alone. The proposed heavy vehicle reforms will have a significant impact on rail freight's already fragile sustainability, potentially resulting in a terminal decline for intermodal freight on the eastern seaboard. The consequences of this will impact not only road freight but national productivity and quality of life.

2.1. Increasing heavy vehicle road access to reduce emissions and increase productivity

We recognise that there are currently restrictions in place on the roads heavy vehicles are allowed to operate on. These restrictions are typically the result of safety concerns (e.g. potential impacts on other vulnerable road users including pedestrians or infrastructure constraints). Infrastructure constraints have been reducing over time due to the significant funding that the Australian and state and territory governments channel to road construction and renewal. Australian government road spending has surged from $12 billion in 1998–99 to over $30 billion in 2021–22, with billions more committed in the 2025 Budget for major highways. These upgrades target freight corridors that directly compete with ARTC's interstate network, making road faster, cheaper, and more reliable. For example, federal grants enabled the $20 billion reconstruction of the entire Hume Highway (Melbourne to Sydney), bringing it up to modern engineering standards. A similar sum was spent on reconstructing most of the Pacific Highway (Sydney to Brisbane).

The ARTC Interstate network has received significantly less funding than roads. Commonwealth investment in rail from 1998-99 to 2022-23 was $51 Billion. Much of this investment is attributed to large scale metropolitan infrastructure projects like Sydney Metro rather than freight lines. Whilst there has been a significant budget allocation for the development on Inland Rail ($31.4 billion, with full delivery not expected until after 2035) and the Network Investment Program (NIP) ($1 billion over the next 5 years) there has been significant underinvestment in the interstate rail network with expenditure being irregular. In 2021–22, the ARTC had only $153 million to maintain its existing 7,500 kilometre interstate network.

This underinvestment in rail freight infrastructure has resulted in flat to declining reliability and performance – temporary speed restrictions that are permanent, no change in axle loads, no change in max length, capacity bottlenecks, and frequent weather-related track outages. The productivity of Australia's rail freight sector is consequently significantly constrained by the limitations of its legacy infrastructure, which was built decades ago with some lines more than a century old.

Improving freight train reliability and timeliness will have significantly greater benefits for productivity and emission reduction than increasing heavy vehicle road access. Freight rail is 16 times less carbon intensive than road transport. A one per cent modal shift away from articulated trucks would result in a reduction of emission of 135,496 tonnes of CO_2 equivalent and considering all trucks this figure increases to the 317,346 tonnes resulting in saving in carbon costs to the community of $21 million.

2.2. National Automated Access System

We acknowledge the benefits of the establishment of the NAAS for reducing an administratively burdensome and time-consuming process for road freight operators and road managers. Rail freight operators are also exposed to administratively burdensome and time-consuming processes to enable access to the rail network. Unfortunately, there is not a ‘one stop shop’ for access permits in the rail industry. Australia’s rail networks currently operate under 12 different rule books, along with many different standards and processes. This increases costs, complexity and reduces productivity.

Rail operators experience challenges with different rolling stock approval process across the different rail networks. Rail Infrastructure Managers (RIMs) apply processes to assure themselves that rolling stock operating on their network is safe and fit for operation under the network’s conditions, Each RIM has their own standards and requirements that rail operators must comply with. RIM decisions are informed by assurance of compliance with standards, which may require static and dynamic testing on their network and/or extensive supporting documentation. Testing is not coordinated between RIMs, and testing requirements are often duplicated and repeated, resulting in cost and time burdens. A preliminary assessment undertaken by NineSquared found that these processes cost the industry more than $20 million each year with the cost likely to increase over time. The actual impact is likely to be much higher than $20 million per year as the estimate does not quantify the impact of the current approval processes on deterring investment in more innovative rolling stock, and therefore on incentives to compete in new markets.[9]

In August 2025, Infrastructure and Transport Ministers endorsed a National Pathway for streamlining rolling stock approvals. The National Pathway will be delivered over several stages. The final stage (3) a national approach backed by a mandatory standard on rolling stock approval process will be undertaken in 2028. While the industry welcomes this initiative, we are concerned that the accelerated establishment of the NAAS, prior to the finalisation of stage 3 of the National Pathway for streamlining rolling stock approvals project, will further undermine the viability of intermodal rail freight.

2.3. National Heavy Vehicle Driver Competency Framework

Like the heavy vehicle sector, rail freight is experiencing acute workforce shortages, particularly among train drivers, compounded by an ageing workforce and long lead times to competency. Rail differs, however, in that driver training, assessment and authorisation operate within a nationally regulated, system-based safety framework that requires competency to be demonstrated and maintained for specific rollingstock, rail networks and safeworking systems. This system results in significantly greater complexity for train driver licensing than heavy vehicle licensing.

Accordingly, train drivers are required to meet nationally consistent competency requirements under the Rail Safety National Law, with training typically delivered at Certificate IV level and tailored to the specific operating environment. While this ensures a high level of safety assurance, it also results in longer training pipelines, reduced labour mobility between jurisdictions and higher barriers to entry for new and transitioning workers.

Reforms currently underway through the National Rail Action Plan and the National Transport Commission seek to address these challenges by improving cross-jurisdictional consistency, streamlining network access and approval processes, and enabling more flexible pathway-based approaches into train driving roles. However, these reforms remain staged, complex and slow to implement, with material benefits unlikely to be realised in the near term.

In contrast, the proposed National Heavy Vehicle Driver Competency Framework seeks to accelerate licence progression and improve workforce availability for road freight operators in the short term. While the objective of addressing driver shortages is acknowledged, the asymmetric pace and focus of reform risks reinforcing existing structural disadvantages for rail freight, particularly in mode-contestable intermodal markets where workforce availability, reliability and cost are critical determinants of competitiveness.

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[9] National Transport Commission (2025) Streamlining rolling stock approval processes. Potential improvements to clarify roles and responsibilities for safety assurance within the current regulatory framework. Consultation Paper. May 2025

Without complementary and accelerated reforms to rail workforce frameworks, the proposed heavy vehicle licensing changes are likely to widen the existing gap between road and rail freight, with flow-on impacts for national productivity, emissions reduction and supply chain resilience.

2.4. Removing administrative and regulatory barriers to improve the availability of HZEV charging infrastructure

Achieving net zero emissions will require holistic policies, including the shift of transport tasks to energy efficient and lower emission intensity modes like rail, and a focus on transitioning both road and rail transport to zero emission technologies. Rail traction is the single biggest source of greenhouse gas emissions in the rail industry. While passenger rail has made substantial progress in electrifying services, diesel-powered locomotives continue to be used for regional passenger rail and remain the dominant motive power for the freight fleet in Australia. Without early and coordinated actions to decarbonise passenger and freight rollingstock, the emissions advantage of rail could diminish, and Australia's efforts to achieve net zero emissions by 2050 will be negatively impacted

A summary of challenges and barriers to decarbonisation of rail are set out in the table below.

Challenges	Description
Regulation	Inconsistent approval processes between jurisdictions increase the cost of designing, testing and training for new locomotives, which could hinder the uptake of low and zero emission locomotives.
Industry coordination	The fragmented structure of the rail industry means the benefits and costs of a harmonised approach to decarbonisation falls unevenly across industry players. This has led to a leadership vacuum and a lack of ownership of addressing decarbonisation, which could hinder industry collaboration on this issue.
Asset investment lifecycle	Rail is characterised by a large proportion of assets with long economic lives (25-30 years) relative to other industries. This makes the business case for investing in low and zero emission locomotives more difficult, as the capital cost between existing depreciated assets is lower than new low emission technologies.
Technology readiness and availability	Low and zero emission locomotives are not yet commercially available for a full phase out of diesel locomotives and the reliability of these technologies have also not yet been demonstrated in a commercialised form in Australia.
Access to support infrastructure and renewable energy	Low and zero emission fuels such as hydrogen, renewable diesel and green ammonia will require an abundance of renewable energy infrastructure to produce. Any delay in achieving wider electricity decarbonisation targets could hinder the supply of these fuels. In addition to the supply for low carbon fuels, there are other challenges which include PPA threshold, renewable energy infrastructure ownership, access and proximity to hydrogen supply.
Procurement and local content guides	The current procurement and local content policy variations between the states will increase the cost of low and zero emission technologies as the market will be limited to individual states.
Investment	Investment can be hindered by short-termism of state government budget allocation, lack of clear strategy, individual investments in trials and a lack of government R&D investment.
Supply chain capability and skills	Freight locomotives are increasingly designed by and sourced from overseas manufacturers which could hinder the domestic supply chain's future ability to design and supply low and zero emission technologies.
Compatibility with existing infrastructure	Existing infrastructure constraints (e.g., overbridges, space limitations at depots) could increase the cost and complexity of implementing decarbonisation options

2.5. Reducing or removing curfews for EV trucks

Both road freight and rail freight are impacted by curfews on movements. For rail freight this is a significant factor in the declining mode share where timeliness and reliability are key issues. Within many of our major cities, there is a need for freight trains to operate over rail networks shared with the metropolitan passenger system. While freight services are not necessarily a major user of these metropolitan networks, the 'last mile' connections through urban areas is a critical component of the end to end movement of the freight train, and the efficiency and reliability of that 'last mile' access has significant repercussions for the entire freight movement.

While the metropolitan networks are understandably primarily focused on the successful delivery of passenger services, the application of inflexible passenger priority government policies can materially reduce overall rail transport efficiency (particularly in terms of freight reliability, on-time performance, path availability and rollingstock utilisation). Government passenger priority requirements and peak period curfews apply in Sydney, Melbourne and Brisbane, although it is in Sydney where there is the most significant impact on the national freight task, given Sydney's central location within the national freight network, and the extent to which freight trains are required to operate over shared passenger networks.

Passenger priority and peak period curfews are often inflexibly applied in order to, wherever possible, eliminate the risk of freight trains causing any disruption or delay to passenger services. However, this inflexibility makes the task of operating rail freight services challenging and excessively restrictive and can result in substantial delays to freight services. This also increases costs by reducing rollingstock utilisation and the ability to maximise use of rail network capacity.

Removing curfews for road freight with the introduction of EV trucks is relatively simple. Removing curfews for trains is more complex, typically requiring the construction of dedicated freight lines. Unfortunately, removing curfews for EV trucks will further undermine rail freight competitiveness and exacerbate modal shift from rail to road.