Australian Government
Productivity Commission

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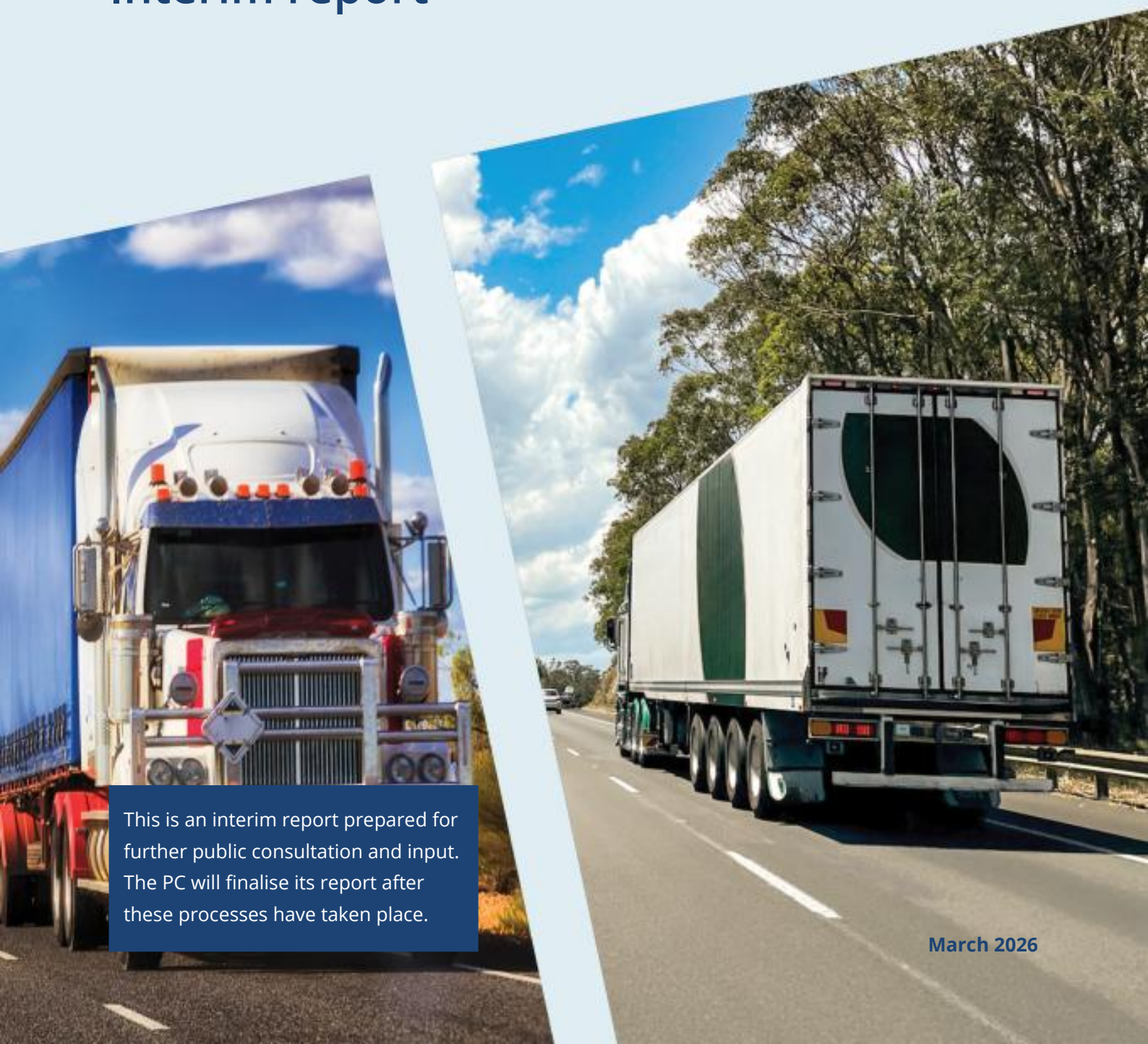
Impacts of heavy vehicle reform

Interim report



This is an interim report prepared for further public consultation and input. The PC will finalise its report after these processes have taken place.

March 2026

Acknowledgement of Country

The Productivity Commission acknowledges the Traditional Owners of Country throughout Australia and their continuing connection to land, waters and community. We pay our respects to their Cultures, Country and Elders past and present.

About us

The Productivity Commission is the Australian Government's independent research and advisory body on a range of economic, social and environmental issues affecting the welfare of Australians. Its role, expressed most simply, is to help governments make better policies, in the long-term interest of the Australian community.

The PC's independence is underpinned by an Act of Parliament. Its processes and outputs are open to public scrutiny and are driven by concern for the wellbeing of the community as a whole.

For more information, visit the PC's website: www.pc.gov.au

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Opportunity for comment

The PC thanks all participants for their contribution to this project so far and now seeks additional input for the final report.

You are invited to examine this interim report and comment on it by written submission or brief comment by 5 May 2026.

Further information on how to provide a submission or brief comment is included on the project's website: www.pc.gov.au/inquiries-and-research/heavy-vehicle-reform/

The PC will prepare the final report after further submissions have been received and it will hold further discussions with participants.

Commissioners

For the purposes of this study the Commissioners are:

Martin Stokie	Commissioner
Barry Sterland	Commissioner

Request for advice

Dear Ms Wood

I am writing to request advice from the Productivity Commission (PC) on the impacts of a heavy vehicle productivity reform package. This advice will support continued pro-competitive reform under National Competition Policy (NCP).

This reform package aims to increase transport productivity for all heavy vehicles and support the uptake of heavy zero emissions vehicles (HZEVs).

To support this work, I am requesting advice from the PC, pursuant to Parts 2 and 4 of the *Productivity Commission Act 1998*, in the form of analysis and modelling for the following reforms (with further detail in Attachment A):

- Increasing heavy vehicle road access to reduce emissions and increase productivity.
- Accelerating the establishment of a National Automated Access System to streamline road access decision making for all heavy vehicles.
- Accelerating implementation of the National Heavy Vehicle Driver Competency Framework.
- Removing administrative and regulatory barriers to improve the availability of HZEV charging infrastructure.
- Reducing or removing curfews for HZEVs.

For each of these reforms, the PC should:

- provide an assessment of the economic and revenue impacts, including expected:
  - impacts on GDP, GSP, dynamic efficiency and other measures of economic progress and national prosperity
  - costs and benefits for Australian households, including:
    - estimated impacts on aggregate measures of incomes, prices and wages
    - distributional impacts, where possible, including by age, gender, income and education, and any other relevant demographic classification (including impacts on First Nations Australians)
    - other impacts on consumers that may be difficult to quantify, such as improved quality of service or wellbeing, or greater choice.
  - impacts on relevant industries and sectors. To the extent possible, this should include estimated impacts on sectoral output, prices, productivity, employment and growth
  - net additional revenue accruing to the Commonwealth, state, territory and local governments.

The PC will consult as required, including with the Australian, state and territory and local governments in completing this advice. The advice should include an explanation of the methodology, assumptions and sensitivity analysis showing how results change under different assumptions.

The PC should provide an interim report, including initial modelling outcomes, to the Government by 31 March 2026 and a final report by 30 June 2026.

Yours sincerely

The Hon Jim Chalmers MP

[Received 30 September 2025]

Attachment A – Further detail on the heavy vehicle productivity reform package

- The Commonwealth is seeking to work with the states and territories to progress a package of heavy vehicle productivity reforms via a revitalised NCP agenda.
- The road access reform package aims to increase transport productivity for all heavy vehicles and support the uptake of heavy zero-emissions vehicles (HZEVs).
- The reforms are detailed below:

Increasing road access to reduce emissions and increase productivity

- There are current restrictions on which roads heavy vehicles are allowed to operate on. This disadvantages HZEVs and high-productivity freight vehicles due to their additional weight, reducing their potential payload and productivity compared to their Internal Combustion Engine (ICE)-driven counterparts.
- Actions to get more road freight carried by HZEVs and high-productivity freight vehicles would help reduce emissions and boost productivity as more payload can be carried in each journey. This could include increasing axle mass limits, expanding road access networks for certain vehicles, and targeted road infrastructure upgrades.

Accelerating the establishment of a National Automated Access System (NAAS)

- Vehicles above general mass limits face restricted road access due to the damage they cause to roads or the ability of road assets (such as bridges) to withstand the weight of the vehicle. In these instances, operators may be required to apply for a road access permit, which is an administratively burdensome and a time-consuming process.
- Accelerating establishment of the NAAS based on the Heavy Vehicle Access Management System (HVAMS) will boost supply chain productivity, optimise use of road networks, achieve ITMM's commitment to reduce permits by 90%, and is a high priority for industry.
- A NAAS based on the proven architecture of HVAMS will remove the need for most permits and provide instant decisions on network access, highly-tailored to individual truck combinations and loads.

Accelerating implementation of reforms to the National Heavy Vehicle Driver Competency Framework (NHVDCF)

- Operating high productivity vehicles requires qualified drivers, who must hold the appropriate class of heavy vehicle (HV) licence. With driver shortages – and an ageing workforce nearing retirement – faster licence progression is a critical enabler to realising the productivity potential of high productivity vehicles (HPVs).
- The NHVDCF reforms will address driver shortages by providing improved training and assessment outcomes and accelerate experience-based progression for drivers through HV licence classes.

Reducing or removing curfews for HZEVs

- Curfews on heavy vehicle movements restrict when certain heavy vehicles can use specific roads, often to minimise traffic noise particularly in residential areas.
- As HZEVs are quieter than ICE heavy vehicles, a reduction or removal of curfews of HZEVs would allow them to operate during non-standard business hours when there is less congestion and freight transit times can be reduced.

Removing regulatory barriers to improve the availability of charging infrastructure

- The future of Australia's HZEV fleet needs charging infrastructure that is optimised to reduce vehicle charging time during long trips.
- Charge point operators face a complex regulatory environment and administrative challenges to install and operate charging infrastructure.
- This reform seeks to address these barriers to accelerate the availability of charging infrastructure which also meets the mass, width and height characteristics of HZEVs.
- Publicly accessible HZEV charging infrastructure will support productivity by ensuring operators are competitive in a net zero economy.

Acknowledgments

The Commissioners express their appreciation to the staff who worked on the study – Assistant Commissioners Benjamin Mitra-Kahn and Jessica Read, who managed the inquiry, and other team members including, Diego Machillanda, George Steel, Holly Creek, Jonty Martin, Lawson Ashburner, Rachel Burgess, Rebecca Chin, Roland Allen, Shane Chisholm, Victoria Nguyen and Zac Duretto. Our thanks are also extended to Athena Wicks for administrative and project support.

Disclosure of interests

The *Productivity Commission Act 1998* (Cth) specifies that where Commissioners have or acquire interests, pecuniary or otherwise, that could conflict with the proper performance of their functions they must disclose those interests.

Commissioners Martin Stokie and Barry Sterland have no conflicts of interest.

Contents

Overview

Key points

- **Heavy vehicle transport plays an important role in the Australian economy, but productivity growth in the road freight sector has stalled for over a decade.**
  - Advances in technology and vehicle design provide opportunities to re-start productivity growth and improve emissions outcomes, but reform is needed to enable this.
- **High productivity vehicles, heavy zero emissions vehicles, automated permits and telematics can support productivity uplift if deployed well. These opportunities will only be realised if all tiers of government collaborate to remove regulatory and other barriers to innovation and investment.**
  - Governments are working together on new national approaches, and individual jurisdictions are pursuing: reforms which demonstrate the application of new technologies for vehicle access; and updated regulation to recognise electric vehicle charging as an emerging form of land use.
  - However, more can be done to accelerate this work.
- **The largest potential productivity benefits will arise from reforms that increase access to Australia's road network for high productivity vehicles.**
  - Our early modelling suggests that access reforms could raise Australian GDP in the order of between 0.035% and 0.148%, or between $950 million and $4.0 billion, with negligible impacts on inflation.
  - Two reform areas – increasing heavy vehicle road access and establishing a National Automated Access System – can lead to productivity benefits. However, the size of their potential impact will depend on the scope and ambition of their design and implementation.
  - Reforms that work towards 'as-of-right' access – reducing the time and costs associated with applying for a permit for pre-approved vehicles driving on pre-approved roads – should be prioritised.
- **Adjusting curfews, aligning planning definitions and improving information will assist with the uptake of heavy zero emissions vehicles, complementing commercial, technological and emission policy drivers.**
- **Changes to heavy vehicle driver licence settings, including weight concessions for electric vehicles and strengthening recognition of overseas heavy vehicle licences, will help the net zero transition and heavy vehicle driver shortage.**
  - National driver competency reforms to improve safety and increase driver supply have been agreed, though implementation across jurisdictions will largely occur between 2026 and 2028.

Road freight productivity growth has stalled

Heavy vehicle transport is central to the day-to-day functioning of our economy. Almost all goods have been moved by heavy vehicles at least once, and often several times – from ports, farms and factories to distribution centres, shops and homes. Overall, the road transport sector and in-house road transport activity represent around 5% of Australian GDP.[1] The road transport sector alone employs 273,000 people.

[1] In-house transport activity is undertaken by non-transport industries in the economy.

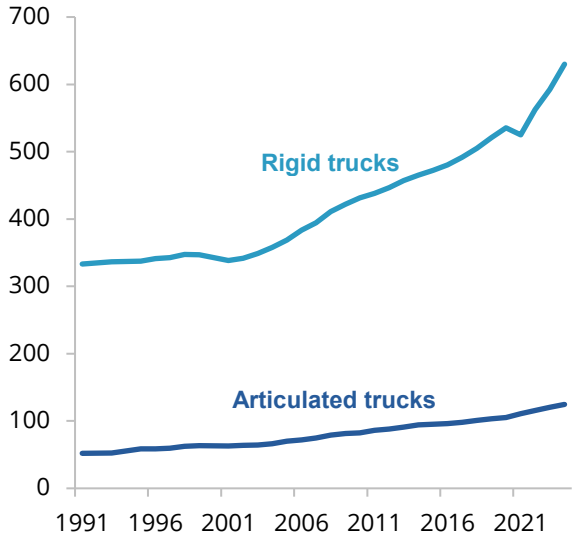
Historically, the physical productivity of road freight vehicles (proxied by a measure of average load mass) has gone through periods of significant growth. Between 1975 and 2009, the physical productivity of heavy freight vehicles increased considerably – with articulated trucks contributing most of this growth (figure 1). Past increases in productivity were associated with improvements such as increased B-double access to roads, which boosted payload capacity – the volume of goods trucks are able to transport on any given trip – by about 50% per vehicle kilometre without greatly increasing road wear.

However, over the past decade and a half, growth in the physical productivity of the road freight sector has effectively slowed to zero. There are a few possible reasons for this.

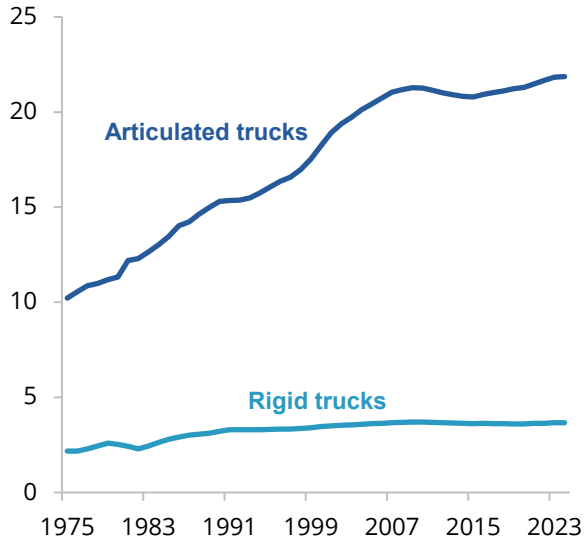
- Most of the growth in heavy vehicles has been in rigid trucks (figure 1), which typically carry less freight than articulated trucks – reflecting their suitability to 'last mile' delivery and certain business operations, such as direct delivery from manufacturers to end customers. Today, rigid trucks make up over 80% of the heavy vehicle freight fleet.
- Previous gains from increasing the capacity of articulated trucks cannot be replicated, as newer, larger heavy vehicle combinations offer smaller increases in payload.

Figure 1 – Heavy vehicle productivity and number of heavy vehicles

a. Number of heavy vehicles (000s)



b. Physical productivity (tonne kilometres per vehicle kilometre travelled)



The road freight task has grown in line with economic activity and the expansion of e-commerce. Despite continuing investments in alternative freight modes, demand for road freight is expected to grow by 77% in volume between 2020 and 2050, driven in part by a continued reliance on road vehicles for 'last mile' distribution.

Future productivity gains are likely to be more incremental and depend on smarter vehicle design and network use. However, a broader view of heavy vehicle transport performance is also important. This includes how effectively the sector uses capital, labour and energy, and the extent to which it reduces negative externalities, such as greenhouse gas emissions. From a whole-of-sector perspective, incremental gains in productivity will complement investments being made by users of freight services to optimise modal transport options, warehousing, distribution and supply chains.

Deploying new technologies can re-start growth

High productivity vehicles, heavy zero emissions vehicles, automated permits and telematics can all enable a productivity uplift if deployed well. But these opportunities will only be realised if governments collaborate to remove regulatory and other barriers to innovation and investment.

More needs to be done to ensure that regulatory settings and decision-making frameworks support optimal decision-making by both governments and heavy vehicle operators. Heavy vehicles represent significant, long-lived investments for freight operators, and fleet turnover occurs gradually. Australia's truck fleet has a median age of 15 years, which is significantly older than other OECD countries. Vehicle access to roads and design rules are also factors that can limit fleet transition. Right now, the safest, most productive and lowest emission heavy vehicles face more barriers to get on the road than a standard 'prescriptive' heavy vehicle. As a result, potential productivity gains and safety improvements may not be fully realised.

Opportunities to reduce emissions are also being missed – the Australian Government has a goal of achieving net zero emissions by 2050, but some regulatory settings for heavy vehicles are actively working against this. In addition to supporting the transition to net zero, increasing fleet efficiency and the use of HZEVs can improve supply chain resilience and reduce the Australian economy's exposure to geopolitical and supply chain disruptions.

Governments are working together on new national approaches. For example, the National Automated Access System (NAAS) seeks to reduce the number of permits needed by heavy vehicle operators to access roads (and make it easier for operators to apply for any permits they do need). This has the potential to improve the productivity of the sector by reducing regulatory and administrative burden. Governments are also looking to introduce national consistency and higher standards of training and licensing through reforms to the National Heavy Vehicle Driver Competency Framework, which are expected to improve the supply of safe and competent heavy vehicle drivers.

Individual jurisdictions are also pursing reforms which are demonstrating the application of new technologies or regulatory approaches and are creating useful reference cases for national reforms. The Tasmanian Government developed its Heavy Vehicle Access Management System in 2016, which is now providing the foundation for the NAAS. In addition, the Victorian Government rolled out its Heavy Vehicle Structural Assessment Permit System this year, which allows manufacturers and operators to quickly assess whether their vehicles can safely operate over Victorian state bridges. Several state and territory governments have amended the definitions used for their service centres to include electric vehicle charging.

The PC is examining five heavy vehicle reform areas

The PC has been asked to provide analysis and modelling across five reform areas:

- increasing heavy vehicle road access to reduce emissions and increase productivity
- accelerating the establishment of a NAAS to streamline road access decision-making for all heavy vehicles
- removing administrative and regulatory barriers to improve the availability of heavy zero emissions vehicle charging infrastructure
- reducing or removing curfews for heavy zero emissions vehicles
- accelerating implementation of the National Heavy Vehicle Driver Competency Framework.

The request for advice asks the PC to provide a detailed assessment of the economic and revenue impacts of each reform area – nationally and disaggregated by distributional groups, industries and levels of

government. In providing analysis and modelling, it has become clear that there are interlinkages and shared challenges and opportunities across most reform areas, and not all have the same potential to deliver productivity benefits.

The largest potential productivity benefits will arise from reforms that increase access to Australia's road network for high productivity vehicles. Two reform areas – increasing heavy vehicle road access and the establishment of the NAAS – can enable this. However, the size of their potential impact will depend on the scope and ambition of their design and implementation.

Reforms that work towards 'as-of-right' access – reducing the time and costs associated with applying for a permit for pre-approved vehicles driving on pre-approved roads – should be prioritised. Achieving 'as-of-right' access will depend on:

- improvements in the accuracy and comprehensiveness of information – about road quality, and culvert and bridge tolerances and conditions
- support from local road managers to allow greater access, while still managing risk
- funding arrangements that better align costs and benefits of heavy vehicle access and help to 'de-risk' provision of access, where it would generate net benefits.

There are also a number of reforms that can be sensibly considered 'without regret'. This includes simplifying vehicle approval processes and reducing jurisdictional variation that does not serve a clear purpose. For example, the Australian Government could assist with coordinating the introduction of additional mass allowances for electric heavy zero emissions vehicles across the country, with the potential for jurisdiction-level trials to provide an evidence base for a nationally consistent framework.

Road access settings need to better balance costs and benefits

The regulation of heavy vehicle road access plays an important role in ensuring that the costs associated with road use (including pavement wear and tear and impacts on congestion, amenity and safety) are managed. But the current settings do not support road managers to make optimal trade-offs between the benefits and costs of increasing access. As a result, business and industry face unnecessary costs (via permit processing time and restricted access), and governments, including local governments, are missing opportunities to reduce their administrative load.

Reforms are in train to expand general mass and dimension limits

Access reforms could improve productivity and reduce heavy vehicle-related road crashes and emissions by giving operators greater flexibility to plan their trips and investment decisions. One way to improve access is to increase the size of vehicles allowed on designated roads.

Proposed reforms to the Heavy Vehicle (Mass, Dimension and Loading) National Regulation are expected to commence on 1 July 2026. These reforms include uplifting General Mass Limits to Concessional Mass Limits, and increasing general length and height limits.

Recent modelling has suggested that reforms to increase General Mass Limits could raise road freight sector productivity by between 1.0% and 3.2%, with the range reflecting the scale of the mass limit increases assumed across different scenarios. Enabling vehicles to carry more freight would mean that fewer total vehicle trips are required to move the same volume of freight. These economic benefits significantly

exceeded the additional costs of road maintenance (BITRE forthcoming). These modelling scenarios serve as a proxy for broader increases in heavy vehicle network access.

Improvements in the road freight sector have flow-on effects to the rest of the economy because road transport services are an input into many other industries. Using the above estimates as inputs for economy-wide modelling, our early results suggest that access reforms could raise Australian GDP in the order of between 0.035% and 0.148%, or between $950 million and $4.0 billion, with negligible impacts on inflation. These results are driven by different levels of reform ambition, with higher road transport productivity leading to fewer inputs for heavy vehicle operators to conduct their activities, lowering their prices and freeing labour and capital to be used by other domestic industries.

Expand access for high productivity vehicles

Expanding access for Performance-Based Standards (PBS) vehicles is another way to support a productivity uplift. PBS vehicles are designed to achieve higher productivity than their non-PBS equivalents, and have experienced strong uptake since the scheme was introduced in 2007, representing 21% of the road freight task in 2022. However, PBS vehicles often face greater barriers to access than non-PBS equivalents, despite meeting or exceeding the same safety requirements. Governments should streamline access and design approvals for common PBS vehicle configurations to further promote the uptake of these high productivity vehicles.

Road managers must be encouraged to support as-of-right access for PBS vehicles where it is safe to do so. Governments should enable eligible PBS vehicles to be added to existing gazetted authorisation notices for equivalent non-PBS vehicles without requiring a new notice. The PC is seeking feedback on how such a reform could be implemented.

Overcome the payload penalty for electric heavy vehicles

The uptake of heavy zero emissions vehicles will be vital for Australia to benefit from technological change and deliver significant transport emissions reductions. The Australian Government's *Transport and infrastructure net zero roadmap and action plan* provides a net zero pathway for heavy vehicles, with electrification playing a large role over the longer term. Fleet turnover occurs gradually and full mass market adoption of heavy zero emissions vehicles across segments is not expected to take place by for many years.

Electric heavy zero emissions vehicles are typically heavier than their diesel equivalents due to the additional weight of battery systems. While technological improvements and innovation may reduce battery weight over time, operators currently face a payload penalty – that is, reduced freight capacity within existing mass limits – which can limit uptake.

The technology and transport operations underpinning these vehicles are evolving, particularly in relation to electric batteries, charging infrastructure and vehicle design. In light of this, there is a case for allowing a degree of transitional tolerance in regulations to support early deployment. Some support for the initial uptake can help accelerate the development of supporting infrastructure and industry practices – including to accommodate charging requirements – which may otherwise not develop in a timely manner.

State and territory governments have introduced some additional mass allowances for heavy zero emission vehicles, but these arrangements differ across jurisdictions. The Australian Government can help play a coordinating role and, along with state and territory governments, work to embed a concessional mass limit in Heavy Vehicle (Mass, Dimension and Loading) National Regulation to ensure electric heavy zero emissions vehicles can operate across Heavy Vehicle National Law jurisdictions without significant payload disadvantages from battery-related weights. The infrastructure impacts of a concessional mass limit for electric

heavy zero emissions vehicles are likely to be small in the immediate term, reflecting both the relatively slow pace of fleet turnover and the small share these vehicles currently account for in the heavy vehicle fleet.

These arrangements should be reassessed over time as batteries get lighter with technological change. An option is to schedule reviews to ensure the concession is set to keep pace with decreasing payload gaps. The PC is seeking feedback on the implementation of such a mass concession.

Getting the most out of the NAAS

There is also an opportunity to deliver faster, more consistent and more risk-based access decisions by automating approvals and, ideally, providing network-based access maps rather than case-by-case route permits through the planned roll-out of the NAAS.

The rollout is behind the original agreed targets and is difficult to accelerate given the scale and coordination required – particularly the need for local governments to assess and digitise road and bridge asset data. Extra funding and capability building may help but only up to a point, due to the capacity constraints in the system. Given these capacity constraints, getting NAAS design and national alignment right is critical to realising benefits. There is near-universal support for governments to continue to work towards implementing the NAAS to be like Tasmania's system. The benefits of the system would be maximised if:

- the NAAS adopted network-based access to give operators additional flexibility and support productivity
- states and territories adopted consistent access systems to reduce the burden on operators undertaking interstate trips
- the design of the NAAS maximised the consistency and quality of local government decision-making on access.

Regulation has not caught up with electric vehicles

Heavy zero emissions vehicles have the potential to fundamentally change large-scale heavy vehicle operations by reducing the noise, air pollution and emissions costs associated with internal combustion engines. As part of the broader net zero transition, the Australian Government anticipates widespread decarbonisation of heavy vehicles in coming decades alongside improvements in technology and reductions in vehicle costs. As these changes occur, administrative and regulatory settings affecting charging infrastructure and curfews must keep up.

Reduce administrative and regulatory barriers to heavy zero emissions vehicle charging infrastructure

To be commercially successful, heavy zero emissions vehicles are likely to require:

- chargers located in freight centres (depots, distribution hubs and major warehouses), freight nodes (airports, ports and intermodal terminals) and heavy vehicle rest stops (rest areas and service centres along highways)
- different charging infrastructure from passenger electric vehicles (EVs) – in particular, more powerful chargers and layouts that accommodate their size.

The most significant challenge for the rollout of this charging infrastructure is establishing connections to electricity networks, as high-powered charging can require costly and time-consuming network augmentation. The administrative and regulatory barriers (the focus of this study) are minor by comparison, but important to

address so that they do not create hold-ups once broader policy, market and technological developments are in place to drive the rollout forwards.

One such administrative barrier is that information to inform site selection is not always easily accessible. The Australian Government recently launched the Electric Vehicle Charging Infrastructure Mapping Tool to guide the location of charging investment, but it is missing information of high relevance to heavy zero emissions vehicle charging infrastructure – granular electricity network capacity data, data on where trucks can and do travel, and whether zoning allows for charging. The Australian Government should work with data custodians to include this data in the mapping tool. It should also allow mapping tool data to be exported.

Land use regulation is a potential regulatory barrier to charging infrastructure. Not all planning schemes have been updated to reflect this new type of infrastructure, which creates uncertainty and needlessly bespoke processes. State and territory governments should:

- redefine land use terms to explicitly allow charging at bus depots, freight centres, freight nodes and heavy vehicle rest stops
- tweak existing planning permission exemptions for charger installations to accommodate simple heavy zero emissions vehicle charger installations or adopt such planning permission exemptions if not already in place.

While much charging will be installed on privately owned or managed land, state and territory governments will need to more actively facilitate charging infrastructure investment at government-provided heavy vehicle rest areas. The PC is seeking participants' views on how governments can best facilitate private investment in charging infrastructure at these locations.

Reduce curfew burdens on heavy zero emissions vehicles

In addition to regulatory barriers to charging infrastructure, other regulations, originally designed for internal combustion vehicles, can also limit heavy zero emissions vehicle operation. Two main sets of instruments (commonly referred to as curfews), prohibit the activity of heavy vehicles at certain times, with the aim of preserving neighbourhood amenity:

- local traffic controls restricting the movement of through traffic on a particular road. These are administered by state or local governments (or both), depending on the road, and apply to all heavy vehicles above a specified weight limit (including General Access Vehicles)
- local government planning restrictions set out in planning permits, such as restrictions on overnight truck deliveries to supermarkets.

Presently, no type of curfew distinguishes between internal combustion engine vehicles and heavy zero emissions vehicles.

There is a strong case for reducing the burden of curfews on heavy zero emissions vehicles in some form. While regulation should continue to aim to mitigate the impacts of heavy vehicle noise and protect community safety, heavy zero emissions vehicles are significantly quieter. There are several options to reform regulation to take into account the noise and other benefits of heavy zero emissions vehicles, each with different costs and benefits.

- Heavy zero emissions vehicle could be exempted from curfews, or curfews that apply to them could be made less restrictive (such as by allowing longer delivery hours).
- Vehicles could receive differential treatment if they meet certain performance-based criteria, such as verified low-noise performance.
- Curfews could be replaced entirely with outcome-based measures, such as evidence-based decibel limits.

The PC is seeking information on the practicality of implementing these different approaches.

Current reforms will improve driver capability

Current heavy vehicle driver training, assessment and licensing processes are poorly calibrated to the risks and priorities of the sector. Industry has reported that time-based licence progression has prevented drivers from entering the occupation and progressing to higher productivity heavy vehicles at a time of significant driver shortage. Industry also suggest that poor training and assessment requirements fail to deliver competent drivers and safe outcomes. Inconsistency across states and territories also adds costs for operators and training providers working across jurisdictions.

National Heavy Vehicle Driver Competency Framework reforms, endorsed in 2023, are set to expand driver competency and training minimums, create new licensing pathways based on experience and supervision, and support best practice training and assessment. The reforms aim to improve safety and national consistency. There is also the potential for small productivity gains from faster licence progression to higher productivity vehicles and fewer heavy vehicle crashes, although other factors may have offsetting effects.

Implementation is underway, with most jurisdictions expected to roll out reforms between 2026 and 2028, but regulatory, IT, funding and capacity constraints mean faster acceleration is unlikely. Some jurisdictions will implement sooner while others are being delayed by ongoing decision-making. Certainty about reform details and funding, expected around mid-2026, should progress decision-making. There are already funding mechanisms in place through the National Competition Policy framework for the Australian Government to support state and territory governments to implement the reforms, with specific funding amounts to be determined. Implementation aimed towards full completion by the 2028 timeline should continue as planned and would be supported by confirmation of funding amounts to state and territories.

Other licensing issues warrant attention to better align the driver competency reforms with policy priorities. These include: considering weight concessions for electric vehicles in driver licence classes to allow drivers to operate equivalent electric heavy vehicles without sacrificing payload; and strengthening recognition of overseas heavy vehicle driver licences to bolster driver supply. The PC is seeking feedback on these potential reform directions.

Draft recommendations, findings and information requests

Context for heavy vehicle reform

Information request 1.1

The PC is seeking evidence and views about how the package of heavy vehicle reforms examined in this study may impact:

- different cohorts, including by age, gender, income and education, and any other relevant demographic classification (including impacts on Aboriginal and Torres Strait Islander people)
- consumers, including in ways that may be difficult to quantify, such as improved quality of service or wellbeing, or greater choice.

Access for high productivity and heavy zero emissions vehicles

Information request 2.1

The PC is seeking feedback on how proposed reforms to the Heavy Vehicle (Mass, Dimension and Loading) National Regulation (expected to commence on 1 July 2026) will affect access. These reforms include uplifting General Mass Limits to Concessional Mass Limits, increasing general length limits from 19 m to 20 m and increasing general height limits from 4.3 m to 4.6 m.

- What implications would these reforms have for high productivity and heavy zero emissions vehicles?
- Will these reforms create any unintended consequences? What effect will they have on the interoperability of heavy vehicles with existing trailers, equipment and loading infrastructure?

Draft finding 2.1
Access reforms can unlock the benefits of a modern fleet

Growth in heavy vehicle productivity can be constrained by factors that restrict access, including:

- the reliance on permit-based access, limited flexibility in the application of access rules and inconsistency across jurisdictions
- a lack of harmonisation between domestic standards and international standards, which can limit the importation and use of modern technologies
- a mismatch between who benefits from heavy vehicle road access and who bears the costs of maintenance and infrastructure upgrades, which can reduce incentives to provide access.

The Australian, state and territory governments can play a central role in promoting better access outcomes, particularly where they are able to:

- promote as-of-right access by expanding general access and notices, with regulatory settings that can be applied flexibly and consistently across jurisdictions
- support fleet transition by ensuring vehicle design and access rules enable the uptake of innovative technologies, including by aligning domestic standards more closely to international standards
- move towards better aligning who benefits from heavy vehicle access with funding arrangements for those who bear the costs of maintenance and infrastructure upgrades.

Draft recommendation 2.1
Allow greater as-of-right access and simpler vehicle approvals for Performance-Based Standards (PBS) vehicles

State, territory and local governments should support as-of-right access for PBS vehicles where it is safe to do so. Road managers should provide in-principle consent for as-of-right access for PBS vehicles (which have met safety and infrastructure requirements) that is at least equal to access for equivalent non-PBS vehicles. Governments should enable eligible PBS vehicles to be added to existing gazetted access notices without requiring a new notice.

In addition, the National Transport Commission should amend the Heavy Vehicle National Law to remove the requirement to refer all PBS design approval applications to the PBS Review Panel for advice.

Information request 2.2

The PC is seeking feedback on how the Performance-Based Standards (PBS) scheme can be improved and enable greater as-of-right access for PBS vehicles over time. We are also interested in views around how the Australian Government can best support this process.

- Could there be any unintended impacts arising from not requiring the PBS Review Panel to provide advice on all PBS design applications? What types of PBS design applications should still require panel advice?

The PC is also seeking feedback on implementation issues, including how a pathway to add eligible PBS vehicles to existing notices (with in-principle road manager consent) could be embedded in legislation.

- How should the mechanism be designed and implemented? Why?
  - What amendments to the Heavy Vehicle National Law or related regulations would be required?
  - Are amendments to the PBS classification system required?
  - How should amendments be implemented to ensure eligible PBS vehicles can be added to existing notices without having to get access approvals, while ensuring existing access arrangements previously agreed by road managers are preserved?
  - What criteria should PBS combinations fulfil to be eligible to be added to existing notices? Which specific PBS combinations should be prioritised? On what basis?
  - What safeguards, monitoring or review mechanisms would be required to ensure the approach maintains road safety and protects infrastructure?

Draft recommendation 2.2
A nationally-consistent concessional mass limit for electric heavy zero emissions vehicles (HZEVs)

The Australian, state and territory governments should – through the National Transport Commission – work to embed a concessional mass limit in the Heavy Vehicle (Mass, Dimension and Loading) National Regulation to ensure electric HZEVs can operate across jurisdictions without significant payload disadvantages arising from battery weights.

These arrangements should be reassessed over time as batteries get lighter with technological change. An option is for governments to implement a transparent review mechanism every three years which monitors the development of electric HZEVs and the interaction with road wear to ensure the concession is set appropriately. The review mechanism should monitor the following areas:

- the payload gap between comparable diesel heavy vehicles and electric HZEVs
- how international jurisdictions are setting concessional mass limits for electric HZEVs.

The concession should sunset following a positive review determination that the payload gap between comparable diesel and electric HZEVs has materially closed.

Information request 2.3

The PC is seeking feedback on implementation of a nationally-consistent mass concession for electric heavy zero emissions vehicles (HZEVs).

- How should a concessional mass limit to overcome the current payload gap between comparable diesel and electric HZEVs be implemented?
  - What should the size of the concessional mass limit be?
  - What are the outcomes and learnings that have come out of the trial-based concessional electric HZEVs mass limit arrangements?
  - How should the mass concession interact with the Performance-Based Standard scheme, including new and/or existing permits? What are the merits and downsides of the different options?
  - Are there any additional changes or approvals required to ensure operators can make use of the mass concession?
  - Are there cases where the concession should not be automatically applied? Why?
  - Is a three-yearly review process appropriate? What benchmarks should be considered in the review process?
- What are the expected impacts of applying the mass concession?
  - To what extent would changes assist and/or accelerate the uptake of uptake of electric HZEVs?
  - What road wear impacts will this have at anticipated take up rates?

Accelerating a National Automated Access System

Draft finding 3.1
The existing permit system for heavy vehicle access is ripe for reform

The heavy vehicle permit system imposes significant costs and uncertainty on operators, as well as administrative burden on road managers and the National Heavy Vehicle Regulator. There is a need to reform the system to promote flexibility, timeliness, consistency and quality of access decisions – this will support broader productivity.

Draft recommendation 3.1
The National Automated Access System should incorporate network-based access

As much as possible, the National Automated Access System should be designed to provide network-based access rather than automating access for prescriptive routes. This will maximise the benefits of the system for operators and the community.

Information request 3.1

The PC is seeking evidence and views about how the National Automated Access System can be designed to improve the consistency and quality of local governments' access decisions. Is guidance and improved road asset data adequate, or are broader reforms needed to optimise decision making by local governments?

Information request 3.2

- What are the factors affecting implementation of the National Automated Access System? What are the main resource constraints (for example, skilled people, data and information or equipment), and what parts of the implementation do they affect?
- What would be the best way to accelerate rollout of the National Automated Access System? If more funding is needed, where should it be directed and what should it be spent on?

Draft recommendation 3.2
Funding for the Strategic Local Government Asset Assessment Project

The Australian Government should fund future phases of the Strategic Local Government Asset Assessment Project, starting with Phase 4 in the 2027-28 Budget.

Administrative and regulatory barriers to charging infrastructure

Draft recommendation 4.1
Make the Electric Vehicle Charging Infrastructure Mapping Tool more relevant to heavy zero emissions vehicle (HZEV) charging

To make the Electric Vehicle Charging Infrastructure Mapping Tool more useful to guide investments in HZEV charging infrastructure, the Department of Climate Change, Energy, the Environment and Water should:

- work with electricity distribution network service providers and the Australian Energy Regulator to incorporate more granular (distribution substation-level) distribution network capacity information
- work with the Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts and the National Heavy Vehicle Regulator to incorporate information on freight locations and movements
- work with state and territory governments to incorporate information on where charging is an allowed land use (with and without planning permission)
- allow all mapping data to be exported.

Draft recommendation 4.2
Adapt land use regulation to heavy zero emissions vehicle charging infrastructure

State and territory governments should alter the definitions of land uses that cover bus depots, freight centres, freight nodes and heavy vehicle rest stops to explicitly allow for electric vehicle charging on land used in this way.

State and territory governments should exempt the installation of charging infrastructure from requiring planning permission where it is consistent with existing land use provisions. To the extent that jurisdictions apply conditions to manage any public impact, these should be balanced against potential impacts on innovation and investment.

Information request 4.1

How much would draft recommendations 4.1 and 4.2 reduce administrative and regulatory barriers to heavy zero emissions vehicle charging infrastructure and what implications would this have for project costs?

Information request 4.2

What regulatory or administrative actions should governments take (if any) to facilitate private investment in charging infrastructure at state and territory government-provided heavy vehicle rest areas?

Heavy vehicle curfews

Information request 5.1

The PC is seeking information on the prevalence of curfews. How widespread are local government restrictions through local planning rules? What are the typical terms of these restrictions? If they exist, what are the typical reasons (noise or other reasons)?

Draft finding 5.1
There is a strong case for reducing curfew burdens on heavy zero emissions vehicles

Heavy vehicle curfews largely arise from two sources – local traffic controls that restrict truck traffic through particular streets, and conditions imposed on local government planning permits that restrict delivery hours to and from businesses. Local traffic controls appear to exist almost exclusively in Victoria, while planning restrictions appear more widespread.

Many curfews were designed for conventional diesel vehicles and do not recognise the quieter noise profile of heavy zero emissions vehicles. As a result, some curfews are no longer fit for purpose, and there is a strong case for reducing curfew burdens on heavy zero emissions vehicles.

Information request 5.2

The PC is seeking information to illustrate the costs and benefits of reducing curfews on heavy zero emissions vehicles and the costs and benefits of possible approaches to reform, along with their implementation.

- What are the practical options for implementing exemptions for heavy zero emissions vehicles from curfews? If vehicles were to be exempted by heavy zero emissions vehicle status – how would this distinction be made and enforced?
- How would a performance-based approach work in practice, and what would be the associated costs?
- What would be the practical costs associated with implementing an outcomes-based approach to regulating noise?
- What would be the most effective means of implementing reform? What should be the respective roles of the Australian Government, state and territory and local governments?

The National Heavy Vehicle Driver Competency Framework

Draft finding 6.1
Driver competency reforms are progressing

Reforms to the National Heavy Vehicle Driver Competency Framework appear on track to be implemented by most states and territories by 2028. Some states and territory governments may be able to deliver earlier under current arrangements. Others are not expecting to implement the reforms within the 2028 timeframe, with some still uncertain if they will be implemented in full. Support to implement changes, including to undertake regulatory reform, policy work and IT systems updates, may aid implementation.

Information request 6.1

The PC is seeking information on:

- the potential size of the costs and benefits, including the productivity effects, arising from the National Heavy Vehicle Driver Competency Framework reforms and if there are any costs and benefits not identified in this report
- how the costs and benefits of National Heavy Vehicle Driver Competency Framework reform might be distributed across the workforce, including by age, gender, income and education, and any other relevant demographic classification (including impacts on Aboriginal and Torres Strait Islander people).

Information request 6.2

The PC is seeking feedback on future reform directions for the National Heavy Vehicle Driver Competency Framework, including:

- weight concessions in Australian licence classes to create parity between payloads for electric and diesel heavy vehicles and any safety implications of such a concession
- recognition of the credentials, skills and experience of drivers with overseas heavy vehicle licences within Australia's licensing system, considering the effects on safety, driver supply and productivity.

1. Context for heavy vehicle reform

1.1 What have we been asked to do?

In 2024, the Australian, state and territory governments agreed to a 10-year reform program aimed at boosting competition and productivity across Australia (Chalmers and Saffioti 2024).

The Productivity Commission's role in this National Competition Policy (NCP) process is to (at the Treasurer's direction) identify pro-competitive reforms and estimate their economic and revenue impacts. The PC previously modelled a first tranche of reforms (PC 2024) and provided advice on occupational licensing and adopting international standards (PC 2025b).

In this study the PC was asked to provide analysis and modelling on the impacts of a heavy vehicle reform package aimed at increasing productivity and supporting the uptake of heavy zero emissions vehicles (HZEVs). In December 2025, the NCP Federation Funding Agreement Schedule was updated to include outputs and performance milestones related to the reform package (Commonwealth of Australia 2025).

This report examines the five reform areas under the heavy vehicle productivity reform package:

- increasing heavy vehicle road access to reduce emissions and increase productivity (chapter 2)
- accelerating the establishment of a National Automated Access System to streamline road access decision making for all heavy vehicles (chapter 3)
- removing administrative and regulatory barriers to improve the availability of HZEV charging infrastructure (chapter 4)
- reducing or removing curfews for HZEVs (chapter 5)
- accelerating implementation of the National Heavy Vehicle Driver Competency Framework (chapter 6).

1.2 Conduct of the study and consultation

The request for advice for this study was received on 30 September 2025, and a call for submissions was released on 14 November 2025. The PC consulted with participants to prepare this interim report, including the National Transport Commission and the National Heavy Vehicle Regulator, Australian, state and territory and local governments, the freight industry and heavy vehicle manufacturers. The PC received 42 submissions and three brief comments from interested parties, which are published on the PC's website: www.pc.gov.au/inquiries-and-research/heavy-vehicle-reform/submissions/.

Meeting participants and participants who made submissions are listed in appendix A. The PC has greatly benefited from the consultations and thanks the participants for their contributions to the study.

This interim report sets out the PC's preliminary analysis and interim findings on key issues. Modelling in the interim report has been restricted to estimates of the impact on GDP of selected heavy vehicle mass limit reforms, building on analysis conducted by the Bureau of Infrastructure and Transport Research Economics (BITRE forthcoming). Modelling of the impact of additional reforms will be undertaken for inclusion in the final report. Appendix B contains further information on the interim report modelling.

The PC is seeking input for the final report

The PC is seeking additional input for the final report, due in June 2026, and will undertake further consultation with participants. You are invited to respond to this interim report by making a written submission or brief comment by 5 May 2026.

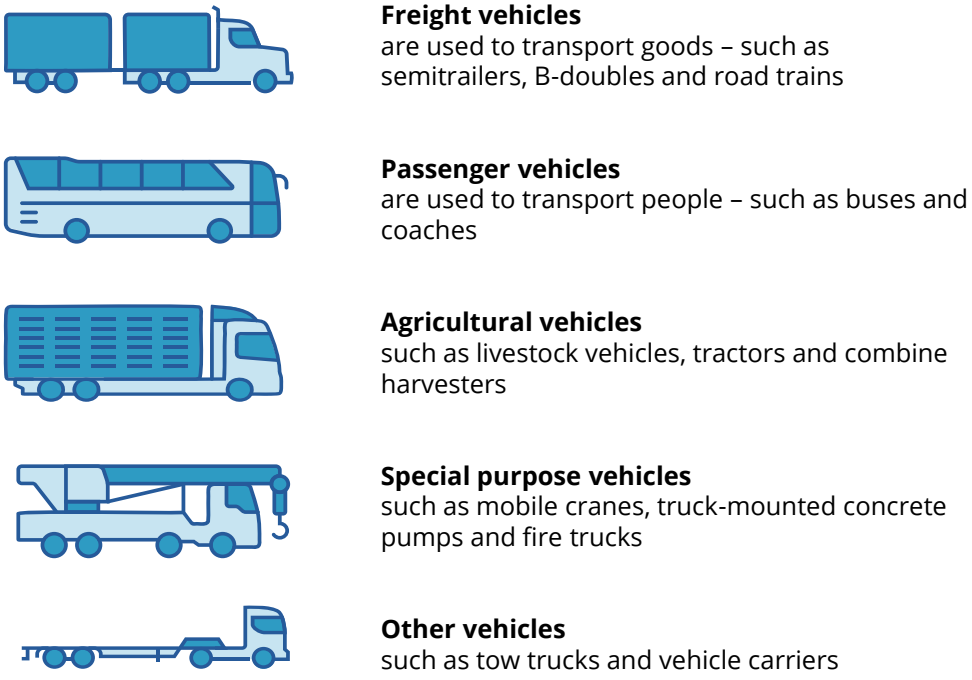
1.3 Heavy vehicles and the freight task

Heavy vehicles perform a range of functions

The Heavy Vehicle National Law (HVNL) includes vehicles that have a gross vehicle mass – that is, the maximum weight when fully loaded – or an aggregate trailer mass of more than 4.5 tonnes (NHVR 2025m). Although the HVNL does not apply in Western Australia and the Northern Territory (NTC 2026b), the 4.5 tonne threshold for heavy vehicles is also used in those jurisdictions for some regulatory purposes (such as driver licensing) (NT Government 2026; WA DTMI 2025).

Heavy vehicles can perform a range of functions (figure 1.1). They also operate either as single vehicles or as combinations of multiple vehicle units (NHVR 2025d). Rigid vehicles are a single unit where the vehicle cab and load are fixed together, while an articulated vehicle is made up of two or more parts joined so that it can bend when turning. A combination is a group of vehicles consisting of a motor vehicle (such as a prime mover or rigid truck) towing at least one other vehicle unit (such as a trailer). A combination that includes a vehicle above 4.5 tonnes is also considered a heavy vehicle.

Figure 1.1 – Heavy vehicles can perform a range of functions



Source: NHVR (2019a, 2025m).

These vehicles are regulated more heavily than light vehicles because their size, mass and operating characteristics come with extra safety and infrastructure considerations. Heavy vehicles impose greater

loads on road infrastructure and have different manoeuvrability characteristics, which need to be managed. As a result, tailored rules apply – including around vehicle standards, road access and driver licensing – to support safe operations.

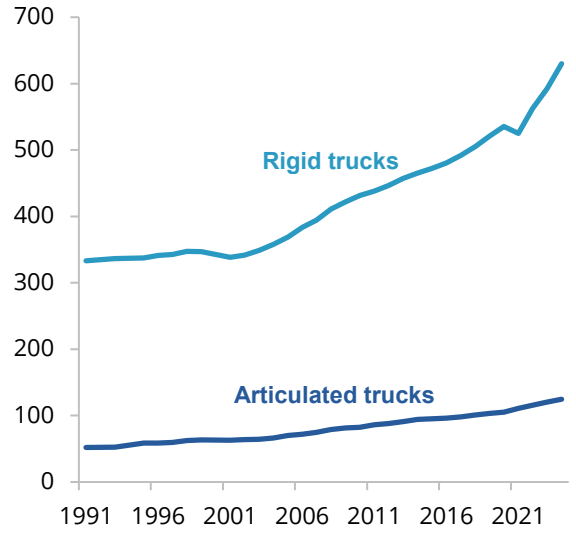
Heavy vehicle productivity growth has slowed

Heavy vehicle transport plays an important role in the Australian economy, supporting the movement of goods, passengers and the delivery of essential services. The road freight task, that is, the total volume of goods transported, has continued to grow over time (figure 1.4). Overall, the road transport sector and in-house road transport activity represent around 5% of Australian GDP.[2] The road transport sector alone employs 273,000 people (BITRE 2025, p. 15). Heavy vehicle productivity has flow-on effects for other industries that rely on road transport – especially freight, given its role as an input across production and distribution networks.

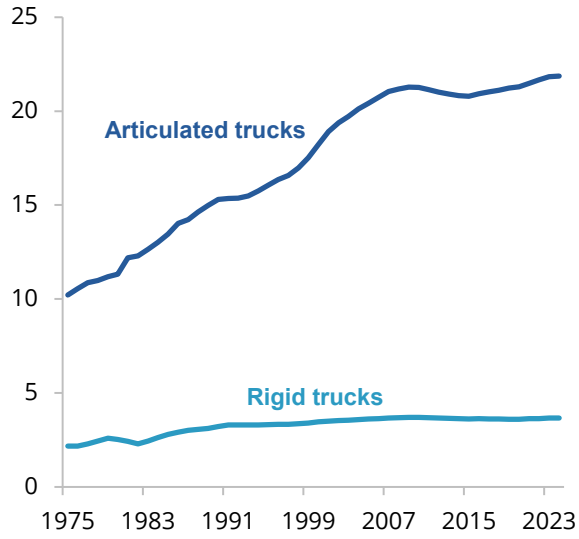
Historically, the physical productivity of road freight vehicles (proxied by a measure of average load mass) has gone through periods of significant growth. Between 1975 and 2009, the physical productivity of heavy freight vehicles increased considerably – with articulated trucks contributing most of this growth (figure 1.2). Past increases in productivity were associated with improvements such as increased B-double access to roads, which boosted payload capacity – the volume of goods trucks are able to transport on any given trip – by about 50% per vehicle kilometre without greatly increasing road wear (BITRE forthcoming).

Figure 1.2 – Heavy vehicle productivity and number of heavy vehicles

a. Number of heavy vehicles (000s)[a]



b. Physical productivity (tonne kilometres per vehicle kilometre travelled)



a. Interpolated for some years due to missing data.

Source: PC estimates based on BITRE (2024a).

[2] PC estimates based on ABS (2022, 2023). In-house transport activity is undertaken by non-transport industries in the economy (ABS 2023).

However, over the past decade and a half, growth in the physical productivity of the road freight sector has effectively slowed to zero. There are a few possible reasons for this.

- Most of the growth in heavy vehicles has been in rigid trucks (figure 1.2), which typically carry less freight than articulated trucks – reflecting their suitability to 'last mile' delivery and certain business operations, such as direct delivery from manufacturers to end customers (TIC, sub. 35, attachment 1, p. 19). Today, rigid trucks make up over 80% of the heavy vehicle freight fleet.
- Previous gains from increasing the capacity of articulated trucks cannot be replicated, as newer, larger heavy vehicle combinations offer smaller increases in payload (BITRE 2011, p. XIX).

Hence, it is critical that regulatory and policy settings focus on increasing access to the network, as well as capital, labour and energy efficiency across the heavy vehicle sector to maximise ongoing productivity growth.

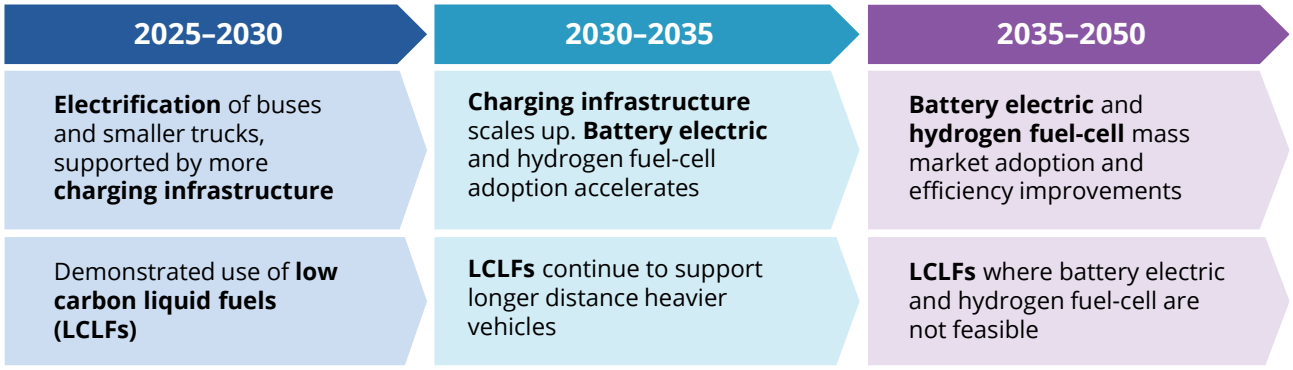
Enabling electrification and use of alternative fuels will deliver benefits beyond productivity uplift

The transport sector is responsible for 22% of Australia's annual carbon dioxide equivalent gas emissions. It is currently on track to be Australia's largest source of greenhouse gas emissions by 2030 (DITRDCSA 2025d, p. 3).

The continued growth of the road freight task combined with the stalling productivity of the sector means that Australia will not be able to meet its 2050 net zero goal without significant changes to the fleet and the way it accesses the road network.

Many of these changes will be driven by developments in new technologies, but not all of these will become technologically or commercially viable at the same time. Figure 1.3 shows a possible decarbonisation technology pathway for the freight sector.

Figure 1.3 – Timeline of heavy vehicle decarbonisation technology pathways



Source: Reproduced from the *Transport and infrastructure net zero roadmap and action plan* (DITRDCSA 2025d, p. 8).

In addition to supporting the transition to net zero, increasing fleet efficiency and the use of HZEVs can improve supply chain resilience and reduce the Australian economy's exposure to geopolitical and supply chain disruption.

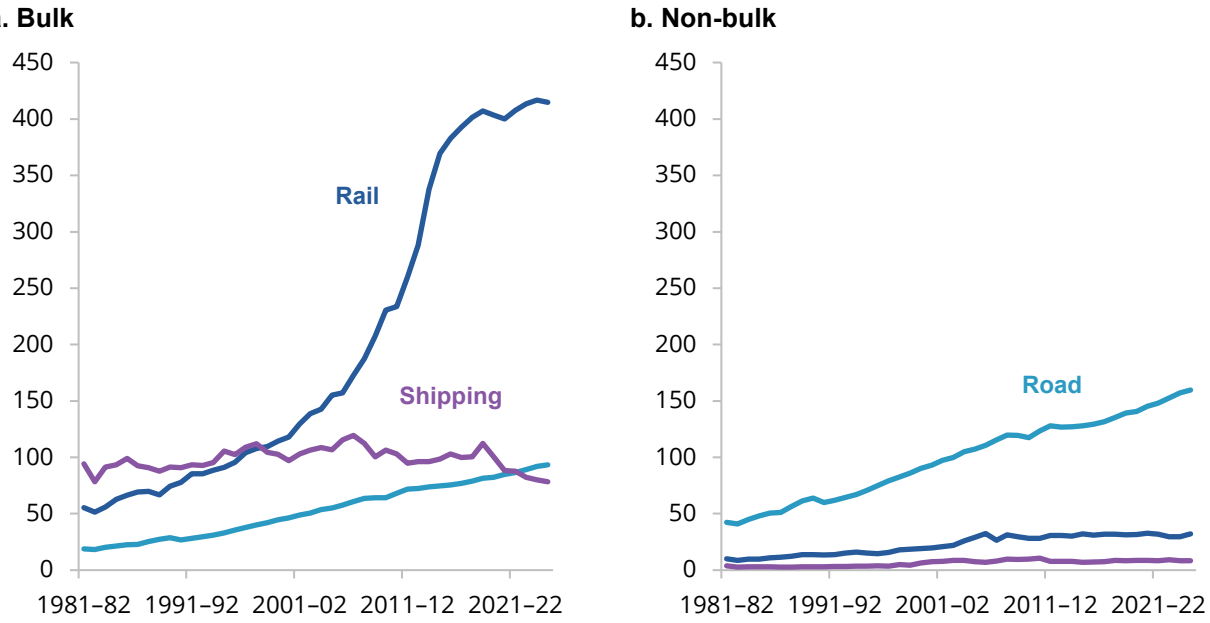
Heavy vehicle transport will continue to play an important role in freight tasks as rail freight also expands

Road and rail transport often serve complementary roles. For example, rail transport is well suited to moving large volumes of bulk freight (large quantities of the same good loaded directly onto a vessel, such as grain or coal) over long distances between major hubs (BITRE 2022, pp. x–xi). Rail freight has seen a large

increase over the past two decades, heavily impacted by the mining boom (figure 1.4). Road transport provides greater flexibility, particularly where rail infrastructure is unavailable. It is often required for parts of a freight journey, especially for the start and end movements, such as moving goods from their point of origin to major transport hubs and from those hubs to their end destination. The size of the freight task delivered by road has continued to grow for both bulk and non-bulk goods, and remains the predominant transport mode for non-bulk freight (figure 1.4).

Figure 1.4 – Road transport is increasingly being used to carry non-bulk freight

Domestic freight (billion tonne kilometres)



Source: BITRE (2025).

Many study participants noted that some important policy settings underpinning productivity and emissions outcomes extend across the rail freight sector (for example: ARTC, sub. 3, p. 2; ARA and NRA, sub. 29. p. 2; ARA, sub. 39, p. 5). Consideration of alternative transport modes remains relevant to achieving long-run productivity and emissions outcomes.

> To a large degree, better allocative efficiency across different modes of transport results from undertaking incremental reform to ensure efficiency within each mode of transport. (PC 2020, p. 315)

Despite continuing investments in alternative freight modes (BITRE 2025, table 5.1c), it is expected that demand for road freight will continue to grow by 77% in volume between 2020 and 2050 (BITRE 2022, p. xiv). The road freight task has grown in line with economic activity and the expansion of e-commerce, with a continued reliance on road vehicles for ‘last mile’ distribution (BITRE 2022, p. 7; ARA, sub. 39, p. 3; TIC, sub. 35, attachment 3, p. 7). For this reason, pursuing productivity gains in the heavy vehicle sector should remain a focus for governments.

Future productivity gains are likely to depend on smarter vehicle design and network use. From a whole-of-sector perspective, these incremental gains will complement investments being made by users of freight services to optimise modal transport options, warehousing, distribution, and supply chains.

1.4 Expected distributional impacts of the proposed reforms

The PC has been asked to consider distributional impacts of the five reform areas where possible, including by age, gender, income and education, and any other relevant demographic classification (including impacts on Aboriginal and Torres Strait Islander people). The PC has also been asked to consider other impacts on consumers that may be difficult to quantify. The PC has some early reflections on the distributional impacts as they relate to the National Heavy Vehicle Driver Competency Framework (chapter 6), but are seeking further insights and information on this from participants.

Information request 1.1

The PC is seeking evidence and views about how the package of heavy vehicle reforms examined in this study may impact:

- different cohorts, including by age, gender, income and education, and any other relevant demographic classification (including impacts on Aboriginal and Torres Strait Islander people)
- consumers, including in ways that may be difficult to quantify, such as improved quality of service or wellbeing, or greater choice.

2. Access for high productivity and heavy zero emissions vehicles

Key points

- **Heavy vehicle road access reform is an important lever for achieving productivity and emissions reduction goals while managing risks to the road network.**
  - Access arrangements not only affect how freight is moved, but also what vehicles operators invest in and how quickly safer and lower-emissions technologies are adopted.
- **At a high level, to improve access and unlock the benefits of a modern fleet, governments should:**
  - promote as-of-right access by expanding general access and notices, with regulatory settings that can be applied flexibly and consistently across jurisdictions
  - support fleet transition by ensuring vehicle design and access rules enable the uptake of innovative technologies, including by aligning domestic standards more closely to international standards
  - move towards better aligning who benefits from heavy vehicle access with funding arrangements for those who bear the costs of maintenance and infrastructure upgrades – including Australian, state and territory, and local governments.
- **Supporting access for Performance-Based Standards (PBS) vehicles will promote productivity and emissions reduction in the near term.**
  - PBS vehicles are designed to achieve higher productivity while meeting defined safety and infrastructure standards, yet they remain heavily reliant on permits and case-by-case approvals.
  - State, territory and local governments should support as-of-right access for PBS vehicles where it is safe to do so. Governments should enable eligible PBS vehicles to be added to existing gazetted access notices without requiring a new notice.
  - The PBS approval process should be simplified by removing the requirement to refer all PBS design approval applications to the PBS Review Panel for advice.
- **Arrangements to facilitate access for heavy zero emissions vehicles (HZEVs) should be made more consistent, to support their role in delivering emissions reductions over time.**
  - State and territory governments have introduced additional mass allowances for electric HZEVs to help offset reduced payload capacity due to the additional weight of battery systems. However, this mass concession currently differs across jurisdictions.
  - A nationally-consistent concessional mass limit should be introduced. This should be reviewed over time to ensure the concession is set appropriately as electric battery weights decline.

Heavy vehicles are central to the day-to-day functioning of our economy. Almost all goods have been moved by heavy vehicles at least once, and often several times – from ports, farms and factories to distribution centres, shops and homes.

More needs to be done to ensure that heavy vehicle regulatory settings and decision-making frameworks support optimal decision making by both governments and heavy vehicle operators. Study participants noted that the rules on access affect more than day-to-day operations. They can also signal expectations for – and certainty of – how heavy vehicles can be used, shaping investment decisions (Tesla, sub. 20, p. 3; Volvo, sub. 23, p. 7). Right now, the safest, most productive, and lowest emission heavy vehicles face more barriers to get on the road than a standard 'prescriptive' heavy vehicle, and as a result, potential gains from greater use of these vehicles may not be fully realised.

Opportunities to adopt new technologies and reduce emissions are also being missed – the Australian Government has a goal of achieving net zero emissions by 2050 (DITRDCSA 2025d, p. 4), but some regulatory and investment settings for heavy vehicles are actively working against this.

Shifting from a regulatory default that requires businesses to apply and justify the case for access, to an approach that provides automatic access subject to appropriate safeguards, will help position Australia to benefit from new and improved technology and drive better social, environmental and economic outcomes.

With this in mind, this chapter assesses options to increase heavy vehicle road access to increase productivity and support the transition to net zero. There is a long-term opportunity to get more high productivity vehicles and heavy zero emissions vehicles (HZEVs) onto Australian roads, so that the untapped benefits of a modernised freight fleet can be unlocked. This assessment was based on the expected benefits and costs to the community of different forms of heavy vehicle access reform by any Australian government, with recognition of existing reforms and efforts to improve access.

2.1 How do access arrangements currently work?

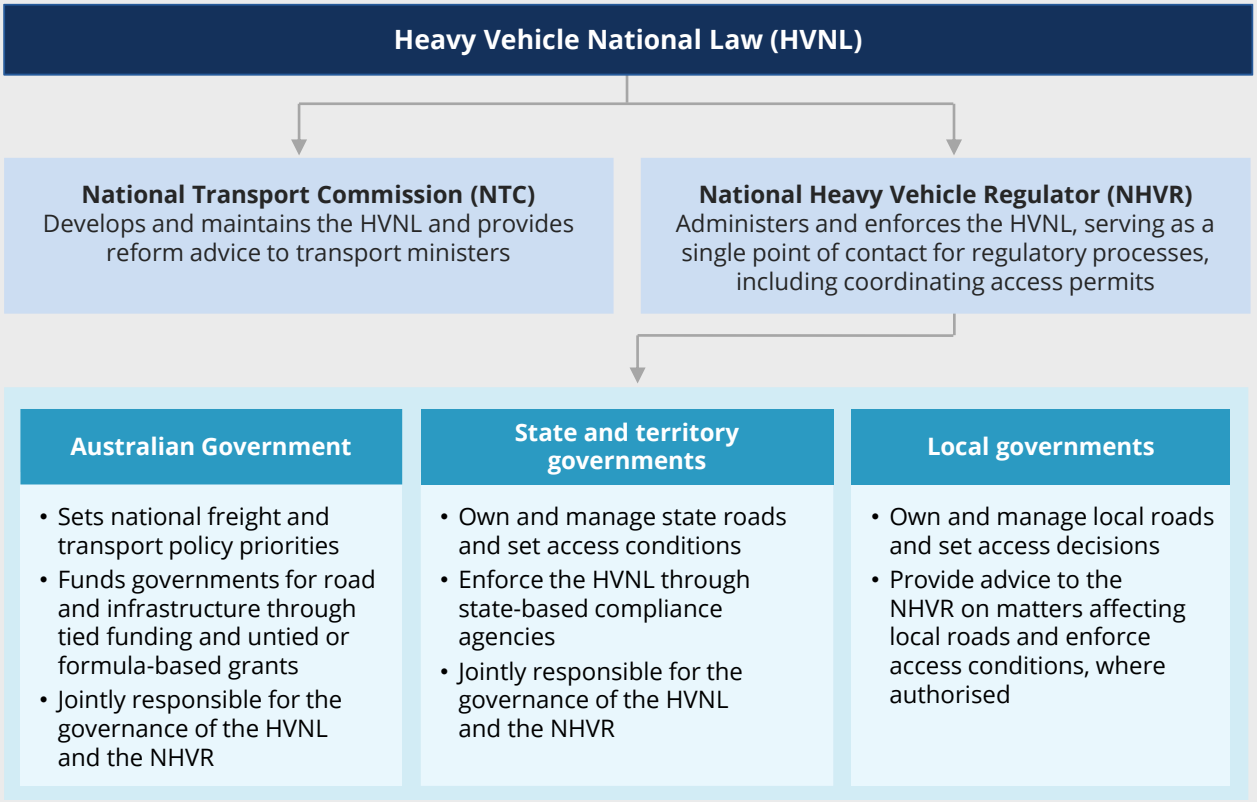
Road access regulation is designed to manage the social costs of road use, which are not fully captured by the private costs faced by road users. These include infrastructure wear, congestion, road accidents, pollution and emissions.

The Heavy Vehicle National Law (HVNL) aims to promote and support the safe and productive transportation of goods and people. Introduced in 2014, it establishes a framework for regulating heavy vehicles, including vehicle standards, mass and dimension limits, fatigue management, speed compliance, road access and enforcement (NHVR 2025b, p. 5). The HVNL applies to all Australian jurisdictions except Western Australia and the Northern Territory, which continue to regulate heavy vehicles under their own state and territory laws (NHVR 2025f).

Australia has a decentralised road governance system, with governments at all levels having some responsibility for road and infrastructure funding and setting access restrictions. Under the HVNL, responsibility for road ownership, infrastructure management and approving access decisions remains with local, state and territory road managers (box 2.1).

Box 2.1 – The architecture and governance arrangements of the HVNL

The HVNL is a regulatory framework that governs the use of vehicles with a gross vehicle mass greater than 4.5 tonnes (NTC 2026b). When a state or territory government adopts or duplicates the HVNL through its own legislation, it then becomes part of the national heavy vehicle system (NHVR 2025f). This approach is intended to deliver consistent rules across participating jurisdictions and establish a shared governance structure. The HVNL has several key building blocks.



Source: NHVR (2025b, p. 5, 2026e, 2026b); NTC (2026b).

Australia's heavy vehicle fleet comprises a diverse range of truck types and combinations, each with different access permissions and restrictions (box 2.2). Some types of heavy vehicles can use most roads without special approval (general access) while others are restricted to areas that have been approved for their use (restricted access).

Approval from road managers can be provided by a permit or a notice (NHVR 2026c). Permits allow a specific vehicle to operate on certain routes or within defined areas. In contrast, notices issued by the National Heavy Vehicle Regulator (NHVR) provide as-of-right access, allowing specified classes of vehicles to use approved routes without a specific approval process. As-of-right access is generally the most certain and efficient form of access for operators, particularly when planning routes and making fleet investment decisions. Compared with permit-based approvals, which require discretionary approval from relevant road managers, notices establish pre-determined conditions for network use, reducing administrative burden and processing times while providing greater certainty about where and how vehicles can operate (PC 2020, p. 189).

Box 2.2 – Overview of heavy vehicle types and access arrangements

General Access Vehicles comply with dimension and mass limits for the eligible vehicle or combination, and have as-of-right access to the road network (unless signposted otherwise). Examples include buses, and prime movers and rigid trucks towing one semitrailer up to 19 m in length.

Restricted Access Vehicles (RAVs) require a permit or notice to access road networks. Permits are assessed by road managers and provide case-by-case access for a specific operator, vehicle and route. A notice grants access for a specified heavy vehicle type on an approved road network. For example, the *National 2 B-double Authorisation Notice 2024 (No 1)* applies to B-double trucks, allowing this truck configuration to access stated routes without the need for individual permits, provided they comply with mass and dimension limits.

Performance-based standards (PBS) vehicles are a type of RAV designed to achieve higher productivity (such as by carrying larger or heavier loads) than their non-PBS equivalents, while meeting specified safety and infrastructure standards to ensure they are suited to the road network.

PBS vehicles are classified into four levels based on their performance against nationally agreed standards. This classification determines the parts of the PBS network which they may be eligible to access. PBS Level 1 have as-of-right access to the road network (subject to mass limits). Higher-level PBS vehicles have access to roads that have been formally approved for their classification and included in gazetted PBS networks. Where a PBS vehicle seeks to operate outside these networks, access is subject to approval by the relevant road manager.

The term **high productivity freight vehicle** is generally used to describe larger, more productive freight vehicle combinations. In Victoria, the term is used to describe a regulated vehicle class that must meet PBS requirements and operate under prescribed dimension thresholds (generally over 26 m in length and/or has a gross combination mass greater than 68.5 tonnes), mass limits and network access rules.

The **Australian Design Rules** (ADRs) are national standards for road vehicle safety, anti-theft and emissions. All imported vehicles and new vehicles manufactured in Australia must comply with the ADRs.

Example of a B-double combination

Example of a PBS B-double combination

Source: DITRDCSA (2026a); NHVR (2025h, 2025d, 2025k, 2026h, 2026g); Victorian Government (2026).

2.2 Opportunities to deliver productivity gains and improved environmental outcomes

Productivity in the heavy vehicle sector is shaped by a range of factors, including technological progress, innovation, competition, regulatory design and the behaviour of regulators and road managers. Changes to several areas of policy could deliver significant gains in productivity and improved environmental outcomes.

To improve access and unlock the benefits of a modern fleet, governments should:

- promote as-of-right access by expanding general access and notices, with regulatory settings that can be applied flexibly and consistently across jurisdictions
- support fleet transition and competitiveness by ensuring vehicle design and access rules enable the uptake of innovative designs and best-practice technologies, including by aligning domestic standards more closely to international standards
- move towards better aligning who benefits from heavy vehicle access with funding arrangements for those who bear the costs of maintenance and infrastructure upgrades – including Australian, state and territory, and local governments.

Promote as-of-right access, along with flexibility and consistency

Strategic reforms to access can enable operators to better use existing infrastructure and drive productivity growth. By enabling drivers to carry more freight per trip or take shorter and more direct routes, improved access could reduce the number of trips required to move a given volume of freight. This in turn can lower the use of inputs such as fuel, emissions, labour and vehicle utilisation per tonne of freight transported, while also reducing road wear and maintenance.

The flow-on effects of improved heavy vehicle access can also provide benefits to consumers, including through cheaper and faster deliveries of goods and commodities, and can reduce production input costs to make Australian exporters more competitive.

Some improvements to general access are already underway. For example, increases to baseline mass limits, length and height allowances are expected to take effect in mid-2026 (NTC 2025, p. 9). The National Transport Commission released draft regulations for public consultation and stakeholder submissions are being considered as part of the process to finalise the regulation for ministerial approval (NTC 2026a). The NHVR is also progressing work to explore incorporating the Euro VI mass concession – which provides an extra 0.5 tonnes of mass for compliant vehicles – into notices (NHVR 2025b, p. 22).

As a general principle, regulation should enable as-of-right access wherever possible and reasonable to do so. Consistent with this, the Productivity Commission (2020, p. 30) in its inquiry into *National transport regulatory reform* recommended that governments expand key freight routes covered by notices to allow as-of-right access for high productivity vehicles. This included expanding gazetted access networks for PBS vehicles and types of vehicles for which permit applications are almost universally approved.

The basis for rejecting access applications should also be clear and applied consistently across road managers. In practice, however, the quality and consistency of permit access decisions can vary between road managers, reflecting differences in resourcing, capability, priorities and risk tolerance. The PC's (2020, p. 31) *National transport regulatory reform* inquiry recommended that local governments should be provided with the financial and technical capacity they need to perform their role as asset managers for local roads. Chapter 3 explores the issue of consistency and quality of access decisions by local governments in more detail.

It is also important that prescriptive rules can be applied flexibly where this supports safe and efficient outcomes. Flexibility can help better align regulation with operational realities and facilitate the uptake of more productive vehicles. For example:

- The policy intent of the recent 0.5 tonne mass concession for Euro VI-compliant vehicles was to allow the additional mass to be distributed across steer and drive axles. However, the legislation as originally drafted did not fully reflect this intent, and regulatory amendments are now being progressed to clarify the position. In the interim, enforcement has been aligned with the approved policy intent (NHVR 2025g).

- There are plans to increase the maximum length for general access vehicles from 19 m to 20 m, without a corresponding change proposed for B-doubles. As B-doubles may use the same A-trailers as general access vehicles, differences in length limits can affect interoperability and influence equipment and investment choices (Truck Industry Council, personal communication, 18 February 2026). Considering length limits across vehicle types may support more efficient use of existing trailers, equipment and loading infrastructure, while retaining appropriate safety and infrastructure safeguards.

Prescriptive access requirements should be simple for operators to understand and comply with, including for those operating across multiple jurisdictions. While the HVNL establishes baseline requirements across participating jurisdictions, inconsistent access outcomes still arise in practice. This can occur due to the use of notices with jurisdiction-specific criteria or trial-based arrangements. Some specific examples of jurisdictional inconsistencies in access arrangements for PBS vehicles and HZEVs are covered in section 2.3. Overall, where cumbersome or fragmented regulatory approaches create productivity bottlenecks, greater harmonisation can improve outcomes by reducing duplication, improving consistency and lowering compliance costs for operators working across state and territory boundaries.

Information request 2.1

The PC is seeking feedback on how proposed reforms to the Heavy Vehicle (Mass, Dimension and Loading) National Regulation (expected to commence on 1 July 2026) will affect access. These reforms include uplifting General Mass Limits to Concessional Mass Limits, increasing general length limits from 19 m to 20 m and increasing general height limits from 4.3 m to 4.6 m.

- What implications would these reforms have for high productivity and heavy zero emissions vehicles?
- Will these reforms create any unintended consequences? What effect will they have on the interoperability of heavy vehicles with existing trailers, equipment and loading infrastructure?

Support fleet transition through vehicle design and access rules

The Australian Government should ensure the regulatory framework supports innovation and the uptake of new technologies. In addition to reforms to access regulations, ensuring that Australian Design Rules (ADRs) support the importation and use of the best and newest technologies (such as high productivity vehicles and HZEVs) from overseas can support the transition to a modernised fleet and strengthen industry competitiveness.

Some recent changes to ADRs help to allow newer and larger vehicles into Australia. For example, in 2023, the maximum width of heavy vehicles fitted with the most modern safety features was increased from 2.5 to 2.55 metres, and this was accompanied by general access for these vehicles (NHVR 2023b, 2024c). In 2024, the Australian Government introduced a new emissions standard for heavy vehicles (ADR 80/04) that aligns with the European Euro VI standard. To account for the additional weight of emissions control equipment, the HVNL was amended to provide an additional mass concession of up to 0.5 tonnes for Euro VI-compliant vehicles (NHVR 2026a).

But there are still barriers to importing and using some newer heavy vehicles in Australia when compared to overseas, including due to misalignment between Australian and international standards (box 2.3).

Box 2.3 – Views on differences in Australian and international standards

The Crane Industry Council of Australia highlighted costs involved in importing vehicles that have already met international standards.

> Most mobile cranes imported into Australia are engineered in Europe or Japan … cranes that already have been verified to comply with the more stringent international standards, must then commission detailed engineering assessments, prepare documentation that explains how the crane satisfies the intent of the ADRs, and justify exemptions where necessary. The challenges lie in the administrative burden, engineering costs, and the need to navigate exemptions for vehicles that do not fit neatly into the rules. (CICA, sub. 12, pp. 3, 5)

Other study participants commented on the lower mass limits applied to heavy zero emission vehicles in Australia when compared to overseas.

> The EU … have provided increases in operating mass allowances for zero emission buses and coaches of up to 2.5 tonne per bus type … (these allowances are significantly above the current Australian limits). (BIC, sub. 21, attachment 2, p. 3)

> Australia faces unique legal constraints regarding axle limits, unlike many other countries globally that permit significantly higher limits to counterbalance the impact of battery tare weight. The European Council Directive 96/53/EC allows 10 tonne on the front axle for example, compared to Australia's 6.5 tonne (7.0 tonne for Euro VI compliant vehicles), and are currently reviewing their policies to increase this further with another 2 tonne concession for some axle configurations. (Volvo, sub. 23, p. 6)

Volvo Group Australia (VGA 2025, p. 6) provided examples where inconsistency with international standards limits the availability of heavy vehicle models in Australia.

> ADR 42 & ADR 43 retractable axle requirements don't currently align with the ECE [Economic Commission for Europe]. The largest barrier being transition mass limits which don't match either European or Australian local road limits. … This misalignment is currently preventing VGA offering its 6x2 Volvo Battery Electric model that offers additional total cost of ownership benefits including less energy consumption, tyre wear and maintenance requirements.

Submissions to the 2023 impact analysis to consider the case for increasing the maximum allowable width for freight vehicles in Australia generally supported a width limit increase.

> Most industry stakeholders support a width limit of 2.60 m for trucks and trailers … These stakeholders argue that this would avoid the need to modify vehicles based on EU and US designs to be narrower for Australia, provide the best access to electric trucks from the world market, and deliver the greatest safety and productivity benefits.
>
> However, some industry stakeholders do not support increasing the width limit for trailers … These stakeholders consider that domestic trailer manufacturers would need to re-tool and change manufacturing processes to increase trailer width in order to compete with importers (DITRDCA 2023, p. 2)

Aligning domestic standards more closely to international standards could increase the availability of newer vehicles, equipment and technologies that are suited to the Australian market. Consistent with this, the PC's (2020, p. 237) *National transport regulatory reform* inquiry recommended that ADRs should allow for new transport technologies with proven productivity and safety benefits, including through achieving national and international consistency. The *ADR harmonisation review 2024-25* examined opportunities to better align ADRs with international standards and streamline regulatory processes (DITRDCSA 2025a). Study participants raised the importance of ADR reform and indicated that the findings from the review are yet to be released (CICA, sub. 12, pp. 3–11; HVIA, sub. 17, p. 4).

Align the benefits and costs of heavy vehicle road access

Increasing heavy vehicle road access is a reform which can benefit the broader Australian community. However, quality road infrastructure is costly and challenging to maintain. Roads and supporting infrastructure (such as bridges) deteriorate over time with usage and environmental exposure, requiring ongoing monitoring and maintenance, strengthening and periodic replacement. Funding these activities and managing competing priorities around access decisions can be a challenge for road managers under current arrangements (box 2.4).

> The Heavy Vehicle National Law (HVNL) requires road owners, who are largely responsible for maintaining and upgrades of their roads and bridges, to be involved in decisions about what access is provided to heavy vehicles. The tensions between road owners' understandable desire to protect their assets and opportunities for productivity, environmental, and safety gains through larger vehicles remains a defining issue. (NHVR, sub. 4, p. 5)

Realising productivity benefits from expanded heavy vehicle access requires governments to have adequate and predictable funding for road and infrastructure maintenance and upgrades where the benefits exceed the costs (Australian Industry Group, sub. 15, p. 4; ALGA, sub. 33, p. 5). To support this, a shift is needed towards a road infrastructure funding model that links together heavy vehicle user needs with: the level of service they receive; the charges they pay; and the investment of those charges into maintaining and upgrading the road network.

One approach that has been proposed to achieve this alignment is through an improved road user charge (CCAA, sub. 13, p. 2; Tasmanian Government, sub. 34, p. 1; NHVR, sub. 4, pp. 8–11). The PC previously recommended that progress be made towards an improved road user charge, including in its 2023 Productivity Inquiry (PC 2023, p. 93, 2024, p. 78). By providing clear signals about the costs imposed on infrastructure, this mechanism can encourage more efficient use of the road network. Moreover, such a mechanism can improve information for infrastructure owners by indicating where demand is growing and where infrastructure maintenance and upgrades may be warranted, enabling better investment and management of road infrastructure over the longer term (PC 2025c, p. 19).

In 2025, the Australian Government committed to considering future reforms to road user charging (Treasury 2025). The National Heavy Vehicle Charging Pilot has also explored road user charging models through a series of on-road trials (DITRDCSA 2026b).

Transferring ownership of road assets is another option. Transport for NSW (sub. 38, p. 8) noted that:

> Transferring ownership of structures supporting the state road network from local to state government would deliver consistency, safety, and efficiency across critical transport infrastructure. State road authorities are better positioned to manage these assets due to their access to broader funding streams, technical expertise, and ability to apply uniform engineering standards. This approach reduces duplication and ensures that structures integral to freight and mobility priorities are maintained to a consistent level of service.

> Local governments would retain an important role through structured feedback channels, enabling them to report community concerns, amenity issues, and early signs of defects. This type of model could preserve community engagement while centralising accountability for high-risk infrastructure.

While these considerations are important for improving alignment between those who benefit from heavy vehicle access and those who bear the costs, the design and implementation of any funding, charging and ownership arrangements are beyond the scope of this study.

Box 2.4 – Funding and management of road infrastructure

Governments spend billions of dollars each year to build, operate and maintain roads. This includes funding the provision and management of infrastructure, including financing planning and administrative functions to facilitate land use and providing infrastructure, such as signage, so roads can be used safely. Costs also include broader expenditure arising from ongoing vehicle use, including monitoring road wear, repairing roads (for example, filling in potholes) and funding emergency services to respond to road accidents.

While charges to road users are intended to recover these costs, the expenditure incurred by relevant road managers does not directly align with the prices road users pay to use the roads. The Australian, state, territory and local governments spent about $39 billion in 2022-23 on the maintenance, upgrading and expansion of Australia's road network (BITRE 2024b). In the same year, revenue collected for road infrastructure by governments was only about $31 billion (BITRE 2024b).

Study participants noted structural limitations in the current road user charge system, including how costs are apportioned between road users, how revenue is distributed between levels of government, and its responsiveness to changes in the fleet mix and future freight investment needs.

> [The current heavy vehicle charging framework] has two major structural limitations:
>
> 1. It recovers past expenditure rather than funding current or future needs thereby ignoring current and future freight pressures and typically underestimates the investment needed for future demand.
>
> 2. It distributes revenue only to state and territory governments, not to Local Governments. (CCAA, sub. 13, p. 7)

> … fewer vehicles are being registered than forecast, those vehicles are more productive, and aggregate fuel consumption is declining … In practice, this means fewer vehicles are paying annual registration fees, fuel-based charges are contributing less in aggregate, and total revenue is falling, even as freight volumes remain stable or increase. The current system does not accommodate this decoupling of vehicle numbers from infrastructure usage and relies on assumptions that no longer reflect the modern freight task. (NHVR, sub. 4, p. 9)

Study participants also indicated that this misalignment between funding and cost recovery can result in suboptimal access outcomes.

> Without transparent funding mechanisms aligned with road use and vehicle impacts, councils may restrict access or even remove roads from the functional freight network due to cost pressures. (Australian Industry Group, sub. 15, p. 4)

Reforms can deliver community-wide net benefits

Increased heavy vehicle access to the road network can generate productivity and emissions reduction benefits.

The Bureau of Infrastructure and Transport Research Economics (BITRE) has estimated the productivity impacts of selected heavy vehicle mass limit reforms (box 2.5). This modelling estimated that reforms could raise road freight sector productivity between 1.0% and 3.2%, with the range reflecting the scale of the mass limit increases assumed across different scenarios. Enabling vehicles to carry more freight would mean that fewer total vehicle trips are required to move the same volume of freight. These economic benefits significantly exceeded the additional costs of road maintenance (BITRE forthcoming). These modelling scenarios serve as a proxy for broader increases in heavy vehicle network access.

The BITRE productivity estimates focus on the benefits to the road freight sector itself, but improvements in the road freight sector have flow-on effects to the rest of the economy because road transport services are an input into many other industries. Using the BITRE estimates as inputs for economy-wide modelling, our early results suggest that access reforms could raise Australian GDP in the order of between 0.035% and 0.148%, or between $950 million and $4 billion, with negligible impacts on inflation (box 2.5). These results are driven by different levels of reform ambition, with higher road transport productivity leading to fewer inputs for heavy vehicle operators to conduct their activities, lowering their prices and freeing labour and capital to be used by other domestic industries. Further details are in appendix B.

Draft finding 2.1
Access reforms can unlock the benefits of a modern fleet

Growth in heavy vehicle productivity can be constrained by factors that restrict access, including:

- the reliance on permit-based access, limited flexibility in the application of access rules and inconsistency across jurisdictions
- a lack of harmonisation between domestic standards and international standards, which can limit the importation and use of modern technologies
- a mismatch between who benefits from heavy vehicle road access and who bears the costs of maintenance and infrastructure upgrades, which can reduce incentives to provide access.

The Australian, state and territory governments can play a central role in promoting better access outcomes, particularly where they are able to:

- promote as-of-right access by expanding general access and notices, with regulatory settings that can be applied flexibly and consistently across jurisdictions
- support fleet transition by ensuring vehicle design and access rules enable the uptake of innovative technologies, including by aligning domestic standards more closely to international standards
- move towards better aligning who benefits from heavy vehicle access with funding arrangements for those who bear the costs of maintenance and infrastructure upgrades.

Box 2.5 – Modelling of increasing General Mass Limits

The *Productivity Impact of Selected Heavy Vehicle-Related Measures report* (BITRE forthcoming) modelled three scenarios that increase General Mass Limits:

- raising General Mass Limits (GML) to current Concessional Mass Limits (CML)
- increasing GML by 5 per cent (GML + 5%)
- increasing CML by 5 per cent (CML + 5%).

The results of these scenarios are presented below, including PC estimates of economy-wide effects associated with the relevant scenarios.

	Scenario 1 CML	Scenario 2 GML + 5%	Scenario 3 CML + 5%
	Present value, 20-years, 7% discount rate, $ million		
Benefits			
Freight operator cost savings	8,803	17,741	27,419
Safety benefits	143	274	422
Emissions benefits	236	435	668
Costs			
Additional road wear	4,002	7,238	11,851
Total net benefits	5,180	11,212	16,657
	Annualised present value (%)		
Productivity impact by sector			
Road freight sector productivity impact	1.0	2.1	3.2
Road-related construction expenditure, including maintenance	-0.9	-1.6	-2.5
	PC estimates of economy-wide benefits[a]		
GDP (%)	0.035		0.148
GDP ($ billion)	0.95		4.0

a. In addition to the range of BITRE estimates, this range reflects varying assumptions on the share of road freight activity in PC National's Road Transport model industry. Results include only BITRE's total factor productivity improvement estimates, without accounting for the additional costs of road maintenance.

2.3 Reforms to access for high productivity vehicles and HZEVs

When access for modern (high productivity and HZEV) vehicles is more uncertain, restrictive or cumbersome relative to standard 'prescriptive' heavy vehicles, operators often resort to retaining older or less productive vehicles that have established and predictable access arrangements (Transport for NSW, sub. 38, p. 5; TIC, sub. 35, attachment 1, pp. 9–10).

Several factors are likely to slow the pace of change to more modern vehicles. Heavy vehicles represent significant, long-lived investments for freight operators in Australia, and fleet turnover occurs gradually. Australia's truck fleet has a median age of 15 years, which is significantly older than other OECD countries, including Japan and Europe (TIC, sub. 35, attachment 2, p. 2). There are additional commercial pressures relating to the lack of a domestic second-hand market that discourage early vehicle replacement.

> Australia has no viable retirement plan (alternative second market) for older trucks in effect, resulting in a market failure. The low scrap value for such vehicles is such that the operator finds it more economically viable to run trucks for much longer in Australia. (TIC, sub. 35, attachment 1, p. 10)

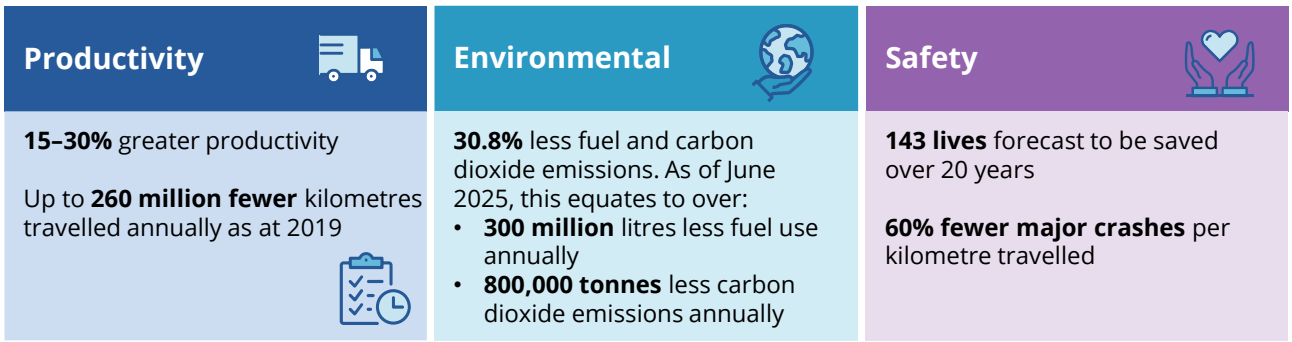
> It means that in 2030, tens of thousands of trucks on Australian roads will predate the introduction of basic safety features like Anti-Lock Brake Systems (ABS). Many will also fall short of Euro V or Euro VI noxious emission standards. (TIC, sub. 35, attachment 3, p. 2)

In light of the slow pace of natural fleet renewal and the reforms already underway, this chapter emphasises improvements that would achieve meaningful improvements for PBS vehicles and HZEVs in the interim and over the longer term, while complementing ongoing reforms.

Removing barriers to the uptake of high productivity vehicles in the near term

In Australia, the PBS scheme is intended to facilitate the design and use of vehicles optimised for specific tasks, but that fall outside prescriptive HVNL standards. As a world first when it was introduced in 2007, the scheme sought to deliver innovative, industry-led solutions and efficiencies that maximised the delivery of freight across Australia (NHVR 2024b, pp. 4–5, 17) (figure 2.1).

Figure 2.1 – PBS performance compared to the prescriptive fleet

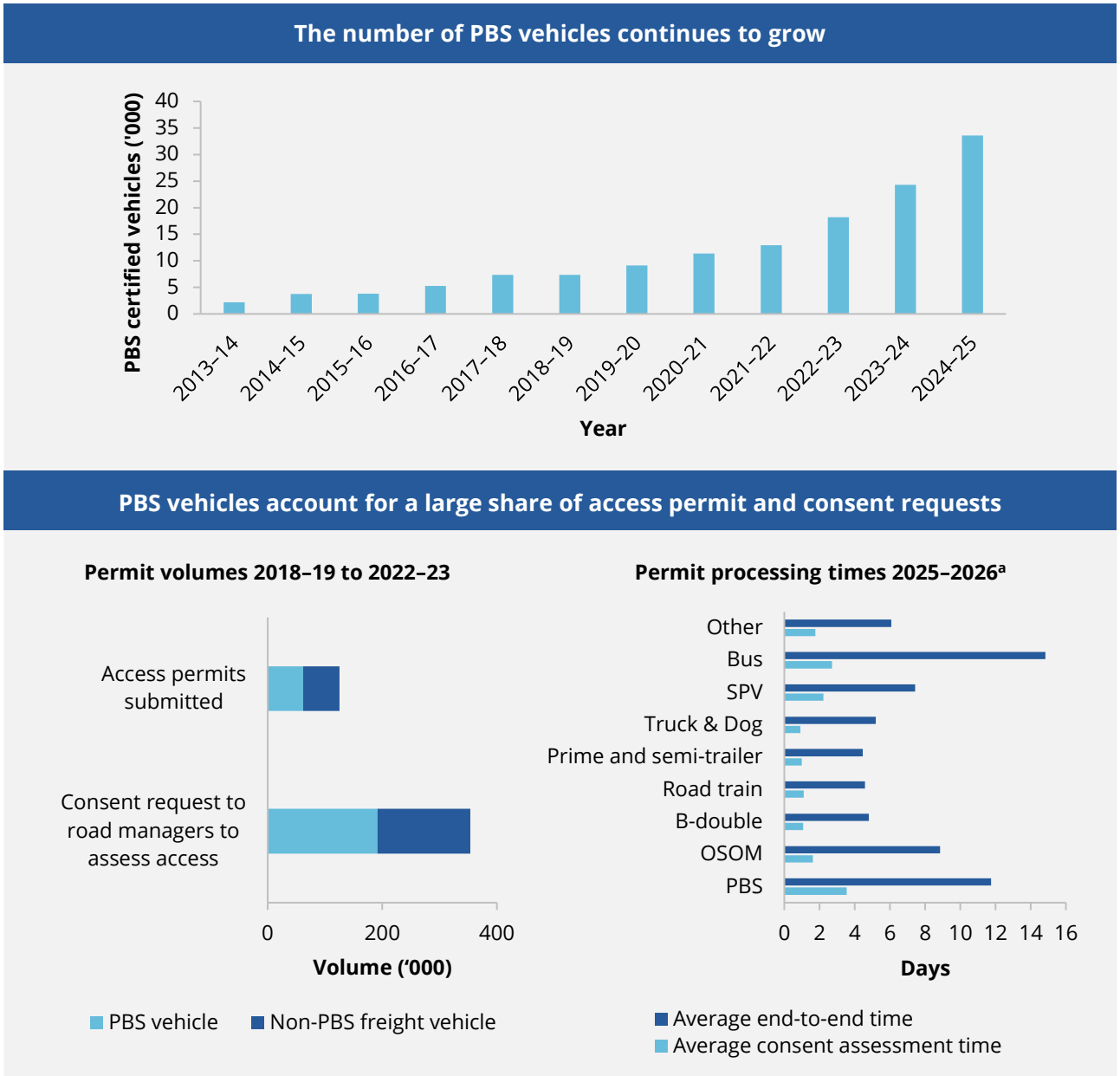


Source: NHVR (2019c, 2025b, pp. 25–26, 2025k, p. 5); NTARC (2021, pp. 3, 12).

PBS vehicles experienced strong uptake since their introduction, representing about 6% of the total freight task and 21% of the road freight task in 2022 (NHVR 2024b, p. 12). In 2024-25, the number of PBS vehicles reached over 33,000, with uptake more than double the average growth over the previous five years (NHVR 2025b, p. 9).

Between 2019-20 to 2022-23, over 350,000 road manager consent requests were submitted (NHVR 2024b, p. 16). Over 191,000 (54%) consent requests related to PBS vehicles. In 2025, PBS vehicles had among the longest average end-to-end permit assessment times (11.75 days) – second only to buses (14.83 days), and the longest average consent processing times among all vehicle classes (3.54 days) (figure 2.2).

Figure 2.2 – PBS vehicles and PBS access and permit approvals



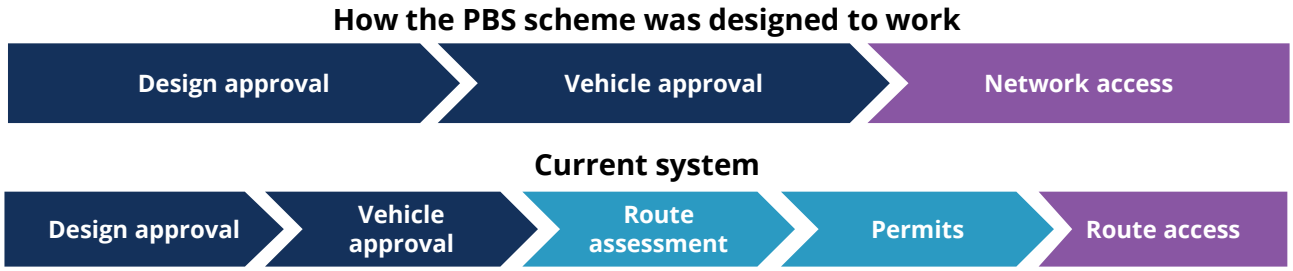
a. Consent assessment time refers to the time road managers have the case opened until they respond, and end-to-end time refers to the total time between receiving the application and the final response.

Source: NHVR (2024b, p. 16, 2025b, p. 10) and NHVR (unpublished) permit data.

PBS costs and uncertainty deter uptake

While the intent of the PBS scheme was transformative, the regulatory and procedural requirements of the scheme two decades on impose costs to operators and governments that can limit how well the scheme achieves its original intent (figure 2.3) (NHVR 2024b, pp. 17–19).

Figure 2.3 – PBS scheme process



Source: NHVR (2025j); NTC (2018, p. 19).

Under the PBS scheme, a vehicle design is first assessed to confirm it meets performance standards. Once constructed, the build must then be certified to confirm that it has been constructed in accordance with the approved design (NHVR 2025j). Some have noted challenges with this regulatory process:

- **application and compliance costs** – Applicants are required to demonstrate that a vehicle design meets nationally agreed performance standards (including swept path, tracking, braking and stability criteria), including for common, tried and tested PBS vehicle designs (NHVR 2024b, p. 17; NTC and NHVR 2022)
- **time and capital holding costs** – PBS design approval and vehicle certification can take several weeks and, in more complex cases, several months (Advantia Transport Consulting 2024). During this period, operators cannot operate the vehicle as an approved PBS combination.

Even after receiving design and vehicle approval, there is no certainty that an applicant will obtain access to their required routes (NHVR 2024b, p. 16). PBS was designed to operate primarily through gazetted networks, but permits still feature heavily in access decisions (NHVR 2024b, p. 19). Study participants noted this has resulted in adverse outcomes including inconsistent outcomes for operators (box 2.6).

NatRoad (sub. 41, p. 4) said that the complexity of PBS approvals processes hinders uptake, 'limiting the number of operators willing to invest in high productivity PBS vehicles, especially smaller operators or those with volatile or unpredictable freight demand'.

Box 2.6 – Participants identified a range of challenges with PBS access

> Access to local roads under the Performance Base Standards system is inconsistent across [local government areas] LGAs, increasing transport costs and creating unnecessary barriers to accessing markets, ports, and value-adding opportunities. (NSW Farmers, sub. 16, p. 1)
>
> A key limiting factor in the take-up of high productivity vehicles is uncertainty about, and constraints to, where those vehicles can be used. (NHVR, sub. 4, p. 5)
>
> BITRE (2022) estimates that PBS vehicles account for less than 10 per cent of total freight kilometres, far below original projections. Key barriers include: Fragmented regulation across

Box 2.6 – Participants identified a range of challenges with PBS access

jurisdictions. Lack of incentives for road managers to permit access. Slow approval timelines discouraging uptake. (TIC, sub. 35, attachment 2, p. 6)

One [Cement Concrete and Aggregates Australia] CCAA operator sought a routine PBS truck-and-dog access permit for a short quarry-to-plant route involving both council and state roads. Although the vehicle type was already approved on similar routes, the approval process took 19 months … Many [heavy vehicle] HV routes remain restricted to [general mass limits] GML, forcing more truck trips to move the same volume (CCAA, sub. 13, pp. 5–6)

PBS vehicles are artificially limited in their productivity and ability to deliver safety and sustainability benefits by access policies and infrastructure constraints nationally (Transport for NSW, sub. 38, p. 5)

Unlock productivity gains by promoting PBS vehicle access

Improving PBS access, including through expanded as-of-right access, can provide operators with greater certainty to invest in these vehicles and unlock productivity gains and emissions reductions.

The PBS standards have been aligned so that a PBS vehicle for a given level will perform no worse in terms of safety and road impacts than its equivalent prescriptive vehicle configuration (figure 2.4) (NHVR 2019c, p. 12). These impacts may even be lower where the higher productivity of PBS vehicles reduces overall vehicle movements or replaces movements that are currently undertaken by prescriptive vehicles with poorer safety and road wear performance. Nonetheless, expanded access permissions may mean more heavy vehicle movements which will increase road wear and maintenance needs, and consideration should be given to mechanisms that appropriately compensate road managers for these impacts (section 2.2).

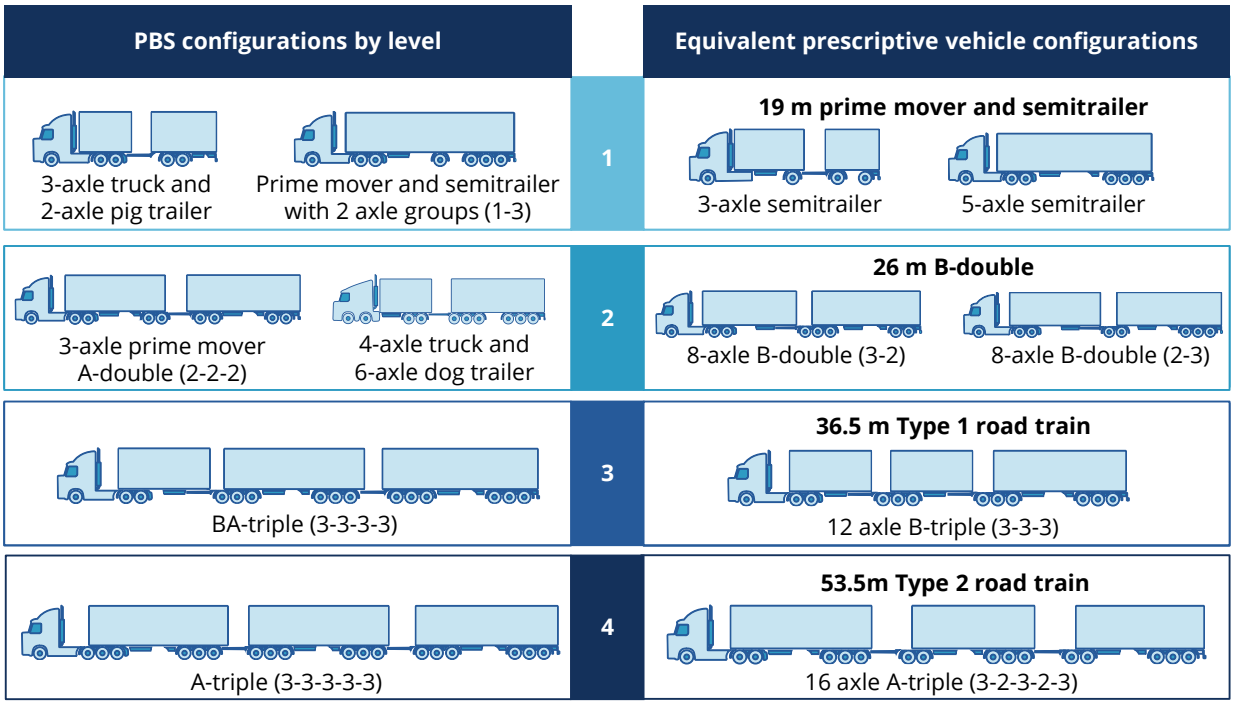
Some jurisdictions have made steps to improve PBS access. For example:

> NSW implemented the Heavy Vehicle Access Policy that enables access for innovative PBS vehicles that achieve productivity gains of up to 65-100 per cent over existing high productivity vehicles, with the same on road vehicle performance. (Transport for NSW, sub. 38, p. 5)

However, there is scope for further reform. In particular, PBS vehicles are not automatically included in heavy vehicle access notices that exist for prescriptive vehicles. Currently, PBS vehicles need to secure road manager consent and undergo network assessments on a case-by-case basis before being included in notices. This can delay or limit their access. The need to re-obtain access approvals for vehicles that demonstrate improved performance can also lead to duplication of assessments, particularly as new and improved PBS combinations continue to be developed over time.

While some notices already provide as-of-right access for PBS vehicles, they are typically limited to specific vehicle types, do not always apply consistently across all HVNL jurisdictions, and can retain jurisdiction-specific conditions. National notices, rather than state-specific notices, can reduce regulatory fragmentation and improve operational efficiency for industry – though existing national notices can still contain state-level variation. For example, the *National Class 2 Performance Based Standards (High Productivity) Authorisation Notice 2024 (No. 1)* provides gazetted network access for eligible PBS vehicle combinations only across New South Wales and Victoria, with differences in those eligible combinations across each state (NHVR 2024a).

Figure 2.4 – Examples of PBS combinations by classification and equivalent prescriptive vehicle configurations



Source: NHVR (2019c, pp. 12, 30–31, 2019b).

The NHVR is progressing work to explore transitioning combinations out of the PBS scheme and into the 'normal' regulatory framework and expanding networks for Oversize and Overmass vehicles, PBS combinations, livestock road trains and other combinations based on permit numbers (NHVR 2024b, pp. 21, 27, 2024b, p. 17). They have also continued to highlight the importance of increasing and expanding the gazetted networks available for PBS vehicles (NHVR 2024b, pp. 18–19).

Heavy Vehicle Industry Australia (2024) said it supported the idea that 'PBS vehicles must be awarded the same level of access to the road system as their prescriptive counterparts'. In the longer term, it is expected that the National Automated Access System (NAAS) will be able to provide as-of-right access for PBS vehicles on networks matched to their vehicle design (chapter 3), but other actions to improve PBS access can be progressed ahead of full NAAS implementation.

To support and promote safe PBS access in the nearer term, road managers should provide in-principle consent for as-of-right access for PBS vehicles (which have met safety and infrastructure requirements) that is at least equivalent to access for equivalent non-PBS vehicles. Governments should enable eligible PBS vehicles to be added to existing gazetted authorisation notices for equivalent non-PBS vehicles, reducing the need for repeated network assessments and case-by-case approvals.

The PC is seeking information on the feasibility of options to enact this. An option could include amending existing gazetted notices so that PBS vehicles that meet equivalence criteria are automatically eligible to operate under the same notice. Such an approach may require broader regulatory changes, to ensure the PBS classification system is suitable for enabling access through existing notices.

Simplify PBS vehicle design approvals processes

There are also opportunities to improve the process of PBS vehicle design approvals. The Heavy Vehicle (General) National Regulation sets out the procedure for granting PBS approvals. It requires the NHVR to consult with the PBS Review Panel (the Panel) prior to making a design approval or vehicle approval. In practice, the Panel has 'pre-advised' all vehicle approvals and about 75% of design approvals – these pre-advised approvals are managed administratively by the NHVR. The remaining design approvals are referred to the Panel, with advice typically provided to the NHVR within 20 working days. The NHVR has previously argued that a jurisdictional advisory group where contentious or complex matters can be referred may be a more effective mechanism than the Panel considering individual applications (NHVR, personal communication, 20 March 2026).

The NHVR (2024b, p. 4) noted that jurisdictional representation on the Panel has generally been weighted toward asset management rather than engineering expertise. The NHVR (2024b, p. 20) in its 2024 *Removing roadblocks to reform* report recommended the following to address these issues.

> Amend the Heavy Vehicle National Law to remove the requirement for all design applications to be referred to the PBS Review Panel for advice, and instead provide provisions for the NHVR to consult where it considers additional engineering expertise is required.
>
> A mechanism, separate to the design approval process, should be established to provide jurisdictions with the opportunity to comment on potential access impacts associated with a new design.

This is a low-risk option to improve PBS vehicle assessment processes.

Draft recommendation 2.1
Allow greater as-of-right access and simpler vehicle approvals for Performance-Based Standards (PBS) vehicles

State, territory and local governments should support as-of-right access for PBS vehicles where it is safe to do so. Road managers should provide in-principle consent for as-of-right access for PBS vehicles (which have met safety and infrastructure requirements) that is at least equal to access for equivalent non-PBS vehicles. Governments should enable eligible PBS vehicles to be added to existing gazetted access notices without requiring a new notice.

In addition, the National Transport Commission should amend the Heavy Vehicle National Law to remove the requirement to refer all PBS design approval applications to the PBS Review Panel for advice.

Information request 2.2

The PC is seeking feedback on how the Performance-Based Standards (PBS) scheme can be improved and enable greater as-of-right access for PBS vehicles over time. We are also interested in views around how the Australian Government can best support this process.

- Could there be any unintended impacts arising from not requiring the PBS Review Panel to provide advice on all PBS design applications? What types of PBS design applications should still require panel advice?

The PC is also seeking feedback on implementation issues, including how a pathway to add eligible PBS vehicles to existing notices (with in-principle road manager consent) could be embedded in legislation.

- How should the mechanism be designed and implemented? Why?
  - What amendments to the Heavy Vehicle National Law or related regulations would be required?
  - Are amendments to the PBS classification system required?
  - How should amendments be implemented to ensure eligible PBS vehicles can be added to existing notices without having to get access approvals, while ensuring existing access arrangements previously agreed by road managers are preserved?
  - What criteria should PBS combinations fulfil to be eligible to be added to existing notices? Which specific PBS combinations should be prioritised? On what basis?
  - What safeguards, monitoring or review mechanisms would be required to ensure the approach maintains road safety and protects infrastructure?

Overcoming the 'payload penalty' for HZEVs in the longer term

The uptake of HZEVs will be vital for Australia to benefit from technological change and deliver significant transport emissions reductions. As Australia moves towards net zero emissions, transitioning the heavy vehicle fleet from conventional fuel-based vehicles to lower-emissions and more productive alternatives will be increasingly important. Uptake of HZEVs has grown in some segments – particularly buses – but remains limited overall. As of December 2025, there were 1,377 HZEVs registered, accounting for much less than 1% of heavy vehicle unit registrations (figure 2.5) (NHVR 2025b, p. 4).

Electric HZEVs face payload disadvantages

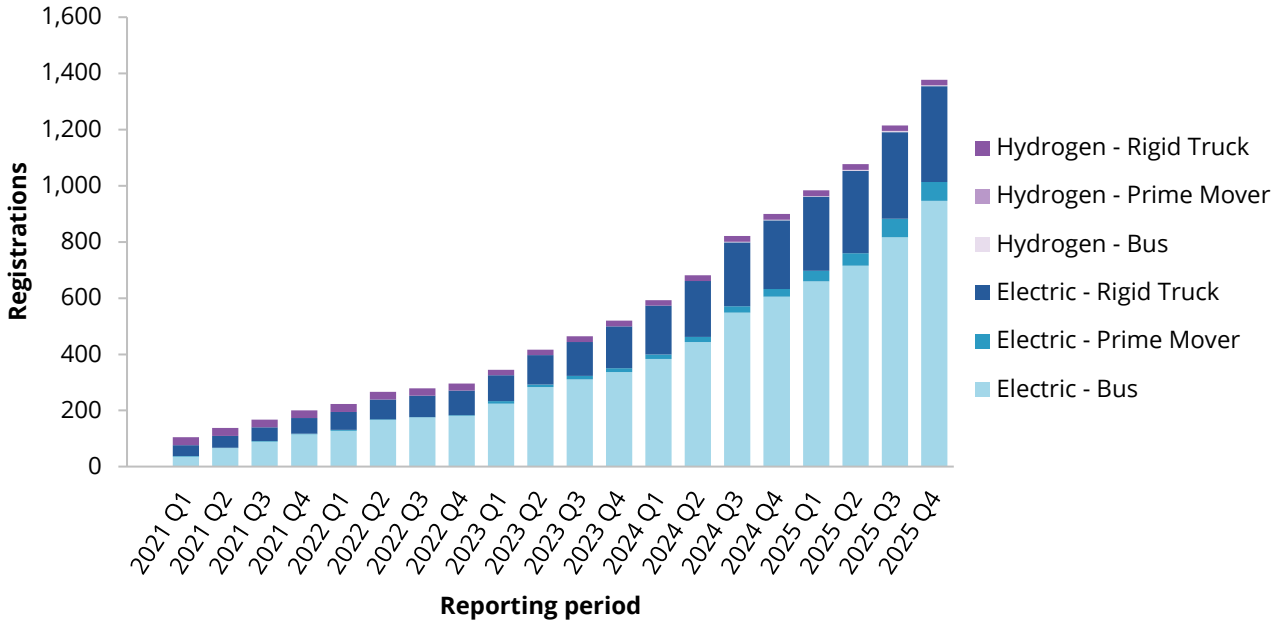
HZEVs can be powered by battery electric or hydrogen fuel cell technologies that produce no tailpipe emissions. While they can deliver social benefits – including lower noise, reduced air pollution and lower greenhouse gas emissions – these are not fully reflected in the private costs faced by operators, weakening incentives for uptake.

HZEVs currently represent a very small share of Australia's heavy vehicle fleet and their uptake has been limited due to a combination of factors, including:

- **high upfront costs** – electric HZEVs can have high initial capital costs (ARENA, sub. 25, p. 4; TIC, sub. 35, attachment 1, p. 9)
- **reduced payload capacity** – electric HZEVs are typically heavier than their diesel equivalents due to the additional weight of battery systems, resulting in a payload penalty under existing mass limits relative to a

comparable diesel vehicle.[3] This can reduce the amount of freight carried per trip, lowering revenue and profitability – with implications for access (below) and for driver licensing linked to vehicle mass (chapter 6)
- **infrastructure constraints** – electric HZEVs require adequate charging infrastructure (chapter 4)
- **supply constraints** – limited model availability and misalignment between Australian and international vehicle standards often mean that vehicles need to be repurposed to be used in Australia (box 2.3; AHC 2023, p. 1; ATA and EVC 2022, p. 9)
- **other barriers** – such as ADRs not allowing HZEVs to transport most classes of dangerous goods (ARENA, sub. 25, p. 8).

Figure 2.5 – Quarterly heavy zero emissions vehicle registrations



Source: NHVR (unpublished) data from the National Exchange of Vehicle and Driver Information System.

The reduced payload capacity of electric HZEVs effectively acts as an access constraint, limiting their viable freight tasks under current mass limits.

> The additional battery weight of an electric truck means that electric heavy vehicles may be restricted in the roads that they can access. Given that electric trucks already have limited range, the compounding negative impact is that vehicles may not be operating efficiently – by driving more kilometres with less volume, due to the reduced carrying capacity. (IKEA, sub. 37, p. 4)

While General Mass Limits under the HVNL establish baseline limits that apply consistently across participating jurisdictions, state and territory governments have introduced some additional mass allowances for electric HZEVs through jurisdiction-specific notices, permits, and trial-based mechanisms (table 2.1). The scope, duration and conditions of these arrangements differ across jurisdictions and, in some cases, are temporary.

[3] ARENA, sub. 25, p. 6; BIC, sub. 21, attachment 2, p. 3; DUKA Tec, sub. 5, p. 3; IKEA, sub. 37, p. 4; Powering Australia, sub. 9, p. 2; TIC, sub. 35, attachment 1, p. 9; Volvo, sub. 23, p. 6.

Study participants noted this can reduce regulatory certainty for operators, potentially affecting investment decisions and fleet planning (EVC, sub. 18, pp. 4–5; Tesla, sub. 20, p. 3; Volvo, sub. 23, p. 7).

> Current inconsistencies between state-based concessions create logistical headaches for operators and undermines investment confidence. A patchwork of temporary "trials" and differing rules fragments the national freight market. Any concessionary scheme must be nationally consistent in its eligibility, vehicle specifications, and duration. (Tesla, sub. 20, p. 3)

Table 2.1 – Mass limits[a] for eligible electric HZEVs across jurisdictions

	Single steer axle load (tonnes)	Tandem drive axle group load (tonnes)	Access arrangement
New South Wales	**8.0**	**18.5**	Access via *New South Wales Class 3 Zero Emission Vehicle Mass and Dimension Exemption Notice* for B-doubles with trailers fitted with tri-axle groups, rigid trucks, prime mover and semitrailer combinations
Victoria	**7.5**	16.5	Access via permit to pre-approved networks for Volvo FM or FH prime mover and semitrailer combinations
Queensland	**8.0**	**18.5**	Access via permit under the *Queensland Zero Emission Heavy Vehicle Permit-Based Scheme* for rigid 3-axle trucks and prime mover and semitrailer combinations
Western Australia	**7.1**	16.5	Access via the *Electric and Safer Vehicles Order* for single heavy vehicles powered by an electric motor
South Australia	**7.5**	**18.5**	Access via permit to pre-approved networks for prime mover and semitrailer combinations, B-doubles and road trains
Tasmania	7.0	16.5	No concessional mass limits for electric HZEVs
Australian Capital Territory	7.0	16.5	No concessional mass limits for electric HZEVs
Northern Territory	7.0	16.5	No concessional mass limits for electric HZEVs

a. Bolded values indicate concessional mass allowances for eligible HZEVs under corresponding access arrangement.

Source: NHVR (2026f); Volvo (sub. 23, p. 7).

Harmonise differences in jurisdictional mass limits for HZEVs

To the extent that regulatory arrangements hinder uptake, there is a broader community cost. Slower adoption of HZEVs means more air pollution, noise and greenhouse gas emissions, and holds back broader innovation in the transport system that comes from new technology. The Australian Government's *Transport and infrastructure net zero roadmap and action plan* provides a net zero pathway for heavy vehicles, with electrification playing a large role over the longer term (DITRDCSA 2025d, p. 29).

The Australian Government can take further steps to increase the uptake of HZEVs. For example, removing regulatory impediments – such as increasing mass limits and harmonising requirements across jurisdictions – can increase the payload carried per trip, which can allow HZEVs to transport freight volumes that are more comparable to conventional vehicles while battery technology improves. In turn, this may strengthen incentives for freight operators to adopt electric HZEVs over diesel alternatives. Another example is the

current road user charging system, which does not fully reflect the costs of road use, including emissions and road damage, so there is a weaker incentive for operators to use vehicles and infrastructure efficiently.

In light of this, there is a case for allowing a degree of transitional tolerance in regulations to support early deployment of electric HZEVs. Some support for the initial uptake can help accelerate the development of supporting infrastructure and industry practices – including charging infrastructure – which may otherwise not be built in a timely manner.

Introducing a nationally-consistent concessional mass limit to offset the additional weight of batteries would be a direct lever to offset the current additional weight of batteries. While there are jurisdiction-specific mass concessions (table 2.1), the Australian Government should establish a mass concession on a statutory basis, with consistent settings across jurisdictions to provide operators and manufacturers with the confidence to invest in HZEVs and plan fleet transitions. The infrastructure impacts of a concessional mass limit for electric HZEVs are likely to be small in the immediate term, reflecting both the relatively slow pace of fleet turnover and the small share these vehicles currently account for in the heavy vehicle fleet.

The technology underpinning these vehicles is evolving, particularly in relation to battery weight, charging and vehicle design. Given this, transitionary access arrangements should be phased out as the technology matures. This could occur a number of ways, including through broader reforms to road user charging and consideration of carbon pricing signals (discussed in the PC's (2025a) *Investing in cheaper, cleaner energy and the net zero transformation* inquiry), which would allow the costs and benefits of different vehicle technologies to be reflected more consistently across the heavy vehicle fleet.

Alternatively, a transparent review mechanism every three years, supported by analysis against specified benchmarks, could ensure concessional limits remain set at appropriate levels to allow electric HZEVs to operate without significant payload disadvantages compared with diesel equivalents. This approach would give industry confidence that concessions will remain while payload penalties persist, while allowing them to be progressively removed in the longer term as technology improves, electric battery weights decline, and take-up increases.

Draft recommendation 2.2
A nationally-consistent concessional mass limit for electric heavy zero emissions vehicles (HZEVs)

The Australian, state and territory governments should – through the National Transport Commission – work to embed a concessional mass limit in the Heavy Vehicle (Mass, Dimension and Loading) National Regulation to ensure electric HZEVs can operate across jurisdictions without significant payload disadvantages arising from battery weights.

These arrangements should be reassessed over time as batteries get lighter with technological change. An option is for governments to implement a transparent review mechanism every three years which monitors the development of electric HZEVs and the interaction with road wear to ensure the concession is set appropriately. The review mechanism should monitor the following areas:

- the payload gap between comparable diesel heavy vehicles and electric HZEVs
- how international jurisdictions are setting concessional mass limits for electric HZEVs.

The concession should sunset following a positive review determination that the payload gap between comparable diesel and electric HZEVs has materially closed.

Information request 2.3

The PC is seeking feedback on implementation of a nationally-consistent mass concession for electric heavy zero emissions vehicles (HZEVs).

- How should a concessional mass limit to overcome the current payload gap between comparable diesel and electric HZEVs be implemented?
  - What should the size of the concessional mass limit be?
  - What are the outcomes and learnings that have come out of the trial-based concessional electric HZEVs mass limit arrangements?
  - How should the mass concession interact with the Performance-Based Standards scheme, including new and/or existing permits? What are the merits and downsides of the different options?
  - Are there any additional changes or approvals required to ensure operators can make use of the mass concession?
  - Are there cases where the concession should not be automatically applied? Why?
  - Is a three-yearly review process appropriate? What benchmarks should be considered in the review process?
- What are the expected impacts of applying the mass concession?
  - To what extent would changes assist and/or accelerate the uptake of uptake of electric HZEVs?
  - What road wear impacts will this have at anticipated take up rates?

3. Accelerating a National Automated Access System

Key points

- **The existing permit system for heavy vehicle road access acts as a dampener on productivity. Permit access is often costly, prescriptive, uncertain and inconsistent.**
- **The goal of the National Automated Access System (NAAS) is to create a system of faster, more risk-based and more consistent heavy vehicle access decisions. The NAAS is based on a successful Tasmanian system (the Heavy Vehicle Access Management System).**
- **The NAAS could have significant economic benefits and should be progressed and designed to make sure it delivers on its promise. The design of the NAAS is critical to maximise its benefits and overcome the limitations of the current system. The NAAS should continue to work towards the Tasmanian model, including being based around notices (which exempt vehicles from requiring a permit).**
  - The NAAS should adopt network-based access to give operators additional flexibility and support productivity.
  - States and territories should adopt consistent access systems to reduce the burden on operators undertaking interstate trips.
  - The design of the NAAS should maximise the consistency and quality of local government decision making about access.
- **The NAAS is behind schedule. It may be difficult to accelerate, given it is a large and complex project, but governments should prioritise filling remaining information gaps so that it does not fall further behind.**
  - The biggest short-term constraint is gathering information on road assets. The Australian Government should continue to fund the Strategic Local Government Asset Assessment Project to collect this information.

As outlined in the previous chapter, heavy vehicle road access is typically regulated to manage the risks to public safety from larger heavy vehicles, manage the effects of heavy vehicles on infrastructure such as roads and bridges, and manage potential impacts on amenity such as noise. While regulating access is often appropriate to balance the risks and benefits of heavy vehicle access, the current system is often inefficient, inconsistent and costly for operators and road managers (section 3.1).

A National Automated Access System (NAAS) is being developed with the objectives of greater timeliness, quality, consistency and certainty in access decision-making (DITRDCSA 2025c, p. 1). The NAAS is intended to automate the access approvals process, so that most heavy vehicle trips that normally require a permit can gain instant access to approved routes. The NAAS is being based on a highly successful Tasmanian system (section 3.2), and work is needed to ensure the NAAS is as successful as that system

(section 3.3) The NAAS is behind schedule (section 3.4) but will have significant economic benefits once it is implemented and steps should be taken to close information gaps and complete it as soon as practicable.

3.1 The existing heavy vehicle access system is not fit for purpose

Multiple reviews of the heavy vehicle access system, as well as participants in this study, have identified problems with the existing system that create inefficiencies and unnecessary burden on operators and road managers.

> The current patchwork of access rules amounts to a de facto 'productivity tax' on operators. Industry experience clearly shows that the current access and permitting system is slow, unpredictable, and inconsistent across jurisdictions. One operator recently reported that a standard Adelaide-Sydney movement required over 16 weeks of approvals, including numerous road access applications and alignment with multiple technical requirements as a result of the different state-based rules. (Australian Industry Group, sub. 15, p. 3)

Permits applications can be costly, as can delays in decisions

Permit applications typically require operators to pay a fee to help cover the administrative costs to the National Heavy Vehicle Regulator (NHVR) of processing a request (the fee in February 2026 was $91) (NHVR 2025c). Some applications can impose additional costs on operators. For example, if local governments need to assess road assets such as bridges, each assessment can cost operators tens of thousands of dollars. In Victoria, manual assessment of bridges and culverts can take 6 to 9 months and cost $8,000 for a single vehicle on a single route, to over $50,000 for multiple vehicles (HVIA 2025; NHVR nd). This process can be duplicative, with multiple bridge assessments required in some cases for similar access requests from different operators.

> The permit application process is not risk-based and requires almost every application to be made via the same process, with limited recognition of any similar decisions that have previously been made and that could provide precedent. (Frontier Economics 2020, p. 135)

Permit applications can cost operators time and resources that exceed the direct cost in application fees. The NHVR estimated that each permit application costs industry an average of $220 in fees and application time (sub. 4, p. 15). In some cases, operators may apply for multiple permits for the same task to improve certainty of access, but at additional cost.

> The continuous applying for these permits places an unreasonable administrative burden on heavy vehicle operators (Team Global Express, sub. 8, p. 4)

Operators of restricted access vehicles need access approval to carry out a job. The time spent waiting for permit approval decisions can be costly. In 2024-25, the average time between applying for and receiving a permit was 17 days, but 4% of applications exceeded the 28 day statutory limit, with an average turnaround time of more than 50 days (NHVR 2025i, pp. 28, 67).

These delays impose costs on both operators and other parties relying on heavy vehicles to complete a task. For time-sensitive tasks in particular, delays can add significant costs to projects – such as needing to hire equipment for longer, or incurring holding fees while waiting for goods to be transported. In some cases, delays can be critical, such as when an operator needs to move equipment to avoid a flood or bushfire.

The permit system takes a prescriptive approach to access, which adds to administrative burden and sub-optimal outcomes

Unlike notice-based access, which gives heavy vehicles access to a network of possible routes, permits typically approve a specific type of vehicle for a specific route. While prescribed routes may be necessary in some cases (such as for an Oversize, Overmass vehicle that physically cannot fit on alternative routes), they can limit the flexibility of operators to use the most efficient vehicle and route for the task. For example, a truck with less capacity may be used, requiring more trips, because obtaining access approval for a higher capacity truck may be more difficult or costly. In addition, prescribed routes can reduce the ability of operators to vary their route to avoid congestion.

> The permit system stifles innovation and productivity. Operators will either stick to older vehicle combinations such as rigids and semi-trailer or otherwise submit applications with a high probability of approval, rather than go through the full assessment process. (Victorian Department of Treasury and Finance, sub. 28, p. 10)

The growing number of permit requests has increased the administrative burdens on the NHVR and road managers (local governments manage 77% of Australia's roads by length, ALGA, sub. 33, p. 1). In 2024-25, local governments received over 318,000 requests for heavy vehicle access permits, while the NHVR received over 196,600 cases relating to permit approvals (NHVR, sub. 4, p. 15).

Processing permit requests can be resource-intensive for local governments and the NHVR. The NHVR advised that each permit application costs road managers over $450 in assessment time on average (sub. 4, p. 15). Permit assessments draw time and resources away from other responsibilities and can delay access decisions. Transport for NSW (sub. 38, p. 10) said:

> Without proportionate efforts to address the compounding volume of consent request applications, teams will continue to face increasing operational pressures, failing to process requests within legislative timeframes and limiting the capacity to engage in strategic planning.

Access decisions are inconsistent across local government areas

Permit decisions can be inconsistent between local governments. In 2020, the Productivity Commission (PC) found that road managers were granting access inconsistently and making different assessments on similar roads (PC 2020, p. 221). Road managers can take differing approaches to whether certain heavy vehicles are granted access to certain routes (CICA, sub. 12, p. 14). For example, a single road that crosses multiple local government areas may allow different levels of heavy vehicle access, depending on the tolerance of each individual local government.

> Current arrangements require operators to navigate complex approval processes that vary across jurisdictions and often involve multiple local road managers. In some cases, a single freight route can require approval from dozens of local councils, each with different decision processes and timelines, leading to significant delays and inefficiencies that restrict the productivity potential of the network. Where a single access request is declined, entire delivery pathways must be redesigned, forcing longer travel distances and additional handling across the retail supply chain. (ARA and NRA, sub. 29, p. 2)

Differences in access decision-making among local governments stem from several factors. Some local governments have more comprehensive information about road assets, enabling more confident decisions, while others with less information tend to be more cautious and restrict permits on certain routes. Resource levels also vary: less-resourced councils may be risk-averse due to concerns over funding repairs or asset

replacement, whereas larger managers might benefit from economies of scale (PC 2020, p. 318). Finally, tolerance for heavy vehicle impacts differs, reflecting residents' preferences.

> Road managers cannot afford, nor would it be prudent, to continually reconstruct their roads and structures to match contemporary heavy vehicle access demand and fleet innovation. However, jurisdictions cannot afford not to safely facilitate this same access demand and fleet innovation. (DSG 2021, p. 3)

Draft finding 3.1

The existing permit system for heavy vehicle access is ripe for reform

The heavy vehicle permit system imposes significant costs and uncertainty on operators, as well as administrative burden on road managers and the National Heavy Vehicle Regulator. There is a need to reform the system to promote flexibility, timeliness, consistency and quality of access decisions – this will support broader productivity.

3.2 About the NAAS

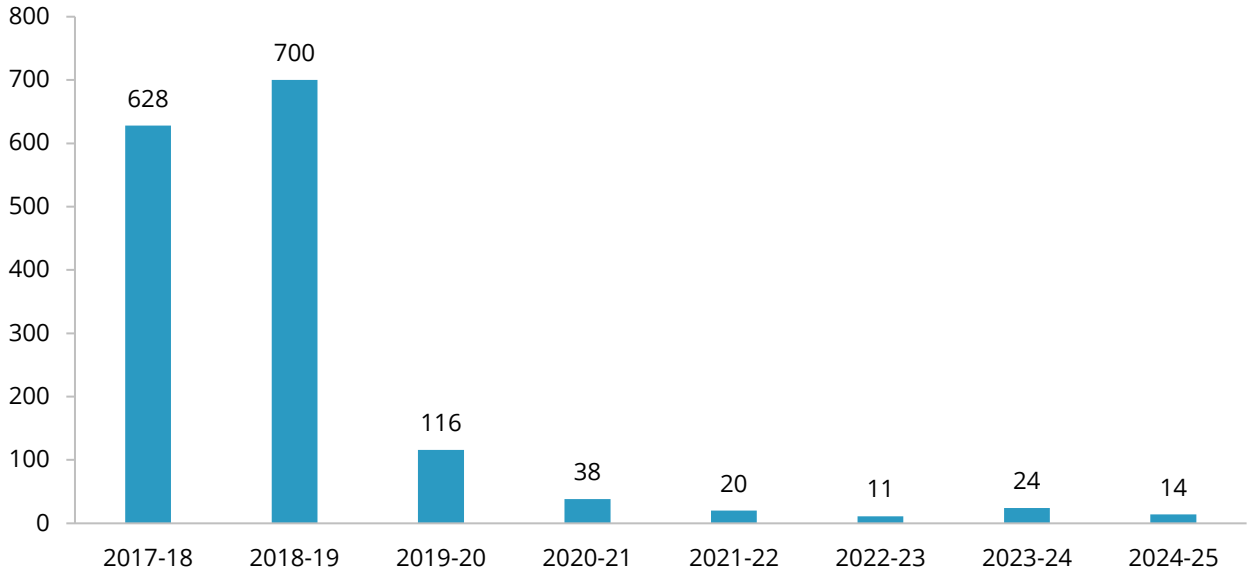
In 2022 a review of the Heavy Vehicle National Law (HVNL) found strong support among stakeholders for an online access system similar to the one used in Tasmania (Kanofski 2022b). By this stage, some jurisdictions had already commenced work to develop automated access systems. The review recommended a national automated access system, with a target that it be in place within three years and reduce permits by 50% within three years, and 90% within five years for all heavy vehicle types (Kanofski 2022a).

Transport ministers agreed to the HVNL review recommendation and suggested timeline, and agreed to base the NAAS on the successful Tasmanian system. The objective was not only to speed up access decisions, but also improve the quality, consistency and certainty of decisions. This was the experience in Tasmania. Participants in this study strongly supported basing the NAAS on the Tasmanian system (Australian Industry Group, sub. 15, p. 3; Australian Livestock and Rural Transporters Association, sub. 19, p. 10; Australian Local Government Association, sub. 33, p. 6; Crane Industry Council of Australia, sub. 12, p. 16; LGA South Australia, sub. 14, pp. 6–7; Team Global Express, sub. 8, p. 4).

The Tasmanian system provides a sound proof-of-concept

The first automated access system for heavy vehicles in Australia was established in Tasmania in 2016. The Heavy Vehicle Access Management System (HVAMS) replaced the previous permit system in Tasmania – for Oversize and Overmass vehicles in 2016, and for special purpose vehicles in 2019. It removed permit requirements for 80% of Oversize and Overmass vehicles in Tasmania, and for 95% of special purpose vehicles (DSG 2021, p. 5) (figure 3.1).

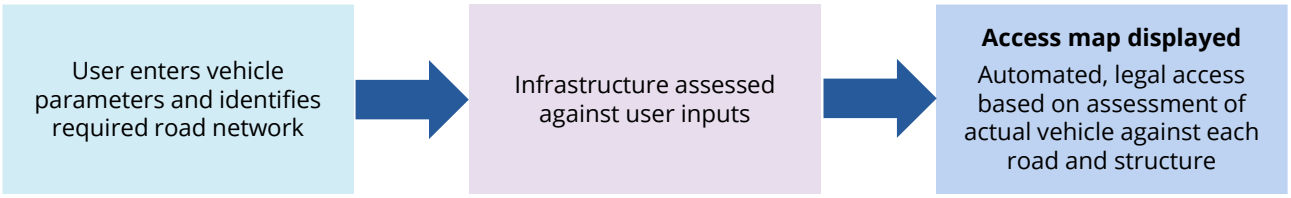
Figure 3.1 – Tasmanian special purpose vehicle access requests



Source: Tasmanian Department of State Growth (2026) (unpublished data).

HVAMS allows heavy vehicle operators to input their vehicle and travel requirements and receive an instant access map (figure 3.2).

Figure 3.2 – Heavy Vehicle Access Management System



Source: Tasmanian Department of State Growth (2021).

The Tasmanian system achieved more than just automated approvals, it reflected a desire to maximise the productivity of the road network, while maintaining safety. The HVNL review said:

> … in some cases the philosophical approach to access decision making was one of asset protection in a constrained budget environment. While the budget constraints are real and acknowledged, the interests of the community are maximised if access is seen through the philosophical prism of roads fulfilling a significant economic purpose of moving people and freight. The goal in granting heavy vehicle access should be to maximise the safe use of roads and infrastructure to efficiently move freight rather than protect the asset. The success of the Tasmanian HVAMS system owe as much to this philosophical change as it does to the systems that support the decision making. (Kanofski 2022a, p. 4)

A key feature is that HVAMS is a notice-based system (DSG 2021, p. 7). Notices provide as-of-right access on gazetted routes for specified vehicles, bypassing the need for permits. A key innovation of HVAMS is that it is underpinned by a notice which provides exemptions from requiring a permit for operators who are granted access under the system (DSG 2021, p. 7). The design provided several important benefits for road managers, which gave them greater assurance and acceptance than traditional notices. First, road managers retain control but are provided a high degree of assurance by the highly granular vehicle

information that users provide to use the system. Second, road managers are given more confidence to allow access through the matching of the user information with road and infrastructure condition assessments. This is reinforced by the requirement that heavy vehicles using the system have a telematics unit installed, improving compliance. Third, road managers are also able to input changes to road conditions, making the system highly responsive. The Australian Local Government Association (sub. 33, p. 6) said:

> Tasmania's Heavy Vehicle Access Management System (HVAMS), which the NAAS is based upon, demonstrates that automated access systems can work effectively for local government. All 29 Tasmanian councils voluntarily participate in the system. This voluntary adoption reflects HVAMS' practical benefits for local road managers: councils potentially gain real-time visibility of heavy vehicle movements on their networks, automated compliance checking reduces manual permit processing, and the system generates reliable data on actual road usage patterns.

Potential economic benefits are significant

The success of the Tasmanian system was highlighted by a cost benefit analysis of the system which estimated net benefits of $69.5 million to $207.6 million (HoustonKemp 2022, p. 3). This comprised benefits of $74.1 million to $212.2 million and costs of $4.6 million (HoustonKemp 2022, p. 3). The benefits could be larger than estimated – the analysis did not include several potentially significant benefits, such as greater network access, or the ability for operators and road managers to better plan for the future.

The Bureau of Infrastructure and Transport Research Economics (BITRE) (forthcoming) conducted a cost-benefit analysis of the NAAS and estimated the benefits to vastly outweigh the costs. The calculation of benefits focused on operator cost savings through reduced permit assessment delays and application time savings, as well as regulator and road manager cost savings. Costs associated with implementing the NAAS included road agency costs and technology and systems costs. Assuming the NAAS was implemented in 2027, the net present value was estimated to range from $6.6 billion to $13.7 billion over 18 years (2027 to 2045, at a 7% discount rate). At the lower end, this comprised of benefits of about $7.1 billion, partly offset by costs of about $0.5 billion. BITRE estimated productivity benefits for the road freight sector of 0.9% to 1.8%, as measured by reductions in annual industry operating costs per unit of road freight task.

BITRE also estimated the benefits and costs of accelerating the NAAS. BITRE compared the net benefits of implementing the NAAS in 2027 compared with 2032 and found the net present value to be $2.8 billion to $4.5 billion.

A further cost benefit analysis of an automated access regime for Queensland found net benefits ranging from $814 million (low scenario and automated access only for state roads) to $4.7 billion (high scenario, including state and local roads) (HoustonKemp 2023, p. 4).

3.3 Getting the most out of the NAAS

While the NAAS, based on the Tasmanian system, has almost universal support, some participants in this study were concerned the NAAS may not live up to expectations (box 3.1). For the NAAS to deliver on its promise, it should continue to work towards promoting network-based access and reducing variability across areas (jurisdictions or local government areas).

Box 3.1 – Concerns about the implementation of the NAAS

Participants in this study had concerns the NAAS may not live up to its promise.

The Crane Industry Council of Australia (sub. 12, p. 14) said:

> The NAAS is being pushed as nationwide reform, however CICA has some concerns that overcomplicating the road management system by adding multiple layers of bureaucracy risks creating a burdensome and unwieldy framework that stifles progress and undermines efficiency.

The Electric Vehicle Council (sub. 18, p. 6) said:

> … at best the NAAS will streamline applications for access regimes that already exist; it will not actually expand access – for heavy EVs or any other vehicles. Unless as-of-right access is established nationally, heavy EVs will effectively remain banned from much of the road network and any new access routes will be determined on a case-by-case basis by state and LGA road managers. Even if fully implemented, the NAAS is unlikely to improve national productivity in this regard.

The Australian Livestock and Rural Transporters Association (sub. 19, p. 10, 11) said:

> NAAS will only be a reform if it shifts the default from individual, route-specific permits to pre-assessed networks and envelopes that operators can use repeatedly – especially for common livestock and rural freight configurations … NAAS will only lift productivity if it gives operators clear, repeatable networks access – not faster uncertainty.

Australian Trucking Association (sub. 22, p. 6) said:

> Industry is particularly concerned that the program, as currently structured, may fail to deliver on its fundamental objective: increased access certainty and the meaningful reduction in the use of permits.

The NAAS should adopt network-based access where possible

The NAAS is more than just a technology upgrade. Faster or instant processing of approvals would be an improvement on the existing system, but would be a lost opportunity to improve how access is managed and deliver greater benefits.

> Of course, automation isn't the answer to everything. There's a danger it could just be a Band-Aid if we layer it over the top of an already dysfunctional system. What we really need is a new approach to network-based access that slashes red tape for industry and removes administrative burdens for governments. (Clark 2025b)

Tasmania's access system provides network-based access. This means that where possible, operators are given a network of all the possible routes they can use to get to their destination. It also allows them to experiment with different vehicle combinations on the online mapping tool, to determine the optimal route and vehicle. This increased flexibility for operators can help lower their costs, increase certainty and allow for easier planning for tasks. In turn, this supports higher productivity in the sector.

Progress towards network-based access is uncertain. For example, NSW (box 3.2) is working towards a system where '70 per cent of decisions can be automated within half a day and the rest within five days, cutting the average processing time to just over two days' (sub. 38, p. 15). This is a far cry from instant decisions.

The intent of the NAAS is to follow the high-level architecture of Tasmania's system and provide network-based access. The May 2025 update from ministers said the NAAS is working towards a system where decision making 'is effectively pre-loaded, allowing immediate generation of a map showing all roads that a particular vehicle can safely travel on' (DITRDCSA 2025c). It will be important for governments to maintain this as a goal.

Draft recommendation 3.1
The National Automated Access System should incorporate network-based access

As much as possible, the National Automated Access System should be designed to provide network-based access rather than automating access for prescriptive routes. This will maximise the benefits of the system for operators and the community.

The NAAS should minimise fragmentation across jurisdictions

Currently, jurisdictions are taking different approaches to working towards a NAAS (box 3.2). Some of these differences relate to the classes of heavy vehicles currently eligible for automated access decisions, and which parts of the approvals process jurisdictions have started to automate first.

Box 3.2 – Different approaches to NAAS

The jurisdictions that are part of the Heavy Vehicle National Law (all states and territories except WA and the NT) are taking different approaches to working towards the NAAS.

- **Queensland** rolled out the NAAS for Australian Defence Force heavy vehicles in 2025, and is working towards adding special purpose vehicles and class 1 Oversize and Overmass vehicles, largely following the Tasmanian approach (DITRDCSA 2025c, p. 1; TMR 2025).
- **Victoria** launched the Heavy Vehicle Structural Assessment Permit System in January 2026, which removes the need for manual bridge assessments (and the charge to operators for these assessments) and aims to speed up approvals for Class 1 and Performance-Based Standards operators. The intent is to integrate this system into the NAAS once it is developed (NHVR 2026d).
- **New South Wales** has been developing an Automated Access Assessment Program as part of the NAAS system, to introduce automated assessments for routes and road assets, with the intent to move away from permits towards notices to allow as-of-right access to certain networks (Transport for NSW 2024, p. 42).
- While **Tasmania** has had its automated access system since 2016, it is working on an updated system for Performance-Based Standard vehicles and improved bridge assessments (DITRDCSA 2025c; Elischer and Mond 2025).

There is a risk of fragmentation within the NAAS if jurisdictions adopt different end systems. For example, a task that involves travelling across multiple states may require a combination of automated and manual permit access if not all jurisdictions include that type of vehicle in their NAAS. This could cause additional complexity and undermine the benefits of the NAAS for these tasks – for example, it may cause operators to use less optimal routes or vehicles to get faster approval, or increase the time taken to conduct trips.

> Proactive steps need to be taken by each level of government for harmonised road access. (Volvo, sub. 23, p. 9)

To help maximise the benefits of the system, it will be essential to ensure that the final product maintains consistency across the jurisdictions. All jurisdictions should seek to include the same categories of restricted access vehicles and minimise instances where manual approval is still required.

The consistency and quality of access decisions by local governments should be improved

The objectives of the NAAS include improving the consistency and quality of access decisions. One of the common areas of inconsistency in access is at the local government level (section 2.1), largely due to differences in local governments' road asset information, resourcing, and tolerance for heavy vehicles.

It is not clear how the design of the NAAS will ensure more consistent and higher quality decision making by local road managers. Indeed, the existing guidance on the design of the NAAS indicates that it will still account for different levels of risk tolerance among local road managers to heavy vehicle access (DITRDCSA 2025c, p. 1).

> Access outcomes will continue to vary due to differences in asset condition and risk tolerance among road owners. NAAS enables faster and more consistent decisions but does not change existing engineering constraints or policy settings. In some cases, automated decisions may be more conservative than manual ones. (NHVR, sub. 4, p. 14)

That said, Tasmania achieved more consistent access decisions, and its success should inform design and implementation in other jurisdictions.

Some measures that are in place may partly encourage consistency and higher quality decisions - for example, the NHVR provides guidelines to road managers to help improve the quality and consistency of access decisions and conditions on access (NHVR 2023a). And to support the rollout of the NAAS, the NHVR is managing the Strategic Local Government Asset Assessment Project (SLGAAP), which helps local governments to assess their road assets (NHVR 2025l). Part of the objective of the project is to ensure consistent data collection, which could support more consistent access decisions across local governments.

Importantly, road managers are unlikely to be able to make consistent and high-quality access decisions while they face uneven resourcing. In 2020, the PC recommended the Australian, state and territory governments should ensure that local governments have access to the financial and technical capacity they need to perform their role as asset managers for local roads (PC 2020, p. 31). To incentivise local governments to build capacity and apply appropriate risk frameworks, the PC recommended that any additional support should be accompanied by greater transparency and accountability. The PC recommended data be reported on local government performance, particularly with respect to access permit processing times and the use of notices to gazette heavy vehicle routes (PC 2020, p. 31).

Information request 3.1

The PC is seeking evidence and views about how the National Automated Access System can be designed to improve the consistency and quality of local governments' access decisions. Is guidance and improved road asset data adequate, or are broader reforms needed to optimise decision making by local governments?

Making greater use of notices ahead of full NAAS roll out

One of the key benefits of the NAAS is that it will allow the greater use of notices to promote more as-of-right access. The use of notices is key to the operation of the Tasmanian system and how it was able to so dramatically reduce the number of permit requests. But broader use of notices to promote greater access is not dependent on the NAAS. In 2020, the PC recommended governments and road managers work with the NHVR to expand key freight routes covered by notices (PC 2020, p. 30). The NHVR (sub. 4, p. 15) said there is a:

> … need to reduce the reliance on individual permits by expanding as-of-right access under the existing notice regime. The promise of fewer permits under the NAAS could be partially achieved now through the expansion of access notices (which remove the need for individual permits).

Some jurisdictions have expanded the use of notices, separate to the NAAS. For example, in 2025 South Australia, together with the NHVR, introduced a notice for Oversize and Overmass vehicles which expanded existing networks and provided new network access to eligible vehicles (NHVR 2025e). Further efforts to improve as-of-right access through notices, including for Performance-Based Standards vehicles, can be progressed ahead of full NAAS implementation (chapter 2).

The NAAS has the potential to promote greater use of notices while maintaining local control over roads. As Austroads (sub. 31, p. 21) said:

> The NAAS is being developed as a system with the potential to offer the best of permits (specificity and use of all available access capacity) and notices (administratively simple and instant 'permissioning').

3.4 Ensuring the NAAS is delivered in a timely way

While the states and territories are making some progress towards the NAAS (box 3.2), it is running behind schedule. The NAAS has not met the original timeframes of replacing 50% of permits by mid-2025 and is not on track to replace 90% of permits by mid-2027. That said, the experience in Tasmania shows that outcomes can be achieved quickly once the system is up and running (figure 3.1).

Can the NAAS realistically be accelerated?

The NAAS has not been delivered in line with the original timeframes. Much of the reason for the prolonged rollout appears to relate to the size, complexity and required coordination to undertake the project. One time-consuming aspect of introducing the NAAS is local governments assessing road assets in their area and inputting this data into the system. And there are other capacity constraints. Transport for NSW (sub. 38, p. 17) said:

> The program requires a level of technical and operational competence that exceeds organisational capability and capacity. Without additional specialist resources or training, there is a risk that delivery obligations will not be met to the required standard. The program's success relies heavily on specialised RAV [restricted access vehicle] operational knowledge, which is presently held by only two experienced employees.

The NAAS is an important reform that should be implemented as soon as practicable. The request for advice for this study asked the PC to advise on how to accelerate implementation of the NAAS. Participants in this study had a range of suggestions about how to accelerate the NAAS (box 3.3).

Box 3.3 – How to accelerate NAAS

NHVR (sub. 4, p. 14) said:

> A national rollout requires addressing several operational, administrative and governance factors that will materially influence the timing and distribution of benefits across jurisdictions. These include:
>
> - IT and data requirements: A national platform requires integration with existing systems, consistent data inputs, and a complete set of asset parameters.
> - Administrative and workforce capability: Many road managers will need training and resourcing to maintain asset information to support automated decisions.

Team Global Express (sub. 8, p. 4, 5) said:

> TGE notes that there needs to be a focus on practical coordination, asset eligibility, scale-up of Tasmania's model, operator cost-benefit, and the datasets needed to make NAAS work and be trusted … TGE recommends adopting a corridor-first rollout where data quality is high and freight benefits are immediate. In addition, a focus on safety conditions (in particular speed, lanes and time-of-day) would increase eligible roads while protecting assets and communities.

ALC (sub. 10, p. 7) said:

> Ensure investment is made to ensure NAAS has the functionality expected by industry. Australian governments should establish a timetable by which the project is to be completed.

CCA (sub. 13, p. 14) said the Commonwealth should fund the national deployment of the NAAS and 'ensure Councils have the tools, capability and data needed to use it effectively'.

LGA SA (sub. 14, p. 7) said additional resources would be needed for training for councils on use of the system, including updating and improving road data inputs. The Australian Local Government Association (sub. 33, p. 7) said the Australian and state and territory governments should provide support to:

- complete asset assessments through SLGAAP and similar programs
- develop and maintain asset information systems compatible with NAAS requirements.
- train council staff in access decision-making and system use.
- provide technical support for smaller councils lacking in-house expertise.
- build the organisational capacity needed to transition to NAAS operations.

The Australian Industry Group (sub. 15, p. 4) said:

> There should also be uniform pavement and bridge assessment methodologies to ensure all local government engineers are employing the same evaluation approach and feeding the road data into the national NAAS.

The Victorian Government (sub. 28, p. 9) said:

> full automation that encompasses the entire Victorian road network would require several years and additional funding.

The most immediate requirement appears to be completing the asset assessments that underpin the project (discussed below). The PC is interested in hearing about other immediate constraints and how best to address them.

Information request 3.2

- What are the factors affecting implementation of the National Automated Access System? What are the main resource constraints (for example, skilled people, data and information or equipment), and what parts of the implementation do they affect?
- What would be the best way to accelerate rollout of the National Automated Access System? If more funding is needed, where should it be directed and what should it be spent on?

The Strategic Local Government Asset Assessment Project

Beginning 2019, the Australian Government has funded a project to assist local government road managers to undertake heavy vehicle assessments of on-road assets, such as bridges and culverts. In its first two phases, the Strategic Local Government Asset Assessment Project (SLGAAP), delivered by the NHVR, conducted over 1000 engineering assessments and inspections across 109 councils nationally (NHVR 2025l). Phase 3 commenced in December 2024, with an accelerated collection of local government asset data in Victoria and South Australia to support the inclusion of relevant information in systems to develop the NAAS.

Total funding over the first three phases was $26.61 million (NHVR 2025l). Some participants in this study called for more funding for the project (ALC, sub. 10, p. 6; LGA SA, sub. 33, p. 6), while the Victorian Government said integration of local government road data will require additional funding beyond what has been provided (sub. 28, p. 9). The Australian Local Government Association said that, despite the progress so far, the project had assessed only a 'fraction of the ridges and culverts on local freight routs nationwide' (sub. 33, p. 7), while the Australian Livestock and Rural Transporters Association (sub. 19, p. 12), said:

> SLGAAP funding is very modest relative to the scale of the task and the demands NAAS will place on councils.

The investment in infrastructure assessments appears worthwhile, especially given the large amounts of information that will be needed for the NAAS and the NAAS's potential benefits. The intent of the of the project is closely linked to the to the goals of the NAAS in promoting greater heavy vehicle access. The NHVR said:

> this program is more than conducting individual assessments using conservative processes leading to conservative outcomes … The program is about engineering judgment, cooperation, and collaboration with road managers and the NHVR to optimise heavy vehicle access on the road network. (NHVR SLGAAP assessment guide, p. 3)

This was echoed by the Australian Logistics Council (sub. 10, p. 3) who said:

> This engineering data [collected by the SLGAAP] underpins NAAS's capacity to make risk-based access decisions, moving away from overly conservative, manual permit approvals.

It is uncertain, however, whether additional funding would accelerate the NAAS or simply support its continued implementation. In any case, the Australian Government should continue to fund further phases to support the NAAS.

Draft recommendation 3.2
Funding for the Strategic Local Government Asset Assessment Project

The Australian Government should fund future phases of the Strategic Local Government Asset Assessment Project, starting with Phase 4 in the 2027-28 Budget.

4. Administrative and regulatory barriers to charging infrastructure

Key points

- **The heavy zero emissions vehicle (HZEV) charging infrastructure rollout will facilitate the introduction of new technology and the decarbonisation of buses and freight. This chapter is about ensuring that administrative and regulatory barriers do not hold up the rollout as broader policy, market and technological developments drive it forwards.**
- **To be commercially viable, HZEVs are expected to need:**
  - chargers located in freight centres (depots, distribution hubs and major warehouses), freight nodes (airports, ports and intermodal terminals) and heavy vehicle rest stops (along highways)
  - different charging infrastructure from passenger electric vehicles – more powerful chargers and layouts that accommodate their size.
- **Connecting HZEV charging infrastructure to the grid requires incorporation of large electrical loads that can necessitate major electricity network upgrades. This is not primarily a regulatory or administrative issue.**
- **The Australian Government should incorporate more granular electricity network capacity data, heavy vehicle operations data and land use regulation data into the Electric Vehicle Charging Infrastructure Mapping Tool (a map of Australia overlaid with information to guide charging infrastructure investments). It should also allow users to export all data from the mapping tool.**
- **Land use regulatory settings should be updated to reduce barriers to HZEV charging infrastructure. State and territory governments should:**
  - redefine land use terms to explicitly allow charging at bus depots, freight centres, freight nodes and heavy vehicle rest stops
  - exempt charging infrastructure installations from requiring planning permission where consistent with existing land use provisions, with any conditions balanced against potential impacts on innovation and investment.
- **The Productivity Commission is seeking further information on how governments could better facilitate private investment in HZEV charging infrastructure at government-provided heavy vehicle rest stations.**

This chapter responds to the request that the Productivity Commission analyse reforms that would remove administrative and regulatory barriers to improve the availability of heavy zero emissions vehicle (HZEV) charging infrastructure.

This task sits within the context of rapid change in technology and the commerciality of electric propulsion of heavy vehicles, and broader efforts by government to reach net zero by 2050. The latter includes promoting the uptake of HZEVs and adapting electricity market regulation to better accommodate devices that can generate or store energy (such as electric vehicles) (box 4.1). This study focusses on removing 'grit in the gears' so that the charging infrastructure rollout – and hence the potential for electrification of heavy vehicles – is not held up by outdated or poorly designed regulations (regulatory barriers) or by poorly coordinated administrative processes (administrative barriers).

Box 4.1 – Broader policy development and implementation relevant to HZEV charging infrastructure

Australia's commitment to reach net zero emissions by 2050 will require widespread heavy vehicle electrification. The Treasury's baseline modelled scenario for Australia reaching net zero by 2050 at the lowest cost envisages transport sector emissions (22% of which were from heavy vehicles in 2024-25 (PC estimate based on DCCEEW 2025a)) declining by about two-thirds by 2050, with most of the reduction occurring between 2035 and 2050 (DCCEEW 2025b). Other modelling indicates the lowest cost pathway to net zero by 2050 involves transport emissions declining by at least three-quarters, with up to two-thirds of freight electrified (CSIRO 2025).

Heavy vehicle policy has not yet caught up. There is no policy in place to drive widespread heavy vehicle decarbonisation, which led the PC to recently recommend phasing out fuel tax credits for heavy vehicles travelling on public roads. This would incentivise heavy vehicle decarbonisation (PC 2025a).

While the fuel tax credits issue remains a priority, governments are taking other actions more directly related to HZEV charging.

National Consumer Energy Resources Roadmap

The Australian, state and territory governments are currently pursuing reforms under the National Consumer Energy Resources Roadmap, endorsed by Energy Ministers in 2024. Consumer energy resources are devices that generate or store energy or can alter their demand in response to external signals and include electric vehicle (EV) chargers, rooftop solar, batteries and EVs themselves. If effectively integrated, they can smooth the demand for and supply of electricity, reducing the total required amount of electricity generation capacity.

This chapter discusses one reform under the roadmap, which relates to harmonising and streamlining the processes for connecting large consumer energy resources (such as HZEV charging infrastructure) to the grid (reform P.2.3). Other reforms, such as those to technical standards, data sharing and electricity market design, are not discussed as they are still in development and not anticipated to impact HZEV charging infrastructure more than other consumer energy resources.

Box 4.1 – Broader policy development and implementation relevant to HZEV charging infrastructure

Australian Renewable Energy Agency grants for HZEV charging infrastructure

The Australian Renewable Energy Agency has provided grant funding to support early HZEV charging deployments, including depot upgrades and new freight charging hubs under the Driving the Nation Program (ARENA, sub. 25, pp. 3-4).

These projects aim to demonstrate technical feasibility, trial business models and generate information about grid connections, administrative and regulatory barriers, construction requirements and operational performance. Knowledge-sharing reports are published as a condition of funding.

It is beyond the scope of this chapter to comment on these grants.

The chapter makes two recommendations to reduce administrative and regulatory barriers to HZEV charging infrastructure but does not quantify their impacts. Both recommendations would reduce the costs of rolling out charging infrastructure, resulting in an expanded and accelerated roll-out of charging infrastructure. The PC welcomes participants' views on how the recommendations could be quantified and what data sources could assist with this.

Information request 4.1

How much would draft recommendations 4.1 and 4.2 reduce administrative and regulatory barriers to heavy zero emissions vehicle charging infrastructure and what implications would this have for project costs?

4.1 HZEV charging infrastructure

HZEV charging infrastructure comprises a charger, a charging bay, cabling and other electrical equipment needed to connect the charging station to the electricity network. To reduce the demands on the grid, some sites also have on-site load control and battery storage (which can smooth and shift electricity demand) and solar panels (which can supplement electricity from the grid).[4]

HZEV charging infrastructure differs from passenger EV charging infrastructure in two fundamental ways:

- HZEVs require more powerful chargers than passenger EVs (table 4.1) because they use more power, have higher-capacity batteries and, for some applications, need to charge more quickly to be commercially viable
- HZEV charging requires more space than passenger EV charging, both because the bay must be larger and because HZEVs require more space to enter and leave or may need entirely different configurations such as drive-through bays. Most publicly accessible EV charging stations are designed for passenger EV charging and are unsuited to HZEVs (ANC 2025).

[4] While not yet common in Australia, 'vehicle-to-grid' applications (in which EV batteries are used for load management when connected to a charger) are being trialed for HZEV charging hubs. Vehicle-to-grid can allow further optimisation of electricity use.

Table 4.1 – Types of chargers

Type	Common name	Power	Relevant vehicle types
Level 1 chargers	Socket chargers	2.3kW	Light commercial vehicles
Level 2 chargers	AC fast chargers	3.5kW – 22.1kW	Light commercial vehicles, rigid vehicles
Level 3 chargers	DC wall chargers	25kW	Light commercial vehicles, rigid vehicles
	DC fast chargers	50kW – 150kW	Light commercial vehicles, rigid vehicles, articulated vehicles
	DC ultra-fast chargers	>350kW	Light commercial vehicles, rigid vehicles, articulated vehicles

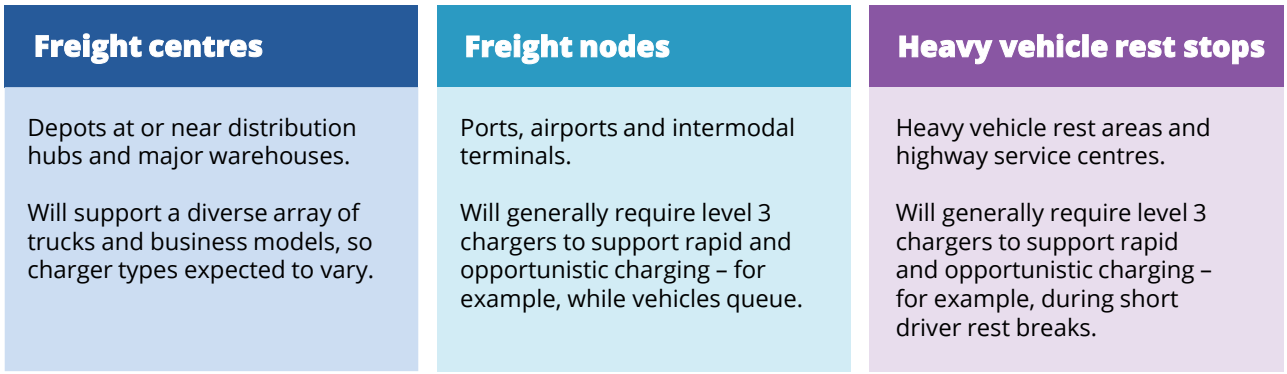
Source: AECOM (2025).

While in its infancy, the rollout of HZEV charging infrastructure is expected to be a key enabler of emerging electrification technology options and Australia's pathway to net zero. The *Transport and Infrastructure Net Zero Roadmap and Action Plan* expects that buses and smaller trucks will be electrified first, with larger trucks to follow or be powered by hydrogen or low-carbon liquid fuels, depending on how technology evolves (DITRDCSA 2025d). A major recent study for the Australian Renewable Energy Agency on freight electrification similarly found that urban freight (dominated by light commercial vehicles and smaller trucks) had the best prospects for electrification in the short term (AECOM 2025).

Freight charging

This same study suggested that up to 165 freight charging hubs were likely to be necessary, largely located in three core location types – freight centres, freight nodes and heavy vehicle rest stops (figure 4.1).[5]

Figure 4.1 – Key freight HZEV charger locations



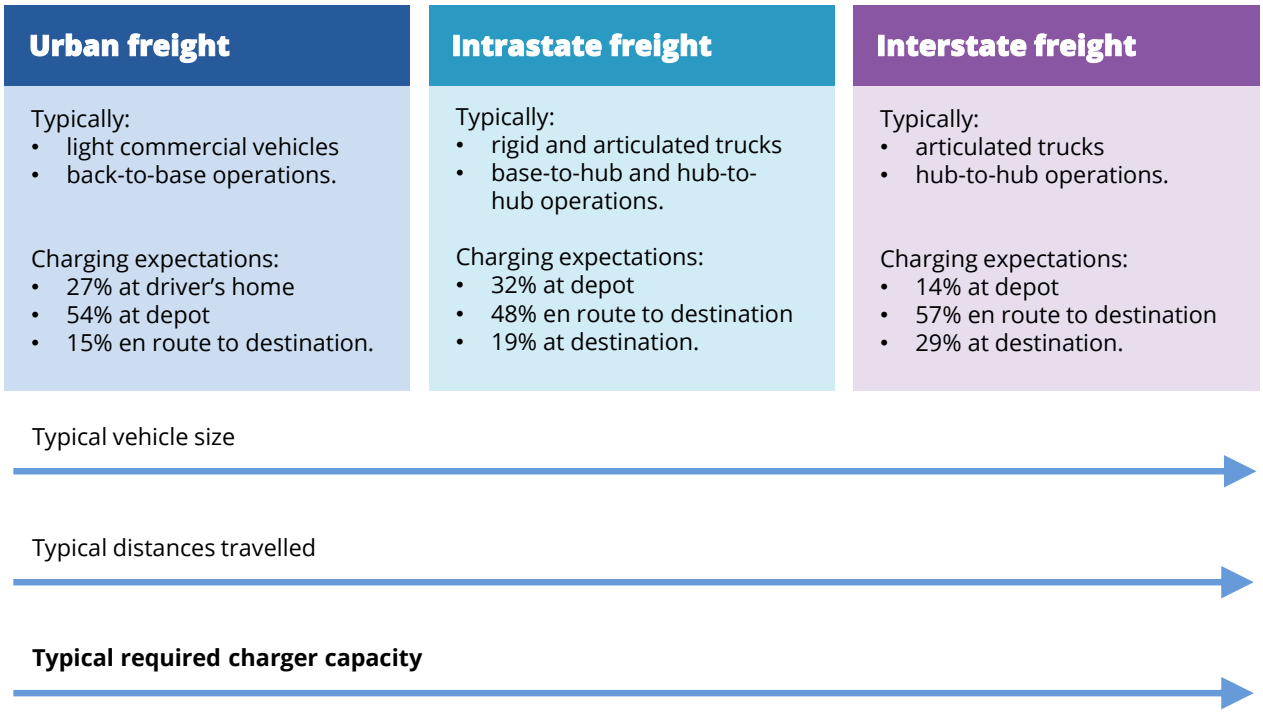
Source: AECOM (2025).

Since urban freight has the best short-term electrification prospects, and is expected to rely more on depot charging than en-route charging (e.g. at heavy vehicle rest stops) or destination charging (e.g. at freight nodes or more significant freight centres) (figure 4.2), freight centres are likely to be the initial focus of the charging rollout with the other locations following.

[5] The PC has interpreted this to mean both 'heavy vehicle rest areas', which are generally provided by state and territory governments on a non-commercial basis and 'highway service centres' (or the equivalent term in the relevant state/territory) which are commercial facilities that often feature service stations and food and beverage vendors.

However, the ongoing innovation in HZEVs, charging technology and fleet management lead to other solutions. For example, Janus Electric, a New South Wales-based start-up, opened a battery swap station in 2024 in the Moorebank Intermodal Precinct in Sydney (Hill 2024). Battery swapping offers an alternative to the need for rapid charging at freight nodes such as intermodal terminals. Where practical, this chapter strives for regulation to be technologically neutral so that market forces determine which technology most efficiently decarbonises the freight sector.

Figure 4.2 – Charging requirements will vary across freight types



a. Charging expectations statistics are based on stakeholder input to AECOM (2025).

Source: Based on AECOM (2025).

Bus charging

Depot charging has emerged as the dominant model for HZEV bus fleets, reflecting the more limited diversity in operating models compared with HZEV freight vehicles. An exception is the Brisbane Metro bus fleet, which charges both slowly at its depot and rapidly at end-of-route locations (Brisbane City Council 2025b).

4.2 Grid connections are challenging but largely not for administrative or regulatory reasons

Many participants raised connecting to the grid as a key challenge for rolling out HZEV charging infrastructure, with delays of several years not uncommon (Australian Industry Group, sub. 15, p. 6; Electric Vehicle Council, sub. 18, p. 12; NHVR, sub. 4, p. 22; Team Global Express, sub. 8, pp. 8-9).

The primary issue is that electricity distribution networks sometimes do not have adequate capacity to support high-powered HZEV charging, so costly and time-consuming network augmentation are required. While regulation influences how future network capacity is provisioned for and how network augmentations

are funded, these have wide application to new industrial scale load use and are beyond the scope of this study (box 4.2).

While less significant, reviews have identified two administrative barriers related to grid connections that warrant action.

- Unclear and inconsistent guidance for connecting additional 'points of supply' at a site (which can be a preferred approach to establishing a grid connection) (Blunomy 2024; Oakley Greenwood 2024). Energy Networks Australia (which represents distribution network service providers) advised the PC that it had since developed guidance for distribution network service providers to facilitate a more standardised administrative approach, which providers are currently integrating into their operations (sub. 42, p. 2).
- Limited information about existing network capacity that would help guide site selection decisions. This is discussed in the next section.

Box 4.2 – National Electricity Market regulations indirectly influence grid connections

Aspects of the National Electricity Market regulatory framework can indirectly influence HZEV charging infrastructure connection costs, timing and investment incentives. Electricity distribution network service providers are subject to:

- regulation intended to prevent inefficient over-investment in their networks (AER 2020). This affects how much anticipatory investment in network capacity providers can undertake ahead of firm customer demand
- rules and guidance about how costs should be allocated when new connections trigger upgrades that may benefit later users (AER 2024). This is intended to prevent the first mover funding the upgrade in full and subsequent movers free riding, as that would disincentivise upgrades
- 'ring-fencing' arrangements that can prevent them from providing downstream services in contestable markets, such as charging infrastructure, as this might lead them to treat their own charging infrastructure preferentially (AER nd).

The Australian Energy Market Commission is currently reviewing how electricity pricing regulation interacts with consumer energy resources (AEMC 2026b).

4.3 Providing better information to guide investment

HZEV charging infrastructure is more suited to some sites than others for commercial and technical reasons. Prospective charging infrastructure owners most want to install charging infrastructure where:

- there is an electricity distribution network nearby with ample capacity to provide the required load, as this means a connection can be established relatively quickly and at low cost
- it aligns with freight traffic patterns and modes of operation, as this allows charging to occur in a way that minimises disruption
- it complements existing charging infrastructure (whether publicly assessable or not), as this increases the demand for charging
- it is allowed by land use regulation.

Much of this information is only partly available in any format and is not available in a single location that would allow for sites to easily be compared across all criteria.

The Australian Government recently launched the Electric Vehicle Charging Infrastructure Mapping Tool (DCCEEW 2026), which was a commitment of the National Electric Vehicle Strategy to, among other things 'inform future investment' (DCCEEW 2023, p. 27). The mapping tool is a map of Australia overlaid with information relevant to charging infrastructure investment. But, while valuable, the mapping tool has not been designed with HZEV charging infrastructure in mind. It contains the following information:

- existing and planned level 3 public charging locations, including the power rating of the charger but not whether the site facilitates HZEV access
- key freight routes
- traffic volumes (annual averages with no separation by vehicle type)
- elevation (for major roads)
- postcode-level demographic information (number of people, vehicles and dwellings)
- electricity distribution network cables and transformers, and distribution network capacity at the zone substation level (a relatively coarse level, as discussed later)
- points of interest (attractions, fast food, service stations)
- local government areas and remoteness areas
- mobile network coverage for Australia's three mobile networks
- modelled region-specific demand for public EV charging out to 2034.

The mapping tool also allows some but not all data to be exported. Where the data cannot be exported, users are unable to overlay other useful data (such as proprietary information on fleet use), view it in a different interface, or run algorithms to choose optimal locations for charging infrastructure installations against their own criteria.

The PC has considered what additional data could be added to the mapping tool to boost its suitability for HZEV charging infrastructure. The initial focus should be on data relevant to electrifying urban freight as this is expected to happen most quickly.

Electricity distribution network capacity

Information about electricity distribution network capacity is critical to choosing a site for HZEV charging and deciding on the number and type of chargers to install, as inadequate capacity means either no connection or necessitates a costly and time-consuming augmentation of the distribution network. It also leads prospective charging infrastructure owners to lodge connection applications for multiple sites and multiple capacities with distribution network service providers in search of a suitable site and configuration (Blunomy 2024).

Previous reviews have recommended that distribution network service providers make more information about network capacity available in an easily accessible format.

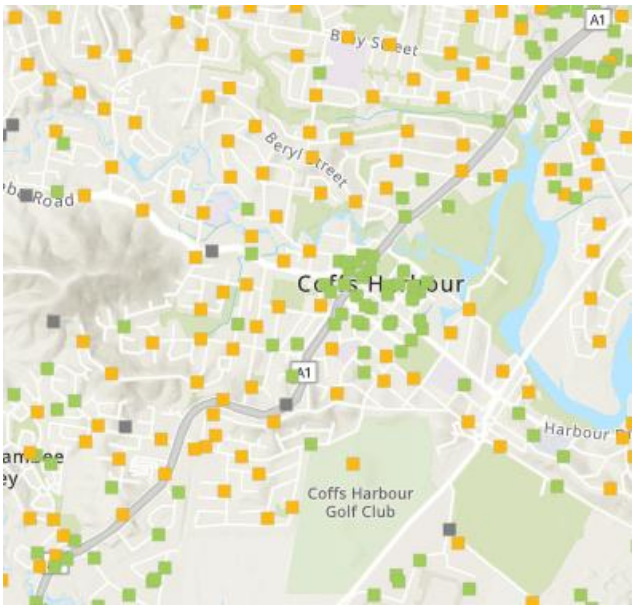
- A 2024 review conducted for the Department of Climate Change, Energy, the Environment and Water recommended that distribution network service providers be required to develop 'tools or processes that allow a proponent to easily get information on the available capacity at a location and other relevant network information', but did not recommend that this necessarily be in the same format for all network service providers (Oakley Greenwood 2024, p. 17).
- Another 2024 review conducted for Energy Networks Australia (the peak body for electricity distribution networks) led to Energy Networks Australia committing to working with distribution network service providers to provide network capacity maps (Blunomy 2024).

Both reviews considered the publicly available network capacity map provided by Essential Energy (a NSW distribution network service provider) to be best practice among distribution network service providers. This provides estimates of network capacity at the distribution substation level.

Since these reviews were conducted, the Australian Government has launched the mapping tool, which includes distribution network capacity estimates for many electricity distribution networks. However, the information is provided only at the zone substation level, which is considerably less granular than the distribution substation level. For example, figure 4.3 compares the Essential Energy map with mapping tool network capacity information for Coffs Harbour. Network capacity varies greatly within the footprint of a zone substation, so the information provided by the Essential Energy map is much more useful to a prospective charging infrastructure owner.

Figure 4.3 – The Electric Vehicle Charging Infrastructure Mapping Tool contains only coarse network capacity information

a. Essential Energy map example (dots indicate network capacity)[a]



b. Electric Vehicle Charging Infrastructure Mapping Tool example (shading indicates network capacity)

a. The dots correspond with distribution substation locations. Additional network information is available that indicates each substation's footprint.

Source: DCCEEW (2026); Essential Energy (2026).

In late April 2026, the Australian Energy Market Commission will make a draft determination for a new rule that would give the Australian Energy Regulator powers to require distribution networks to publish network data, including network capacity data (AEMC 2026a). The Australian Energy Regulator has supported this aspect of the rule change throughout the process, and earlier indicated that high-voltage feeder and distribution substation-level network capacity data would likely be a priority for the new rule (AER 2025).

If the proposed rule change is accepted, and if the Australian Energy Regulator chooses to require publication of high-voltage feeder and distribution substation-level network capacity data, the Department of Climate Change, Energy, the Environment and Water should work with the Australian Energy Regulator to incorporate this data into the mapping tool. If not, the department should work with distribution networks to ensure the mapping tool data is as granular as the data released by each network.

Freight movements

Information about where HZEVs travel can indicate the demand for HZEV charging at a given site. The planning tool currently contains little such information – only information on general traffic volumes (aggregated across all vehicle types) and on roads considered key freight routes. The National Heavy Vehicle Regulator (sub. 4, p. 23) submitted that government datasets relating to heavy vehicle operations could be used to guide investment in charging infrastructure, but this data is not currently available in the mapping tool.

Examples of the data that could be used to create layers in the mapping tool include:

- the locations and usage levels of heavy vehicle rest areas. The 'National Formal Rest Areas' dataset is publicly available and contains the locations of heavy vehicle rest stops and some basic information about their characteristics (for example, whether they have toilets and lighting). This has been combined with truck telematics data from the Bureau of Infrastructure and Transport Research Economics to estimate the frequency and lengths of stops made at each rest stop, available in map format within the National Freight Data Hub (DITRDCSA 2022)
- the locations of intermodal terminals. This dataset is publicly available and contains the locations of operational, under construction and proposed intermodal terminals (DITRDCSA 2025b)
- datasets summarising heavy vehicle movements on major roads. Examples include the Harmonised Traffic Counts dataset, which is publicly available and contains counts of the number of vehicles of each class passing traffic counter stations (DITRDCSA 2024), and truck telematics data from the Bureau of Infrastructure and Transport Research Economics
- gazetted heavy vehicle networks (roads that relevant classes of heavy vehicles can access as-of-right). This data is publicly available in government gazettes and the National Heavy Vehicle Regulator publishes it in map format (NHVR nd)
- routes commonly accessed via permit, which could be derived from permit data held by the National Heavy Vehicle Regulator.

The Department of Climate Change, Energy, the Environment and Water should work with the custodians of these datasets to develop new layers for the mapping tool based on these datasets.

Land use regulation

Land use regulation is a key consideration when choosing a site for HZEV charging infrastructure. It influences where HZEV charging infrastructure can be located, the types of chargers that can be used and the design of the site (box 4.3). All state and territory governments or local governments have online maps that provide information on the zone a site is in and overlays that apply to it, although often this must be cross-checked with information elsewhere on the implications for HZEV charging infrastructure (section 4.4).

To make this information more useful, the Department of Climate Change, Energy, the Environment and Water should work with state and territory governments and local governments to:

- transform existing land use mapping data into simplified HZEV charging infrastructure-relevant land use regulation information. For example, creating map layers with terms like 'charging not allowed as primary land use', 'charging allowed as primary land use with permission' and 'charging allowed as primary land use without permission'
- integrate either existing land use regulation information or this simplified HZEV charging infrastructure-relevant land use into the Electric Vehicle Charging Infrastructure Mapping Tool.

Box 4.3 – A primer on land use regulation

At a simplified level, land use regulation works by dividing land into zones, with each zone dictating:

- which *uses* of the land are prohibited, allowed subject to planning permission, and allowed with no permission required. Uses are things like 'boarding houses', 'neighbourhood shops', 'medical centres', 'respite day care centres' and 'industrial training facilities'
- which forms of *building and works* are prohibited, allowed subject to planning permission, and allowed with no permission required.[6]

Local governments have primary responsibility for land use regulation, but state and territory governments require consistency (to differing degrees) between local governments in how it is administered and apply state/territory-wide land use policies to this end.

In principle, land use regulation can be justified on the basis that it forces landowners and developers to internalise the impacts of their activities (both positive and negative) on the surrounding area, when they would otherwise have little incentive to do so. For example, heavy vehicle infrastructure could pose traffic, safety and amenity risks if people live nearby and so is not usually allowed in residential zones.

Draft recommendation 4.1
Make the Electric Vehicle Charging Infrastructure Mapping Tool more relevant to heavy zero emissions vehicle (HZEV) charging

To make the Electric Vehicle Charging Infrastructure Mapping Tool more useful to guide investments in HZEV charging infrastructure, the Department of Climate Change, Energy, the Environment and Water should:

- work with electricity distribution network service providers and the Australian Energy Regulator to incorporate more granular (distribution substation-level) distribution network capacity information
- work with the Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts and the National Heavy Vehicle Regulator to incorporate information on freight locations and movements
- work with state and territory governments to incorporate information on where charging is an allowed land use (with and without planning permission)
- allow all mapping data to be exported.

[6] This is also regulated via building regulation, which is mostly focused on compliance with the National Construction Code.

4.4 Updating land use regulation to meet the needs of HZEV charging

Outdated land use regulation can pose regulatory barriers to HZEV charging infrastructure.

Whether, in practice, land use regulation is adequately calibrated to balance the costs and benefits of different types of land use is beyond the scope of this study. Instead, our focus is on how land use regulation has not yet adapted to consider HZEV charging infrastructure, which creates uncertainty for prospective infrastructure owners and leads to unnecessary processes and associated administrative burdens.

Ambiguities in whether land can be used for HZEV charging

Whether land can be used for HZEV charging in the form desired can be unclear. As the Australian Local Government Association acknowledged, 'charging infrastructure for heavy vehicles is a new land use category in most planning schemes' (sub. 33, p. 11).

There are two issues, each relating to the different ways in which land can be allowed to be used for HZEV charging.

The first issue is that the circumstances in which charging can be considered a secondary/ancillary use of land are unclear. Whether charging is considered primary or secondary/ancillary is critical for determining how land use regulation applies to it, as, generally speaking, primary uses need to be allowed in the zone but secondary/ancillary uses do not. Charging is more likely to be secondary/ancillary if the land is used as a fleet's base, the charging infrastructure is used only by the site's owners, or significant other freight activities take place (such as at a freight node or distribution centre), but these lines are not clear-cut.

The second issue arises if charging is to be a primary use of the site. This requires it to fall within the definition of an allowed 'use' of the site as dictated by the zone in which it is located. But many land uses in which charging may be desired – those related to bus depots, freight centres, freight nodes and heavy vehicle rest stops – are defined in ways that do or may not include charging, as most were created and defined prior to the electrification of road vehicles (table 4.2). As an example of an ambiguous case, the City of Sydney considered Zenobe's dedicated electric delivery truck charging facility that opened in late 2025 to be a 'truck depot', defined as 'a building or place used for the servicing and parking of trucks, earthmoving machinery and the like' and interpreted 'servicing' within this definition to include charging (Zenobe 2024) – but this interpretation is not binding.

To provide more clarity, state and territory governments have amended the definitions of some uses to explicitly allow electric vehicle charging. The WA Government has amended the definition of 'freeway service centre' (and therefore 'road house', which refers to it) to allow EV charging. The Victorian and the ACT Governments have amended the definition of 'service station' to allow charging, as has the South Australian Government for its equivalent 'retail fuel outlet'. And the Victorian Government amended the definition of 'car park' to allow charging, but this was likely made with passenger EV charging in mind, as car parks present a convenient opportunity for charging passenger EVs but less so HZEVs. But even in these jurisdictions, charging remains mostly outside the definitions of freight centre, freight node and heavy vehicle rest stop land uses.

Both issues could be addressed by state and territory governments amending the definitions of land use terms that describe bus depots, freight centres, freight nodes and heavy vehicle rest stops to explicitly allow for electric vehicle charging to occur at those sites. If state and territory governments wished to prevent the risk that this allows some of these uses to facilitate large-scale public EV charging sites with little or no connection to the broader freight- or bus-related use, they could define these uses to allow for charging of vehicles that use the broader facility without limiting charging as necessarily secondary/ancillary. Changing land use definitions in this way would be unlikely to impose significant *additional* negative impacts on the surrounding area, as heavy vehicles already routinely come and go from the sites.

Table 4.2 – Many relevant land use terms do not allow vehicle charging as a primary activity

State or territory	Definition allows vehicle charging as a primary activity	Definition does not or may not allow vehicle charging as a primary activity
New South Wales	Highway service centre, service station	Car park, freight transport facility[b], local distribution premises, passenger transport facility[b], port facilities, truck depot[b], warehouse or distribution centre
Victoria	Car park[a], service station[a]	Freeway service centre, transport terminal, vehicle store, warehouse
Queensland	Service station	Parking station, transport depot, warehouse
Western Australia	Freeway service centre[a], road house[a]	Car park, commercial vehicle parking, service station, transport depot, warehouse/storage
South Australia	Retail fuel outlet[a]	Heavy vehicle parking, store, warehouse
Tasmania	Vehicle fuel sales and service	Storage, transport depot and distribution, vehicle parking
Australian Capital Territory	Land management facility, municipal depot[a], service station[a]	Car park, freight transport facility[b], transport facility, warehouse
Northern Territory	Service station	Car park, transport terminal[b], warehouse

a. Definition explicitly allows vehicle charging. **b.** Definition allows for vehicle 'servicing'.

Source: Territory Plan 2023 (ACT); Standard Instrument – Principal Local Environmental Plan (2006 EPI 155a) (NSW), Northern Territory Planning Scheme 2020; Planning Regulation 2017 (Qld); Planning and Design Code (SA); Tasmanian Planning Scheme; Victoria Planning Provisions; Planning and Development (Local Planning Schemes) Regulations 2015 (WA).

This approach would also align with how land use regulation has adapted to other new land uses. The Victorian, Western Australian, South Australian and ACT governments have already redefined some land use terms to accommodate charging in a similar way. And it is in line with 2021 NSW Government reforms to align land use regulation with data centres, which involved creating a new land use term ('data centre') and explicitly including data centres within the definition of 'high-technology industry' (NSW Government 2023).

Alternatively, state and territory governments could undertake broader reforms to reduce the prescriptiveness of land use regulation, as the PC has recommended in the past (PC 2017b).

Unnecessarily restrictive exemptions from planning permission for charging infrastructure

Some of the HZEV charging infrastructure rollout will involve relatively simple retrofits of existing freight sites with chargers, including depots and common destinations for last-mile deliveries like supermarkets. Many state and territory governments have exempted charging infrastructure installations from requiring planning permission, but sometimes in ways that are not amenable to HZEV charging.

- The NSW Government has exempted charging infrastructure installations from requiring planning permission when installed in 'bus depots', 'car parks', 'car washing facilities', 'highway service centres', 'public administration buildings', 'road maintenance depots' and 'service stations' (State Environmental Planning Policy (Transport and Infrastructure) 2021, s. 2.124D (NSW)). Elsewhere, charging infrastructure installations are generally exempted from requiring planning permission only when the unit is installed in or adjacent to a parking space associated with a building. Except for 'bus depots', 'highway service centres' and 'service stations', the land uses for which the more general exemption applies to do not ideally facilitate HZEV charging, and many land uses that could are excluded, such as 'freight transport

facilities', 'transport depots', and 'truck depots'. For example, Zenobe's electric delivery truck charging facility described earlier required planning permission to install chargers because it was considered a truck depot (Zenobe 2025).

- The Tasmanian Government has exempted the provision and maintenance of electric vehicle chargers from requiring planning permission if in a car park, which can similarly be of limited relevance to HZEV charging (Tasmanian Planning Scheme – State Planning Provisions, s. 4.2.9).
- The ACT Government has exempted electric vehicle 'charging points' installations from requiring planning permission provided that each individual charging point (including associated equipment) falls below a size threshold. This is easily manageable for passenger EV chargers but less so for more powerful HZEV chargers (Planning (Exempt Development) Regulation 2023, s. 1.140 (ACT)).
- The WA Government does not have a specific charging infrastructure planning permission exemption, but has issued a position statement clarifying the circumstances in which more general exemptions create an exemption for charging infrastructure installations (Western Australian Department of Planning, Lands and Heritage 2024). These are generally unsuited to HZEV charging – they require the charging infrastructure to be associated with a residential building or to be contained within a building/structure.

By contrast, the Victorian Government adopted an exemption that is more amenable to HZEV charging – it has exempted charging infrastructure installations from planning permission in any location with the provisos that it must not be visible from the street if a heritage overlay applies and that the exemption is void if the local planning scheme specifically requires planning permission for charging infrastructure installations (Victoria Planning Provisions, s. 62.02-2).

These issues could be addressed by all states and territories (including those which have no exemption from planning permission for charging infrastructure in place[7]) either adopting a broad exemption like the Victorian Government's or a limited exemption with the negative impacts on the surrounding area that the limitation aims to address clearly explained and based in evidence.

Note that such an exemption would not automatically allow land to be converted into a major HZEV charging hub without planning permission, as the exemption would not allow the use of the land to be changed without permission (so charging would need to be secondary/ancillary if not allowed without permission in the zone) and the construction involved would go beyond charger installations. Any requirements for building permits would also still apply, which would address issues like fire safety.

Draft recommendation 4.2
Adapt land use regulation to heavy zero emissions vehicle charging infrastructure

State and territory governments should alter the definitions of land uses that cover bus depots, freight centres, freight nodes and heavy vehicle rest stops to explicitly allow for electric vehicle charging on land used in this way.

State and territory governments should exempt the installation of charging infrastructure from requiring planning permission where it is consistent with existing land use provisions. To the extent that jurisdictions apply conditions to manage any public impact, these should be balanced against potential impacts on innovation and investment.

[7] The South Australian Government has legislated to exempt charging infrastructure installations from planning permission from 1 July 2026 provided they meet yet-to-be-determined standards (PlanSA 2025).

4.5 Heavy vehicle rest areas may warrant special attention

There is an emerging gap between the expectation that HZEV charging infrastructure will be installed in heavy vehicle rest stops (section 4.1), and the policies and guidelines governing state and territory government-provided rest areas (a key type of rest stop, with the other being commercial facilities known as 'highway service centres' or the equivalent in the relevant state or territory).

- Many state and territory governments' guidelines for heavy vehicle rest areas make no reference to charging infrastructure, even when issued or revised in recent years – for example, Western Australia's 2023 policy and guidelines for rest areas on main roads and highways and Tasmania's 2020 heavy vehicle driver rest area strategy do not mention charging at all, and the Northern Territory's 2022 rest facilities strategy makes only a passing reference to it (Main Roads WA 2023; Northern Territory Department of Infrastructure, Planning and Logistics 2022; Tasmanian Department of State Growth 2020).
- Austroads' 2019 guidelines for the provision of heavy vehicle rest areas, which are intended to assist road managers across Australia to plan, design and prioritise heavy vehicle rest areas (and are often referenced in state-level guidance) make only a passing reference to charging infrastructure (Austroads 2019).
- The Australian Government's Heavy Vehicle Rest Area initiative, which funds the construction of new and upgraded rest areas, makes no reference to charging infrastructure in its guidelines (DITRDCA 2024).

Unlike the other locations at which HZEV charging infrastructure is expected, state and territory government-provided heavy vehicle rest areas are on public land and do not operate on a commercial basis, so the absence of a policy to facilitate charging in these locations where economically viable acts as a quasi-regulatory barrier to installing charging infrastructure. While it is beyond the scope of this study to consider public funding of HZEV charging infrastructure, the PC welcomes participants' views on how to reduce barriers to private investment in charging infrastructure at state and territory government-provided heavy vehicle rest areas. Potential policy changes could include:

- Austroads updating its 2019 heavy vehicle rest area guidelines or developing guidelines about the provision of charging infrastructure in heavy vehicle rest areas for adoption by state and territory governments
- state and territory governments developing policies about the contractual terms on which private investment in charging infrastructure could be sought. For example, the ACT Government allows EV charging infrastructure to be installed on public land and in public car parks for a nominal fee, provided technical and accessibility criteria are met (ACT Government 2023).

Importantly, policy will need to recognise that some rest areas are likely to remain unsuited to charging infrastructure in the longer term, owing to the absence of any connection to the electricity grid or network infrastructure nearby.

Information request 4.2

What regulatory or administrative actions should governments take (if any) to facilitate private investment in charging infrastructure at state and territory government-provided heavy vehicle rest areas?

5. Heavy vehicle curfews

Key points

- **Curfews arise from two sources – local traffic controls that restrict truck traffic through particular streets, and conditions imposed in planning permits that restrict delivery hours to and from businesses.**
  - Local traffic controls appear to exist almost exclusively in Victoria.
  - Planning restrictions appear more widespread, though it is unclear how common they are.
- **Heavy zero emissions vehicles (HZEVs) are quieter than internal combustion engine vehicles. As such, there is a strong case for relaxing the burden of curfews on HZEVs. This could occur in several ways.**
  - HZEVs could be exempted from curfews, or curfews that apply to them could be made less restrictive (such as by allowing longer delivery hours).
  - Vehicles could be exempted if they meet certain performance-based criteria, such as verified low-noise performance.
  - Curfews could be replaced with outcome-based measures, such as decibel limits.

5.1 Curfews apply unevenly across Australia

There are two main types of curfews

The request for advice asks the Productivity Commission to consider 'reducing or removing curfews for heavy zero emissions vehicles (HZEVs)':

> As HZEVs are quieter than Internal Combustion Engine (ICE) heavy vehicles, a reduction or removal of curfews of HZEVs would allow them to operate during non-standard business hours when there is less congestion and freight transit times can be reduced.

Time-based restrictions on heavy vehicle activity may exist for a number of reasons[8], including:

- mitigating the impact of heavy vehicle or loading dock noise
- protecting community safety
- managing congestion
- managing road maintenance (Australian Local Government Association, sub. 33, p. 12).

[8] Curbing of pollution is also sometimes cited as a motivation for curfews (Australian Logistics Council, sub. 10, p. 5), but should be irrelevant to curfew policy. Curfews do not reduce the overall the amount of pollution – they mostly just shift the time at which it is emitted.

The main distinction between HZEVs and other vehicles that would justify differential treatment with respect to curfews is that HZEVs are quieter (section 5.2). Therefore, for the purpose of this study, a 'curfew' is a time-based restriction that:

- is at least in part for the purpose of mitigating the impact of noise. In practice, restrictions that aim to mitigate noise impacts may also be motivated by preserving other aspects of neighbourhood amenity – in particular, protecting community safety is sometimes cited as a justification. However, Austroads (2016, p. 59) noted that the motivations behind curfews were not always clear and transparent
- prohibits heavy vehicle activity rather than the outcome of that activity, as this would prevent HZEV activity even if sufficiently quiet (motivating the policy question of whether to exempt or differentially treat HZEVs). This distinction is illustrated in box 5.1.

There are two main types of curfews[9] (examples provided in box 5.1):

- local traffic controls that restrict the movement of through-traffic on particular roads at night. These are administered by state/territory or local governments (or both), depending on the road. They apply to all heavy vehicles above a specified weight limit (including general access vehicles)
- local government planning restrictions set out in planning permits, which restrict overnight truck deliveries to and from premises such as supermarkets or shopping centres.

Some jurisdictions apply time-based restrictions on truck travel that are not designed to manage noise impacts and so would not be considered curfews for the purposes of this study. For example, Tasmania imposes some time-based restrictions on Oversize and Overmass vehicles, or longer vehicles, that are related to safety and congestion (Tasmanian Government, sub. 34, p. 6).

Presently, no type of curfew distinguishes between internal combustion engine vehicles and HZEVs.

In addition to curfews, there are broader regulations that aim to limit the effects of truck noise. For example, noise-sensitive areas may install road signage that advises drivers to reduce vehicle noise (South Australian Department of Infrastructure and Transport 2025). Jurisdictions' environmental protection laws may also prohibit business activity (including heavy vehicles making deliveries) making unreasonable noise. For example, Victorian noise laws prohibit commercial premises from making an 'unreasonable' amount of noise, defined as that which either:

- exceeds certain noise levels (which depend on factors such as what time of day the noise occurs and the location of any noise-sensitive areas) (Environmental Protection Authority Victoria 2026)
- has certain qualities – high volume and intensity; occurring frequently or for a long time; or having an 'annoying' character (such as high-pitched screeching) (Victorian Chamber of Commerce and Industry 2023).

[9] Amenity-based curfew conditions could also, in theory, be placed on individual heavy vehicle permits for Restricted access vehicles under the NHVL, prohibiting activity outside of the pre-approved network – for example, deliveries to a distribution centre. These would be imposed by local road managers. However, these are unlikely to be material. The PC has yet to find a concrete example of amenity conditions applied to a heavy vehicle permit, and the Electric Vehicle Council (pers. comm., 28 January 2026) noted that curfews were 'overwhelmingly enforced via planning permits at the LGA level'.

Box 5.1 – Examples of curfews and non-curfew restrictions

Curfews on through-traffic in Melbourne's north east

On their way to and from the Metropolitan Ring Road and Eastern Freeway, trucks often travel through some major and local roads in the Banyule and Nillumbik municipalities in Melbourne's north east.

To address the impact of truck noise and emissions on local communities, a cluster of curfews was introduced near the eastern exit of the Metropolitan Ring Road (applying on, for example, sections of Rosanna Rd and Lower Plenty Rd) in August 2015, initially as part of a 12-month trial that prohibited vehicles weighing over 4.5 tonnes from travelling between 10pm and 6am. After the trial period elapsed, these restrictions were retained, though weight limits were relaxed to only prohibit trucks over 16.5 tonnes.

Restrictions on night-time truck activity in local government planning permits

Curfews on heavy vehicles that apply regardless of noise

A planning permit for a new shopping centre and supermarket to be developed on 33 Albion Rd/70 Hudson Rd, issued by the Brisbane City Council, requires that 'hours of operation for the approved centre activities, including deliveries, must be within 6am to 10pm'.

While the intention of this clause may be (at least in part) to reduce impacts to surrounding homes and businesses, the restriction applies irrespective of the level of noise generated by a vehicle. This would therefore be considered a curfew for the purpose of this study.

Non-curfew restrictions on heavy vehicles that are based on noise level

A planning permit, issued by the Victorian Department of Transport and Planning, for the Coles at 158-163 High Street, Belmont, stipulates that:

> The noise from the operation of a truck-mounted refrigeration unit must not be audible within a habitable room of any residence (regardless of whether the door or window to the habitable room is open) during the following hours:
> a) 10pm – 7am Monday to Saturday
> b) 10pm – 9am Sundays and public holidays

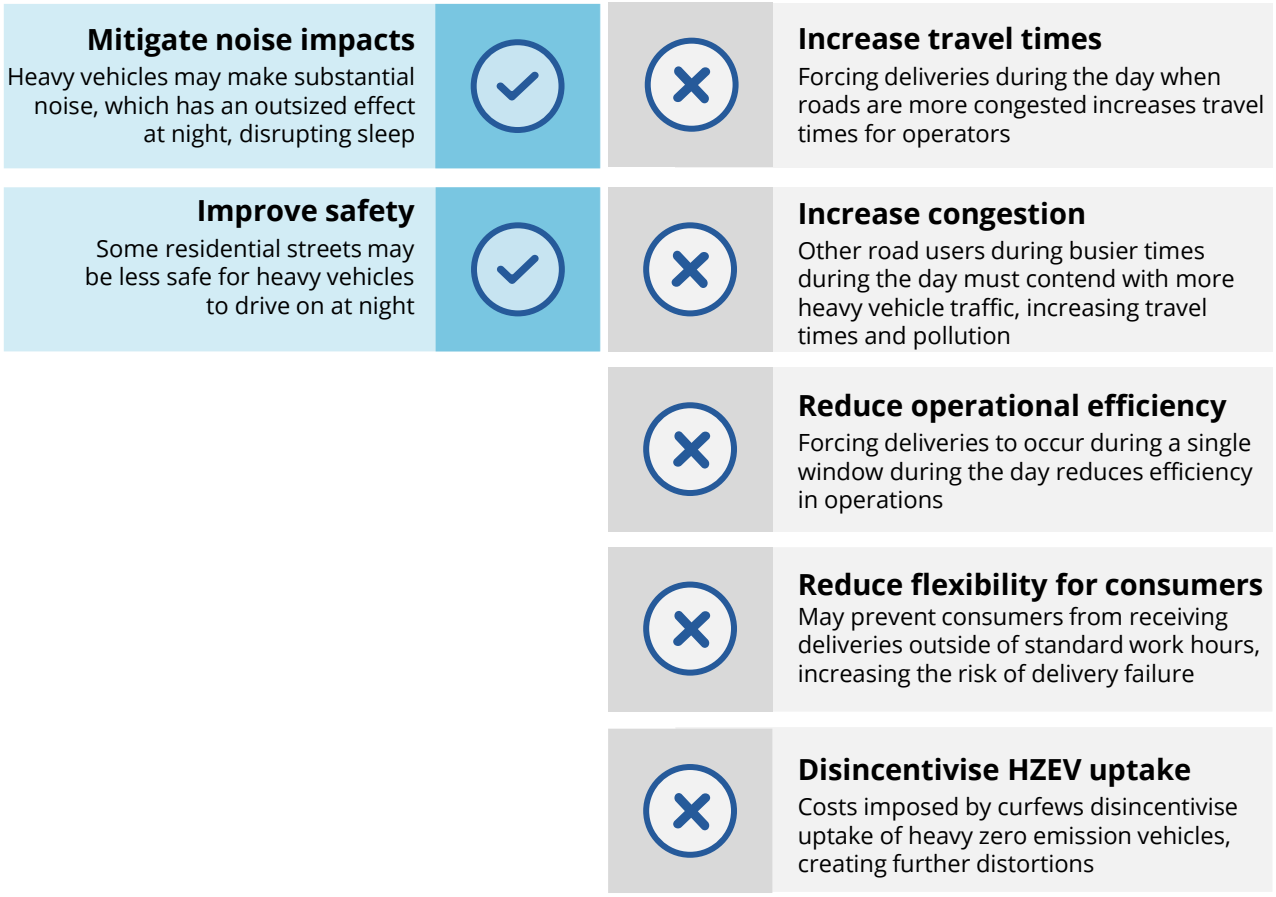
As this restriction is based on the level of noise produced, HZEVs can already be used if they are sufficiently quiet. This would not be considered a curfew for the purposes of this study.

Sources: VicRoads (2017); Brisbane City Council (2025a); Victorian Department of Transport and Planning (2024, p. 8).

Curfews impose costs on operators and the broader community

By restricting terms of operation, curfews impose costs on transport operators (figure 5.1).

Figure 5.1 – Costs and benefits of curfews



Operators may respond to a curfew by:

- travelling instead during the day when roads are more congested. Through-traffic curfews may also cause operators to substitute towards non-curfewed roads (which may be more congested), even if they still choose to travel at night
- reducing the number of trips they take.

Substitution towards more congested roads increases the operator's travel times, fuel costs and emissions. It also further increases congestion (slowing travel times for other road users and exacerbating their emissions). Where heavy vehicles deliver to centralised locations such as ports, it may also increase congestion in the form of queuing.

Curfews may also impose costs on businesses by reducing operational efficiency.

- Curfews effectively restrict the total amount of time in a day that deliveries can occur – businesses that would otherwise have been able to receive deliveries outside of their allowed curfew window must either change their operations to fit deliveries into the allowed time, or forego some deliveries altogether. The latter may also decrease their overall capital utilisation.

- Restricting the hours that a business receives deliveries in the early morning may make it more difficult to stock shelves in time for opening (IKEA, sub. 37, p. 11).
- Forcing deliveries to take place during set times also precludes electric vehicle operators from charging when optimal (for example, when electricity costs are low or there are opportunities to draw down from solar), or to help manage periods of peak electricity demand.

There may also be other reasons why it is desirable to travel at night – for example, when transporting rural and livestock freight, travelling when it is less hot may be critical for animal welfare and cold-chain integrity (keeping temperature-sensitive items cool and reducing risk of spoilage) (Australian Livestock and Rural Transporters Association, sub. 19, p. 28).

Where operators make outbound deliveries, curfews may also effectively restrict the times at which the end consumer can receive a delivery (as operators need to complete their routes and be back at their original location before the curfew begins). In particular, this may restrict deliveries outside of standard work hours in the evening (Team Global Express, sub. 8, p. 11) and increase the risk of failed deliveries where consumers must be present to receive them (Tesla, sub. 20, p. 4).

Additionally, while curfews do not discriminate based on vehicle type, to the extent that they apply to HZEVs without sufficient justification (section 5.2), these costs offset some of the potential benefits of HZEVs, distorting investment in these vehicles.

In principle, the benefits of curfews should outweigh the costs. The suitability of differentially treating HZEVs depends on whether they address the primary legitimate concern for curfews – noise impacts (section 5.2). Safety concerns, while potentially justifiable, are likely better addressed through mechanisms other than curfews.

The prevalence of local planning restrictions is unclear

Curfews in the form of through-traffic controls appear to exist almost exclusively in Victoria (attachment 5.1, table 5.2). Victorian curfews are displayed on the NHVR access map (Victorian Department of Transport and Planning, pers. comm., 16 March 2026). Outside of Victoria, however, the PC is only aware of one other such curfew (Queensport Rd South in Brisbane, QLD). Some jurisdictions have confirmed that they do not have these curfews, and even in jurisdictions where there is a legal basis for them to exist, the PC is not aware of any that do.

Curfews in the form of planning restrictions appear to exist to some extent in all jurisdictions. However, it is less clear how common they are, as there is no centralised list of these restrictions, and most are likely not publicly available. That said, there is some evidence to suggest that they may be relatively common in residential areas. Planning controls that prohibit overnight deliveries to and from supermarkets and shopping centres appear commonplace in South Australia (Government of South Australia nd). And the Electric Vehicle Council (pers. comm., 28 January 2026) stated that while commercial facilities (such as distribution centres in industrial precincts) tend not to be subject to curfews, most retail premises (even those in large shopping centres, far from homes) have noise restrictions or curfews embedded as a condition of their local government planning approval (noting that noise restrictions are distinct from curfews).

Information request 5.1

The PC is seeking information on the prevalence of curfews. How widespread are local government restrictions through local planning rules? What are the typical terms of these restrictions? If they exist, what are the typical reasons (noise or other reasons)?

5.2 Some curfews may not be fit for purpose in light of new technology

HZEVs are quieter

Curfews are typically imposed at night due to heightened noise sensitivity. Loud or intermittent noises have a greater negative impact at night than during the day. The ambient level of noise is lower, and these noises can disrupt sleep, which can contribute to a range of health issues (Basner and Smith 2023).

HZEVs are significantly quieter than their internal combustion engine counterparts in many respects. Manufacturer sound tests indicate that HZEVs produce less noise – including results from the manufacturer MAN (box 5.2).

Box 5.2 – How decibels translate into perceptions of loudness

Decibels (dB) measure sound intensity in such a way that a 10 dB increase in the intensity of sound is perceived by humans as being roughly twice as loud.

A-weighted decibels (dB(A)) take into account that human hearing is most sensitive to mid-range frequencies and less sensitive to very low or very high frequencies. A-weighting reduces low-frequency and very high-frequency contributions because we perceive them as quieter. Like unweighted decibels, a 10 dB(A) increase translates into a sound that is perceived as roughly twice as loud.

Example of relative sound levels of a HZEV and Internal Combustion Engine vehicle[a] – MAN sound test

	MAN eTruck (HZEV)	MAN TGX 18.510 (Internal Combustion Engine vehicle)	Difference
Reverse (with/without warning tone)	47.8/45.7 dB(A)	60.9/60.1 dB(A)	**-13.1/14.4 dB(A)**
Accelerated pass by[b]	50.4 dB(A)	62.4 dB(A)	**-12 dB(A)**
Smooth ride (20 km/h)	48.9 dB(A)	54.7 dB(A)	**-5.8 dB(A)**
Smooth ride (30 km/h)	52 dB(A)	56 dB(A)	**-4 dB(A)**

a. The trucks used were tractor units with a gross weight of 40 tons. Calibrated hand-held sound level meters were set up on the right and left of the carriageway, each at a distance of 7.5 metres. **b.** This refers to a manoeuvre where a truck driver increases speed to overtake another vehicle.

Sources: Engineer Fix (2025); NoiseMeters Inc. (nd); US National Institute on Deafness and Other Communication Disorders (2025); Truckpages (2023).

Other truck manufacturers have performed comparable studies, yielding similar results. For example, Volvo's electric trucks reach a drive-by noise level of 69 dB(A) compared to 79 dB(A) for a traditional truck (and would therefore sound roughly half as loud) (The Driven 2022).

HZEVs may still generate noise from sources such as beeping from reversing warning systems and loading and unloading noise (Local Government Association of South Australia, sub. 14, p. 8). These tend to occur when making deliveries and are therefore most relevant when assessing delivery curfews. Refrigeration unit

noise for temperature-controlled vehicles is sometimes cited as another source of noise – however, the Electric Vehicle Council (sub. 18, p. 18) stated that:

> Industry practice is for drivers to often 'idle' their engine while unloading, contributing to noise pollution. In particular, a refrigerated goods vehicle would typically power its auxiliary/refrigeration units from the diesel motor, leading to extended periods of idling and persistent low-level engine noise. In contrast, heavy EVs draw auxiliary power directly from the on-board batteries, silently.

To the extent that any remaining noise poses an issue, there may be technological solutions. For instance, beeping from standard tonal reversing alarms could be replaced by broadband alarms. These alarms produce a 'pssh-pssh-pssh' sound over a range of frequencies (WorkSafe Western Australia 2024) that is targeted more directly at those in the hazard zone and is less disruptive to others nearby. They may also be able to adjust their volume based on surrounding noise levels, so are only as loud as needed (Australian warning systems nd). Alternatively, sensors could be used to ensure safety, which detect objects or people behind the vehicle and alert the driver (and which may activate an alarm only when a person or obstacle is detected).

Vehicles that employ these alternatives could, for example, be treated more favourably with regard to curfews (under a performance-based standards approach – discussed below). However, any attempt to manage noise levels in this way may also require changes to the broader regulatory environment. For instance, some level of vehicle noise is currently mandated by a new Australian Design Rule, which requires new electric, hybrid and hydrogen fuel cell cars, trucks and buses to be fitted with an Acoustic Vehicle Altering System (AVAS). AVAS are a safety alert or sound, emitted when an electric vehicle is travelling at low speeds in car parks, intersections and driveways to improve safety for pedestrians as there is little natural vehicle noise (Victorian Department of Treasury and Finance, sub. 28, p. 17). While such regulations serve a legitimate purpose, if the noise they require to be generated is deemed unacceptably loud for residential areas at night, alternative regulatory solutions could be employed (such as allowing less disruptive safety features like broadband alarms) that maintain safety while still allowing HZEVs to remain quiet enough to be exempted from curfews.

Safety concerns can be managed through other means

Community safety is sometimes cited as a justification for curfews, on the basis that some streets are particularly unsafe to travel through at night due to factors such as poorer visibility. There is evidence to suggest that poor street lighting on local roads increases accident rates. For example, the US Department of Transportation (2009) found that installing street lighting reduced late-night and early-morning crashes at intersections by an average of 35%.

More generally, however, across all roads, evidence suggests that night-time and day-time driving are similarly risky. The US National Surface Transportation Safety Center for Excellence (2020) found that heavy vehicle accident rates (per million driving hours) are roughly the same during the day (6am-6pm) as at night (6pm-6am). Within the broader night-time period, however, there is significant variation. For example, the 11 pm-12am period was found to be substantially more dangerous (in the frequency of crashes, and the proportion of crashes that were fatal).

For night driving, HZEVs may be somewhat safer than internal combustion engine vehicles. While HZEVs may be less safe to the extent that they make less noise (which makes them more difficult for pedestrians or other road users to hear (Australian Trucking Association, sub. 22, p. 11)), this may be outweighed by the fact that they tend to be newer vehicles, with more advanced safety technology. They are also likely to become safer over time as technology evolves.

In any case, it is unlikely that curfews are the most efficient way of addressing safety concerns.

- Where the motivation for a curfew is a particular local road being unsafe, this is likely to be better addressed in most cases by infrastructure improvements such as more effective street lighting, reflective road markings or barriers.
- To the extent that crash risks are elevated at night due to general factors like driver fatigue, these are better addressed through broader regulations such fatigue management and Chain of Responsibility rules.

Draft finding 5.1
There is a strong case for reducing curfew burdens on heavy zero emissions vehicles

Heavy vehicle curfews largely arise from two sources – local traffic controls that restrict truck traffic through particular streets, and conditions imposed on local government planning permits that restrict delivery hours to and from businesses. Local traffic controls appear to exist almost exclusively in Victoria, while planning restrictions appear more widespread.

Many curfews were designed for conventional diesel vehicles and do not recognise the quieter noise profile of heavy zero emissions vehicles. As a result, some curfews are no longer fit for purpose, and there is a strong case for reducing curfew burdens on heavy zero emissions vehicles.

There are a few approaches to reducing curfew burdens

As HZEVs are significantly quieter than other vehicles, there is a strong case for ensuring curfews are adjusted to capture these benefits. With the growing importance of 'last mile' deliveries in the overall heavy vehicle freight task, curfew reform offers an opportunity to increase overall productivity in the sector.

There are a few broad approaches that could help to achieve this end (table 5.1).

Table 5.1 – Possible approaches to curfew relaxation

	Example	Advantages	Disadvantages
Differential treatment for 'zero emissions' vehicles	All heavy zero emissions vehicles are exempt from planning restrictions.	Simple to understand and administer.	Blunt – some noisy vehicles may be allowed while some quiet ones are disallowed.
Performance-based standards	All vehicles that have been proven sufficiently quiet are exempt from delivery hour restrictions.	Allows more granular consideration of which vehicles are quieter.	Complex to administer.
Outcome-based measures	Current delivery restrictions in the planning system replaced with 'no noise above xx dB'.	Allows any activity that is sufficiently quiet.	May be practically difficult to monitor and enforce.

The first approach is to take the existing system of curfews as given, and exempt any vehicles deemed to be HZEVs from some or all types of curfews (or make these curfews less restrictive for HZEVs – such as by allowing longer delivery hours). This is the simplest – and bluntest – approach. There would be little administrative complexity, beyond the decision about where to set the threshold that defines a HZEV.

However, any vehicle in a category will be treated the same as any other vehicle in that category, even though there may be variation in the noise they emit.

This inflexibility would produce some inefficiency. Some non-HZEVs may be subject to curfews when it would be desirable to exempt them (creating trips for which the efficiency benefits would exceed the costs of any noise pollution). Conversely, there may be HZEVs exempted from curfews that should not be (creating trips for which the costs would exceed the benefits).

The second is to treat vehicles differently based on performance-based criteria, rather than emissions type. Under this approach, vehicles that have been demonstrated to be sufficiently quiet undertaking certain activities could be exempted from curfews (or otherwise treated more favourably, such as extending delivery windows). This has been proposed by participants such as the Australian Livestock and Rural Transporters Association (ALRTA) (sub. 19), who argued that extended delivery windows should be linked to verified low-noise, low-emission performance. Beyond the characteristics of the vehicles themselves, ALRTA also argued that performance-based criteria should include adoption of best-practice quiet-delivery protocols (including refrigeration, loading and reversing alarms).

This approach has the benefit of being able to distinguish between the noise profiles of different vehicles, for each use case. However, it comes at the cost of administrative burden and complexity. Each vehicle, and use case, would need to be considered separately.

As the first two options treat certain types of vehicles differently, enforcement would require a practical means of distinguishing between them. The Australian Local Government Association (sub. 33, p. 12) raised several options, noting potential issues with each:

- visual identification – which may be difficult at night
- registration plate matching against vehicle databases – which would require real-time system access
- electronic vehicle identification systems – which may require expensive infrastructure investment.

The third approach is to de-emphasise curfews in favour of outcome-based measures. These could include instruments such as noise restrictions, which directly regulate the level of noise created by a vehicle, rather than regulating the vehicle (or the type of activity it undertakes) per se. This approach has the advantage of allowing any sufficiently quiet activity, while placing the responsibility for the level of noise on the operator – incentivising better maintenance, careful driving and the adoption of quieter technologies.

This could involve shifting from time-based (‘no truck deliveries at xx time’) to noise-based (‘no noise above xx dB at xx time’) restrictions.

One option is to directly enforce noise limits, which would require detecting the level of noise generated from overnight activities. As with other reform approaches, this may require substantial technological investment. This could include automated, real-time noise monitoring. This technology is already used in Australia, though typically only to monitor activities on a larger scale. For example, noise monitoring is used by businesses to ensure compliance with noise regulations for major infrastructure projects (SiteHive nd). What constitutes compliance would also have to be made clear – for example, whether a single noise spike above the limit would be considered a ‘breach’, or whether there would have to be more consistent pattern of noisy activity over time.

Alternatively, noise limits could be used as a policy objective in a broader regulatory framework. For example, the NSW Road Noise Policy sets acceptable noise levels for different road types and land uses – for residential areas near major roads, the acceptable noise level is typically 55-60 dB(A) during the day and 50-55 dB(A) at night (Transport NSW, sub. 38, p. 21). These noise levels guide NSW’s broader regulatory and policy approach to managing noise (by, for example, motivating the use of quieter pavement

technologies or noise walls and barriers), but are not enforced in and of themselves (Department of Environment, Climate Change and Water NSW 2011).

How could curfew relaxation be implemented?

In principle, local governments could already implement any of these reforms. However, there may be justification for state governments to compel, incentivise, or provide support to them to do so.

- The impact of heavy vehicle use may produce 'diffuse benefits and concentrated costs'. While the costs of allowing greater HZEV use at night may fall on residents within a local council, some of the benefits may spill over to residents and firms outside of the area. Councils (on behalf of residents) may block reform that might impose costs on their rate-payers, even if it would have produced net benefits for the wider community.
- The consideration and implementation of reform may impose significant fixed costs. It may be more efficient for a higher level of government to craft an approach that local governments could implement (or be required to implement) without having to separately undertake these efforts.

Intervention could take several forms, from more interventionist to lighter touch approaches.

The most interventionist form would involve binding state-wide standards replacing local government decision-making. A strong version of this occurred during COVID (box 5.3) – however, this was generally considered to be an 'emergency' situation and there is a question as to how appropriate or feasible it would be for state governments to do so outside of this. The Electric Vehicle Council (pers. comm., 28 January 2026) argued that the COVID experience demonstrated that state-based legislation enacting exemptions is the most effective form of policy intervention. However, the Australian Local Government Association (sub. 33, p. 13) argued that the authority of local governments to make final decisions should be preserved, in order to take into account local conditions. Outside of the COVID period, there is precedent for state governments to override local governments on similar matters in the planning system. A prominent example is the NSW Housing State Environmental Planning Policy, which (among other things) allows secondary dwellings ('granny flats') by right in residential areas (Town Planning Sydney nd).

Alternatively, governments could pursue a more hybrid approach. This could involve, for example, states/territories setting HZEV exemptions as the default, with local governments retaining the ability to set different outcomes, perhaps in specific and evidence-based circumstances. This approach would continue to support and enable local government decision making, but with an increased focus on carefully assessing costs and benefits. This approach is similar to NSW's recent reforms to the strata system, which reduced hurdles for the installation of sustainability upgrades in body corporates, while still allowing some capacity for objection (Jeff Sykes 2026; Kevin Anderson MP 2021).

A lighter-touch approach would be for state/territory governments to provide standardised guidance about curfews accompanied by incentive payments to local governments that undertake reform to meet this guidance. For example, the NSW Government has introduced a scheme in which councils that meet specified housing targets receive funding (NSW Government 2024). The lightest touch approach would be to create a public standard that local governments can implement – to the extent that local governments are not implementing reform due to the cost and effort required to develop a standard themselves, this would make it easier for them to do so.

Box 5.2 – Curfew relaxation during COVID

Victoria

Local traffic controls

To combat supermarket shortages, the Victorian Government issued a gazette notice on 22 March 2020, that, for a six-month period, temporarily waived all Road Rule 104 curfews across the state's arterial and local road network to allow trucks to transport groceries 24 hours a day during lockdown (Victorian Department of Transport and Planning, pers. comm., 16 March 2026).

Planning restrictions

On 6 April 2020, the Victorian Government issued a gazette notice that temporarily lifted all time restrictions on deliveries (Department of Environment, Land, Water and Planning 2020). This applied while Victoria's state of emergency was in force, and for three months after it ended. The state of emergency ended on 15 December 2021, and so the exemptions expired on 15 March 2022 (Victorian Department of Health 2026).

Queensland

On 20 March 2020, the Queensland Government declared the COVID-19 emergency to be an 'applicable event' under the *Planning Act 2016*, enabling them to remove operating hour restrictions on supermarket activity, including curfews on deliveries (Queensland Government 2020; Rebecca Hoare 2020). Originally intended to end on 20 June 2020, the Queensland Government extended the curfew exemption to 31 October 2020, citing ongoing pandemic-related supply-chain pressures (fullyloaded 2020).

South Australia

On 23 March 2020, the South Australian Government temporarily lifted planning restrictions that applied to supermarket and grocery stores and limited the hours at which goods may be delivered (PlanSA 2020). The changes ensured that enforcement action under the *Development Act 1993* (South Australia) could not have been undertaken where a supermarket accepted deliveries outside of approved hours. This applied until 30 September 2020. Allowable store operating hours remained unchanged.

New South Wales

On 20 March 2020, New South Wales allowed supermarkets to receive deliveries 24 hours a day, overriding local council planning restrictions, under the State Environmental Planning Policy (SEPP) Amendment (COVID-19 Response) 2020 (NSW Liberals 2020). This amendment was made under temporary powers granted by the *COVID-19 Legislation Amendment (Emergency Measures) Act 2020* (which in turn made temporary changes to the *Environmental Planning and Assessment Act 1979*) (Clayton Utz 2020). It enabled the NSW Planning Minister to authorise development activity without normal planning approvals during the pandemic (Environmental Defenders Office 2020).

The *COVID-19 Legislation Amendment (Emergency Measures) Act 2020*, and therefore the SEPP amendment, lapsed on 31 March 2022 (NSW Government, Department of Planning, Housing and Infrastructure nd). However, exemptions on deliveries in business zones were effectively retained with the introduction of NSW's Building Business Back Better laws on 1 February 2022 (NSW Department of Planning and Environment 2023; Planning NSW nd).

WA and NT similarly relaxed planning restrictions during COVID (Northern Territory Government nd; TradeTrucks 2022).

Pilots could be used to test the costs and benefits of curfew relaxation

Some study participants have suggested that pilots could be used to test the costs and benefits of curfew relaxation. The Australian Industry Group (sub. 15, p. 9) proposed that local governments could lead pilots to inform a national framework enabling councils to apply curfew exemptions consistently. The Australian Livestock and Rural Transporters Association (sub. 19, p. 32) made a similar point, though suggested that pilots should be state- and territory-led, with Australian Government support.

The Australian Rail Track Corporation (sub. 3, p. 4) proposed monitoring outcomes such as noise, crash and near-miss data, and collecting community feedback.

Several study participants have pointed to the temporary COVID measures (box 5.2) as a test case for curfew removal – citing a June 2021 survey by the Australian Logistics Council, which found that:

- only one in seven respondents felt that transport noise levels have increased since the beginning of COVID-19 (and only 2% felt as those noise levels have increased due to freight transport)
- only 6% were aware of temporary changes to curfew regulations due to COVID-19
- more than 60% of respondents said they would be in favour of removing curfews to enable smooth movement of freight goods (Australian Logistics Council 2022).

These results should be interpreted with caution. Travel patterns during COVID were likely unrepresentative of normal times. Many jurisdictions were in lockdown for much of this period – the reduction in passenger-vehicle travel (and associated traffic and congestion) may explain the reduction in overall noise levels perceived by respondents. Additionally, freight travel may not have shifted significantly towards night times, as transport operators would have had less incentive to do so (and incur any associated fixed costs) than in normal times – they would have faced less congested roads during the day and the policy change was unanticipated and for a limited time. Nevertheless, the results do though suggest that modest evidence-based changes may bring limited perceived amenity costs.

Information request 5.2

The PC is seeking information to illustrate the costs and benefits of reducing curfews on heavy zero emissions vehicles and the costs and benefits of possible approaches to reform, along with their implementation.

- What are the practical options for implementing exemptions for heavy zero emissions vehicles from curfews? If vehicles were to be exempted by heavy zero emissions vehicle status – how would this distinction be made and enforced?
- How would a performance-based approach work in practice, and what would be the associated costs?
- What would be the practical costs associated with implementing an outcomes-based approach to regulating noise?
- What would be the most effective means of implementing reform? What should be the respective roles of the Australian Government, state and territory governments and local governments?

5.3 Quantifying the benefits of reform

One approach to quantifying the benefits of reform could involve a 'case study' approach that illustrates the possible benefits of reducing curfew burdens for HZEVs. This would provide an example of benefits of reform as applying to a single curfew – noting that curfews will differ in how restrictive they are and the costs they impose. However, more information that could be used to quantify the costs of curfews is needed (information request 1.1). As such, the case study illustrated for the interim report is a hypothetical one (box 5.3).

Estimates of the benefits of relaxing a particular curfew could be scaled up (by estimating of the total number of curfews around Australia) to produce an estimate of economy-wide impacts of broader curfew reform.

Box 5.3 – Costs imposed by a curfew – a hypothetical case study

A supermarket, located in a residential area, makes a number of deliveries using electric trucks each day, from a distribution centre to the store and back. The store is subject to a delivery curfew between 10 pm to 7 am.

Absent the curfew, some deliveries would be made during this overnight and early morning period to ensure shelves are stocked the following day, as replenishment activities occur during this time. However, because of the curfew, the containers cannot be unloaded immediately. To ensure the stock is replenished in time, the containers must arrive a day earlier. This results in increased lead time, reduced turnover at the docks, and a reduction in efficiency (as goods sit unpacked). These costs sum to **$X per day**.

Additionally, relative to the curfew period, travel times are roughly an additional XX% longer during the day (representing XX additional hours per route), due to increased road congestion. This imposes **$Y per day** in avoidable operating costs.

The operating costs imposed by the curfew are therefore **$X + Y per day**.

Not outlined here are any:

- costs to other road users and the environment from increased road congestion during the day
- benefits that result from the curfew (such as a reduction in noise impacts or improvements in safety)
- additional costs associated with hiring labour at off-peak times in the absence of a curfew (in the form of, for example, penalty rates).

Attachment 5.1

Table 5.2 – Curfews on through-traffic are primarily concentrated in Victoria

State/territory	Status of curfews on through-traffic
NSW	There is no evidence of any time-based restrictions on heavy vehicle through-traffic that are motivated by noise concerns.
Vic	The Victorian curfews displayed on the NHVR access map represent a comprehensive list of all known through-traffic curfews. Some of these were introduced by local councils decades ago, before councils were required to liaise with their local DTP region before implementing a curfew. The Victorian Department of Transport and Planning (DTP) coordinates with local councils in the implementation of curfews on non-arterial roads to ensure the curfew doesn't have significant downstream and upstream effects on the arterial road network.
Qld	Noise-based curfews on through-traffic are applied by local governments. The PC has found only one such curfew (Queensport Rd South in Brisbane), implemented by the Brisbane City Council.
WA	There are no noise-based curfews on through-traffic in Western Australia.
SA	The South Australian Department of Infrastructure and Transport does not impose any noise-based curfews on through-traffic on arterial roads, and is not aware of local governments imposing such restrictions on local roads.
Tas	Tasmania Department of State Growth (as manager of the state road network in Tasmania) does not (currently) impose any general curfews relating to noise for heavy vehicle travel on the state road network roads, and are not aware of any such restrictions made by their local government counterparts.
ACT	There are no curfews that restrict heavy vehicle access on the national heavy vehicle routes transiting the ACT.
NT	The NT does not currently enforce routine time-of-day curfews based on noise concerns for any heavy vehicles.

Source: Victorian Department of Transport and Planning (pers. comm., 16 March 2026); Queensland Department of Transport and Main Roads (pers. comm., 24 December 2025); SA Department for Infrastructure and Transport (pers. comm., 11 March 2026); Tasmanian Department of State Growth (pers. comm., 27 February 2026); Roads ACT (pers. comm., 6 March 2026); Main Roads WA (pers. comm., 19 March 2026); NT Department of Logistics and Infrastructure (pers. comm., 5 January 2026).

6. The National Heavy Vehicle Driver Competency Framework

Key points

- **Current heavy vehicle driver training and licensing arrangements are fragmented and inconsistent across jurisdictions.**
  - Although the National Heavy Vehicle Driver Competency Framework (NHVDCF) was agreed nationally in 2011, uptake has been uneven and the initial framework was insufficiently focused on risks and policy priorities. Jurisdictions still differ in licence eligibility criteria and training and assessment requirements.
- **Reforms to the NHVDCF are set to expand driver competency and training minimums, create new licensing pathways based on experience and supervision, and support best practice training and assessment.**
- **Implementation of the NHVDCF reforms is underway and most jurisdictions are expected to complete their rollout by 2028.**
  - Some jurisdictions will implement reforms sooner while others are being delayed by funding uncertainties, required systems upgrades and potentially duplicative regulatory processes.
  - Governments should maintain current deadlines for nationally coordinated implementation. Certainty about reform details and funding, expected around mid-2026, should progress decision making.
- **The main aim of the reforms is to improve safety. They are also expected to impact productivity by:**
  - improving driver capability which in turn reduces crash rates and road and supply chain delays
  - allowing faster progression to licence classes for higher productivity vehicles, providing an increase in the supply of drivers (although other reform elements that increase training time and costs could decrease the supply of new drivers)
  - enabling economies of scale for training providers serving national fleets or operating across jurisdictions.
- **Other licensing issues warrant attention to better align the NHVDCF with policy priorities such as the transition to net zero and workforce supply. These include:**
  - weight concessions for electric vehicles in heavy vehicle licence classes to support payload parity with diesel heavy vehicles
  - strengthening recognition of overseas heavy vehicle driver licences to ease driver shortages.

Reforming heavy vehicle driver training and licensing offers an opportunity to improve both safety and productivity across Australia. Current licensing arrangements are inconsistent across jurisdictions and do not sufficiently focus on driver competency. Addressing these gaps by developing drivers' knowledge and skills and ensuring they have sufficient experience can reduce crash rates (Frontier Economics 2023, pp. 19–22), in turn reducing fatalities, road delays and supply chain disruptions. Truck drivers are the most at-risk occupation group in Australia, with the highest rate of work-related injuries and fatalities over the last decade (Safe Work Australia 2025).

Inadequate and inconsistent training, assessment and licensing can impose costs on industry and workers that flow through to consumers via prices and product availability. Operators often provide additional on-the-job training to ensure new licensees are competent and safe drivers. Training providers must tailor their offerings to the jurisdiction in which they operate, and workers can face varying financial and time barriers to obtaining licences depending on their jurisdiction and licence class (Frontier Economics 2023, pp. 23–24). Such barriers are likely higher for contractors and owner-operators who do not have employers to share the costs of their training. About 14% of truck drivers operate as independent contractors (Safe Work Australia 2025, p. 10) and over 56% of trucking businesses are non-employing businesses or owner drivers (NatRoad 2024).

Reforms to the National Heavy Vehicle Driver Competency Framework (NHVDCF) (outlined in section 6.2) aim to shift the dial on these issues by promoting safety and supporting national consistency. The PC has been asked to provide analysis and modelling on the impact of accelerating the NHVDCF reforms. These reforms are progressing and have limited scope to accelerate further, with greater clarity around funding and timelines expected in 2026. The reforms have the potential to lead to small productivity gains, although some factors may have offsetting effects (section 6.3).

Future reforms to the NHVDCF should consider broader policy objectives, including supporting workforce supply. In addition, reforms to driver licensing could help lower barriers to transitioning fleets to electric heavy vehicles in support of decarbonisation objectives (section 6.4).

6.1 Current arrangements differ across jurisdictions

The NHVDCF establishes minimum competency and assessment standards for heavy vehicle drivers. Although agreed to by the Standing Committee on Transport in 2011, only four jurisdictions adopted the NHVDCF,[10] leaving considerable variation in licensing practices across jurisdictions (Austroads 2018, p. 3).

Licence classes and time-based progression to higher licence classes are broadly similar across jurisdictions (box 6.1). Licensees in one state or territory can also drive heavy vehicles across all Australian jurisdictions. Like car licences, people who move to a new state or territory can drive using their interstate heavy vehicle driver licence for a limited period, typically three months, before needing to convert to their new home jurisdiction.[11] Interstate licence classes are recognised, and no re-testing is required.

[10] New South Wales, Victoria, Tasmania and the Northern Territory.

[11] Drivers moving interstate must convert their interstate licence after three months in New South Wales, Queensland, South Australia, Western Australia and the Northern Territory (Government of South Australia 2025; Northern Territory Government 2025; Queensland Government 2025b; Service NSW 2025; WA DoT 2026) and six months in Victoria and Tasmania (Tasmanian Department of State Growth 2024; Transport Victoria nd).

Box 6.1 – Heavy vehicle licence classes

A car (C class) licence allows drivers to operate vehicles with a gross vehicle mass (GVM) up to 4.5 tonnes (Transport for NSW 2021b). A heavy vehicle licence is required for vehicles above 4.5 tonnes.

There are five heavy vehicle licence classes, differing by weight and type of vehicle. These are largely standardised across Australia, with some limited jurisdictional variations. For a driver to be eligible to apply for a higher licence class, they must typically hold a licence for a lighter vehicle class for at least one year (in addition to other jurisdictional requirements).

Each year around 20,000 people apply for a heavy vehicle licence in Australia (Frontier Economics 2023, p. 18). According to analysis by Austroads (sub. 31, p. 11), most heavy vehicle drivers begin at the Heavy Rigid classification, and a small subset progress to combination vehicles. Growth in the number of licence holders over the past decade has mostly been concentrated in the Heavy Rigid and Multi Combination classes, while the number of Heavy Combination class licence holders has declined.

Indicative licence classes

Licence class	Description	Current tenure requirement	Growth (2015 – 2025)
Light rigid (LR)	Small trucks and buses with up to eight tonnes GVM, and any towed trailed must not weigh more than nine tonnes GVM	Class C licence for at least one year	11.9%
Medium Rigid (MR)	Trucks and buses with more than eight tonnes GVM and two axles, and any towed trailer must not weigh more than nine tonnes GVM	Class C licence for at least one year	4.5%
Heavy Rigid (HR)	Trucks and buses with more than eight tonnes GVM and three or more axles, and any towed trailer up to nine tonnes GVM	Class C licence for at least two years	12.6%
Heavy Combination (HC)	Articulated vehicles with three or more axles, heavy rigid vehicle trailer combinations including unladen dolly with three or more axles, and any towed trailer with more than nine tonnes GVM	MR or HR licence for at least one year	-14.9%
Multi Combination (MC)	All larger articulated vehicles including B-doubles and road trains	HR or HC licence for at least one year	47.1%

Note: Licence classes are broadly similar across jurisdictions. Most include the above tenure requirements with some additions, alongside other requirements such as medical assessment, training or experience.

Source: DITRDCSA (2025, p. 116); Frontier Economics (2023, pp. 29–30); Transport for NSW (2021a).

However, jurisdictions differ in licence class eligibility, training and assessment requirements, even among those that have adopted the NHVDCF (Frontier Economics 2023, pp. 29–34, 97–101). For example, driver training is not mandatory before assessment and licensing in all jurisdictions. The depth and breadth of driver training can differ across training providers. Prior to the proposed reforms, the NHVDCF did not have minimum training and assessment durations, nor a nationally agreed set of learning and assessment materials.

A review of the NHVDCF found current heavy vehicle licensing is not sufficiently focused on key risks and factors that improve the competency of heavy vehicle drivers (Frontier Economics 2023, p. 18). Industry have noted that current arrangements do not guarantee competent and safe drivers and that lengthy, tenure-based licence progression pathways act as a deterrent to people entering the occupation and progressing to higher productivity vehicles from lower licence classes (Austroads 2018, pp. 4–7).

6.2 Reforms to the NHVDCF are progressing

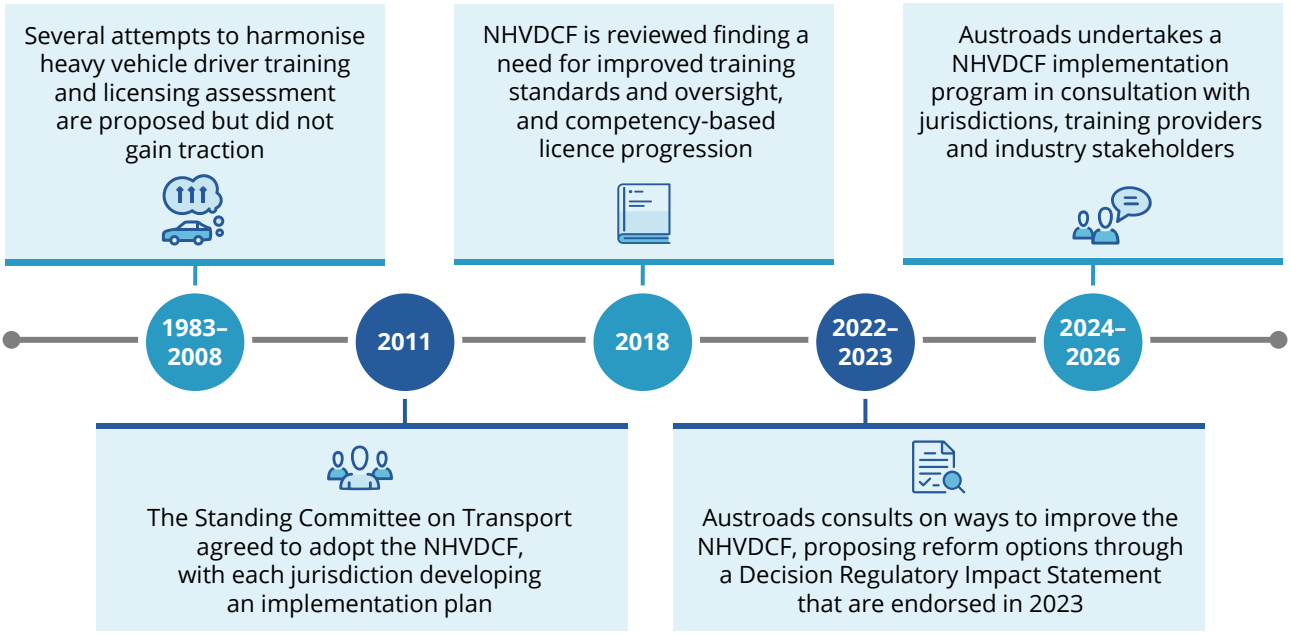
Reforms to strengthen the NHVDCF (table 6.1) were endorsed in 2023 by the Infrastructure and Transport Ministers Meeting (Austroads 2023), which includes representatives from Australian, state and territory governments. This followed a process of review, consultation and regulatory impact assessment starting in 2018. The current reform efforts follow a long history of attempts to establish nationally consistent and high-quality driver training, assessment and licensing which has had limited success (figure 6.1).

Table 6.1 – Summary of NHVDCF reforms

Reform area	Existing arrangement	Planned change
Improving safety with expanded competencies and training minimums	Drivers are assessed against 15 competencies to obtain a heavy vehicle licence.	Expand to include over 150 elements for different licence classes, including a unit focused on drivers' attitudes and approach.
	Not all jurisdictions require drivers to complete training (beyond assessment against the 15 competencies).	Mandate minimum online training hours, class-based learning hours and behind-the-wheel hours varying by licence class.
New pathways based on experience to progress to higher licence classes	Drivers must hold a given licence for at least 12 months to progress to the next heavy vehicle class.	Add two new pathways for progression based on hours of driving experience and hours of supervised driving.
	Most states and territories allow drivers to apply for Multi Combination licences while holding a Heavy Rigid licence, effectively skipping the Heavy Combination licence class.	Require drivers to progress through the Heavy Combination licence class before applying for Multi Combination licences.
Supporting best practice national training and assessment	The practice and standards for approving heavy vehicle trainers and assessors varies between jurisdictions. Alongside commercial pressures for trainers and assessors, this has led to varying levels of compliance and training quality.	Implement best practice standards and training material across all jurisdictions.
	Some but not all states and territories require drivers to complete training, which is usually one of two nationally recognised VET qualifications.	Develop online modules to be used by all states and territories to deliver foundational knowledge and a detailed training and assessment guide for face-to-face training providers.

Source: Austroads (2025d, 2025a, 2025b, 2025c); Frontier Economics (2023, pp. 102–112).

Figure 6.1 – A timeline of the development and reform of the NHVDCF



Source: Austroads (2018; sub. 31, pp. 7–11); Frontier Economics (2022, 2023).

The reforms primarily aim to improve road safety outcomes while also giving consideration to uplifting the quality of driver training and assessment, increasing the use of high productivity vehicles and reducing the time required to progress through licence classes (Frontier Economics 2023, p. 9).

Summary of reform progress so far

In December 2025, the Australian, state and territory governments signed the National Competition Policy Federal Funding Agreement, which included accelerating the implementation of the NHVDCF reforms (Commonwealth of Australia 2025). Milestones include having the policy and regulatory framework and systems upgrades in place to implement the reforms. Implementation and planning work for the NHVDCF reforms is underway with several parties playing roles (table 6.2).

Austroads has made substantial progress in developing training and assessment materials, including through trialling and testing activities (Austroads, sub. 31, pp. 9–10). Implementation by states and territories is expected to take place over a two-year window from 2026 to 2028, allowing more progressed jurisdictions to proceed sooner without having to wait for others (Austroads, sub. 31, p. 13).

Regulatory work to prepare for implementation has begun across some jurisdictions (Victorian DTF, sub. 28, p. 13; Tasmanian Department of State Growth, sub. 34, pp. 4–5; Transport for NSW, sub. 38, p. 18), but not all. Some other jurisdictions are yet to agree to the full suite of reforms and have indicated that the 2026 to 2028 timeline may not be feasible.

Table 6.2 – Different parties' responsibilities in progressing the NHVDCF reforms

Who	Role	Progress
Austroads	Leading the national aspects of NHVDCF implementation such as the development of training and assessment materials, learning management system, heavy vehicle hazard perception test clips, a standard and compliance framework for training providers and post-implementation evaluation.	Austroads has committed to delivering core national work packages by June 2026.
State and territory governments	Implementing reforms which may require regulation change, system reconfiguration, scheme governance and communications.	Most states and territories are expected to implement the NHVDCF from 2026 – 2028 with leading jurisdictions on track to start implementation in the second half of 2026. Some jurisdictions have indicated to the PC that implementation will not be feasible within this timeframe and that some elements of the reform are yet to be agreed.
Training providers	Updating training and assessment in line with the revised NHVDCF.	Following state and territory implementation.
Industry	Integrating competency expectations into employment practices and participating in driver experience or supervision licensing pathways.	Following state and territory implementation.

Source: Austroads (sub. 31, pp. 12–13); Victorian DTF (sub. 28, pp. 13–14); Tasmanian Department of State Growth (sub. 34, p. 5); Transport for NSW (sub. 38, p. 18); NHVR (sub. 4, p. 18).

Risks and challenges in implementation

The implementation task is sizeable, with some uncertainty remaining at this stage regarding reform details and funding. These challenges create some risks to the implementation timeline that must be managed. Reform acceleration will mostly come from further progressed jurisdictions implementing earlier rather than all jurisdictions moving forward their timelines.

Implementing the NHVDCF reforms will require regulatory reform, policy work and systems updates. The complexity and time needed to undertake these tasks will vary across jurisdictions. For example, Transport for NSW noted their legacy IT systems would take substantial time and resourcing to update (sub. 38, p. 18), whereas the Queensland Department of Transport and Main Roads emphasised the policy work as a key risk to timeframes (sub. 30, p. 12).

Implementation timelines are subject to further planning work and detail on cost recovery (Queensland Department of Transport and Main Roads, sub. 30, p. 12; Tasmanian Department of State Growth, sub. 34, p. 4). Some uncertainties may be resolved as training and assessment materials are completed and budgets and funding agreements finalised in mid-2026. Earlier clarity on cost recovery could prevent further delays from jurisdictions (provided cost recovery is sufficient for implementation). For example, Tasmania's Department of State Growth noted their reticence to commit to some elements of the reforms, such as implementation of the Learning Management System, without transparency over cost recovery (sub. 34, p. 5). A Cost Recovery Agreement clarifying the extent to which state and territory governments will be

required to cover the costs of training and assessment materials developed by Austroads (such as the Learning Management System) is expected to be approved in August 2026 (Austroads, personal communication, 17 March 2026).

Finally, the order of NHVDCF reform implementation matters, and efforts to accelerate adoption may pose risks to safety and competency outcomes (Queensland Department of Transport and Main Roads, sub. 30, p. 11). For example, if the competency and assessment uplift is not fully effective prior to new experience- or supervision-based licensing pathways being established, governments risk incentivising a surge in licensing demand under the current underperforming NHVDCF (Victorian DTF, sub. 28, p. 13).

Governments should maintain current deadlines for nationally coordinated implementation

In the immediate term, potentially duplicative processes risk delaying reforms. For example, while a decision regulatory impact statement was endorsed by the Infrastructure and Transport Ministers Meeting, some jurisdictions are conducting their own impact assessments. There is the potential for these processes to duplicate work which has already been undertaken at the national level, depending on how the assessments are scoped.[12] Other jurisdictions are still considering whether to implement the reforms in full. Meeting the 2026–2028 implementation timeframe will require all states and territories to accept the analysis of the decision regulatory impact statement and agree to implement the reforms without further delay.

There are already funding mechanisms in place through the National Competition Policy framework for the Australian Government to support state and territory governments to implement the reforms, with specific funding amounts to be determined. Implementation aimed towards the 2028 timeline should continue as planned and would be supported by confirming funding amounts to state and territories.

Other barriers could impact effective, widespread adoption

Following state and territory implementation, the extent of support for the NHVDCF reforms from the outsourced training and heavy vehicle sectors could affect the availability of trainers and assessors or the uptake of the new licensing progression pathways (Frontier Economics 2023, p. 93). Industry participants were generally supportive of the new licensing pathways (ALRTA, sub. 19, p. 17; ATA, sub. 22, p. 8; Australian Industry Group, sub. 15, p. 5; TGE, sub. 8 p. 1). However, depending on the extent to which variation currently exists in training and assessment practices, the modifications needed to staff training and accreditation, training materials, course structures and assessment procedures could be significant (Victorian DTF, sub. 28, p. 13). Some submissions from industry noted that smaller operators and those in regional or remote areas may face additional barriers to adopting the new training, assessment and licensing approaches due to a lack of resources, including a lack of trainers and assessment centres (ALRTA, sub. 19, p. 19; ALC, sub. 10, p. 3; BIC, sub. 21, p. 16).

Employers may also underinvest in these new licence progression pathways if they are not able to fully capture the benefits of the pathways (for example, if a driver is poached by another operator following the completion of their supervision). The effect of reforms on driver supply may then be limited by industry's willingness and ability to take up the new licensing pathways. Over time, some of the benefits of training may be reflected in higher wages for more highly skilled drivers, which can mitigate poaching issues. Mechanisms such as minimum tenure or service requirements can also help employers recover upfront supervision and training costs.

[12] Victoria is currently drafting a regulatory impact statement that includes economic analysis (Victorian DTF, sub. 28, p. 14).

Draft finding 6.1
Driver competency reforms are progressing

Reforms to the National Heavy Vehicle Driver Competency Framework appear on track to be implemented by most states and territories by 2028. Some state and territory governments may be able to deliver earlier under current arrangements. Others are not expecting to implement the reforms within the 2028 timeframe, with some still uncertain if they will be implemented in full. Support to implement changes, including to undertake regulatory reform, policy work and IT systems updates, may aid implementation.

6.3 Impact of the NHVDCF reforms

NHVDCF reforms aim to promote safety and national consistency

The NHVDCF reforms are intended to improve road safety outcomes by better considering risk factors in licensing, such as driver experience, past driving behaviour and offences, and other knowledge, skills and attitudes (Frontier Economics 2023, pp. 8–9). Reforms designed to refresh competencies were previously estimated to lead to road safety benefits of $261 million (Frontier Economics 2023, p. 12).[13] Additionally, reforms that exclude drivers with a licence suspension or disqualification within the last two years from gaining or upgrading a heavy vehicle licence were estimated to lead to $357 million in road safety benefits (Frontier Economics 2023, p. 13). The decision regulatory impact statement did not quantify safety benefits from the addition of experience- and supervision-based licensing pathways but suggested that drivers with more experience will be less likely to crash (Frontier Economics 2023, pp. 75–76).

The reforms also aim to create a more unified training and licensing system. Promoting consistency across jurisdictions can facilitate economies of scale for training providers, enable providers to serve national fleets, deploy best-practice programs more widely, and improve driver mobility (Austroads, sub. 31, p. 12; ALC, sub. 10, p. 4). While the NHVDCF seeks to set minimum consistent standards, each jurisdiction will be able to make their own additions provided they do not conflict with the competencies approved by the Infrastructure and Transport Ministers Meeting in the decision regulatory impact statement (Austroads, personal communication, 17 March 2026).

Potential impacts on driver supply are unclear

The new licence progression pathways would allow existing drivers with lower licence classes to progress to higher licence classes more quickly, resulting in a one-off boost to the supply of drivers in higher licence classes (BITRE, forthcoming), and potentially making the occupation more attractive to prospective drivers. Industry participants echoed the potential for the new licence progression pathways to boost supply (Australian Industry Group, sub. 15, p. 5; HVIA, sub. 17, p. 7).

However, reforms to improve safety through expanded competencies and minimum training and behind-the-wheel times raise the cost and duration of training. This could slow the entry of new heavy vehicle drivers into the industry (Frontier Economics 2023, pp. 65–66). While the additional training and

[13] Road safety benefits were estimated based on an assumed reduction in heavy vehicle crashes combined with BITRE analysis of the cost of road crashes (BITRE 2009). In addition to accounting for the costs of deaths, injuries, vehicle repair and property damage, broader costs included travel delays, workplace disruption and vehicle unavailability.

assessment costs for applicants and training providers were included in the 2023 decision regulatory impact statement (Frontier Economics 2023, pp. 64–65), the potential flow-on effects to reduced driver supply were not quantified.

Further, introducing a requirement for drivers to progress through the heavy combination licence class before applying for an multi combination licence could slow the growth of the multi combination driver cohort, while increasing the number of heavy combination-licensed drivers. This effect may be offset by the new licence progression pathways that would speed up eligibility to apply for a multi combination licence.

The reforms have the potential for small productivity gains

New licensing pathways are expected to lead to greater utilisation of more productive vehicles (which require higher licence classes) and allow freight to be moved at lower cost (Frontier Economics 2023, pp. 61–62, 76, 79). BITRE estimated productivity benefits of 0.11% to 0.32% to the road freight sector from the new licensing progression pathways (BITRE, forthcoming).

There are also potential productivity gains from better safety outcomes that lead to fewer crashes, lower delay costs and fewer supply chain disruptions. The indirect productivity gains to industry from improving safety were implicitly included in the estimates of road safety benefits in the decision regulatory impact statement. Crash costs used in the analysis accounted for the cost of vehicle unavailability, assuming that a replacement vehicle would need to be hired to replace the damaged vehicle (BITRE 2009, p. 65).

The overall productivity impacts of the NHVDCF reforms also involve the following offsetting effects which have not been quantified:

- costs arising from the full range of factors that could reduce driver supply (including at higher licence classes) which can increase the costs of freight movements
- gains associated with nationally consistent training and assessment
- gains associated with improved skills matching by screening out prospective drivers who would be unsuited to the job
- gains from drivers being more job-ready and competent when they begin working (requiring less on-the-job training).

Improvements in productivity arising from the NHVDCF reforms may flow through to consumers in the form of lower prices for deliveries of goods and commodities. Where an uplift in driver competency reduces supply chain disruptions, consumers may also benefit from greater service reliability.

The PC will assess the economy-wide effects of the reforms as part of its final report where feasible, drawing on available data.

Wage benefits for heavy vehicle drivers may be unevenly spread

Some heavy vehicle drivers will benefit from higher wages. Supervision- and experience-based licence progression pathways present an opportunity for drivers on lower licence classes to move to higher licence classes more quickly. Wages for drivers in Australia increase with the type and mass of vehicle driven. For example, the annual salary range is around $75,000-$85,000 for truck drivers and $95,000-$115,000 for heavy combination drivers (SEEK Australia 2026b, 2026a). Given the wage benefits largely result from earlier career progression opportunities, these benefits are likely to fall mostly to younger, incoming drivers (TGE, sub. 8, p. 5).

Only 6% of truck drivers are female (JSA 2025), which means wage benefits are more likely to flow to male workers. Safety concerns, limited access to suitable rest facilities and entrenched workplace cultures are

cited as factors contributing to the underrepresentation of women in the transport sector (iMOVE 2022, pp. 21–30). Some targeted initiatives have been implemented to support the recruitment and retention of female heavy vehicle drivers (iMOVE 2022, pp. 50–69; NHVR 2025a).

Drivers in urban and metropolitan areas may benefit more from the NHVDCF reforms. Those in regional and remote areas may have greater difficulty accessing online training due to poor internet connectivity (Frontier Economics 2023, p. 66), and there may be fewer supervisors, trainers and assessment centres. The Bus Industry Confederation further noted that regional operators may face higher training and compliance costs (sub. 21, p. 16), which could reduce their willingness to invest in training and new licensing pathways. With truck driving representing a key area of employment for Aboriginal and Torres Strait Islander people (JSA 2023, p. 16), reforms that are designed and implemented to work effectively in regional and remote settings could strengthen wage outcomes for Aboriginal and Torres Strait Islander people. Uneven take-up and implementation across locations risks limiting these benefits.

Distributing wage benefits more broadly would likely require targeted efforts to encourage entry into the heavy vehicle driving occupation and ensure those in regional and remote locations are able to take full advantage of the reforms. Submissions provided examples of where such efforts are already underway, such as the Heavy Vehicle Driving Operations Skills Set (Western Roads Federation, sub. 1, p. 3) and Victoria's Heavy Vehicle Training Program (ALRTA, sub. 19, pp. 18–19).

The reforms will impose costs on governments, industry and licence applicants

The decision regulatory impact statement quantified the costs associated with the reforms for governments, industry and licence applicants. Governments will face both upfront implementation costs and some ongoing costs associated with administering the new licensing system. Industry and licence applications will bear the ongoing cost of greater training and assessment requirements.

The competency refresh was estimated to cost governments around $41.5 million (mostly the Australian Government) and industry and licence applicants $295 million (Frontier Economics 2023, p. 78). The additional reform of excluding drivers with a licence suspension or disqualification within the last two years from upgrading their licence was estimated to cost governments $23.5 million (Frontier Economics 2023, p. 84).

Information request 6.1

The PC is seeking information on:

- the potential size of the costs and benefits, including the productivity effects, arising from the National Heavy Vehicle Driver Competency Framework reforms and if there are any costs and benefits not identified in this report
- how the costs and benefits of National Heavy Vehicle Driver Competency Framework reform might be distributed across the workforce, including by age, gender, income and education, and any other relevant demographic classification (including impacts on Aboriginal and Torres Strait Islander people).

6.4 Future reform directions

While the NHVDCF reforms aim to improve many issues with heavy vehicle licencing in Australia, other licensing issues could be explored in more detail going forward.

Weight concessions for electric vehicles within licence classes

Current licence classes which are distinguished by vehicle mass limits (box 6.1) can disincentivise the use of electric vehicles. The battery systems used in electric vehicles contribute additional weight to a vehicle. Where a driver is required to adhere to a mass limit (either due to their licence class or road access requirements), electric heavy vehicles provide a lesser payload than diesel vehicles. Ikea (sub. 37, pp. 4–5) provided a case study of this payload penalty.

> In Australia, you can drive a vehicle up to 4.5 tonnes GVM (including payload) on a standard car licence. The vehicle weight means the maximum carrying capacity of the vehicle is reduced to around 1.2 tonne. Once this vehicle is electric, you also need to consider battery weight, which further reduces carrying capacity to around 1 tonne (20% drop). This means that when transitioning to the electric version on the same license, the vehicle is less productive and less cost effective for the same operation.

Operators will only transition to electric heavy vehicles where the longer-term benefits exceed the short-term costs associated with requiring more vehicles to deliver the same volume of goods. Another short-term cost relates to potential workforce challenges, as light commercial vehicle drivers are required to obtain a higher-class licence to carry an equivalent payload in an electric vehicle. This transition can be both costly and time consuming.

The payload penalty may reduce over time as advances in technology result in lighter battery systems. Further, better availability of charging infrastructure would mean smaller, less powerful batteries can be used. Costs will also be affected by fuel and other policy considerations (such as curfews).

As these factors play out, there would be value in relaxing licensing requirements where safe, to minimise workforce constraints arising from current arrangements that are designed around historical weight and size combinations associated with vehicles with internal combustion engines. Currently, C class licences limit drivers to vehicles with a gross vehicle mass (GVM) under 4.5 tonnes and light rigid licences limit drivers to vehicles under 8 tonnes GVM (alongside limits on axles and vehicle types). The other licence classes do not impose GVM limits on drivers, instead imposing limits on the vehicle's composition (for example, articulated trucks or trucks with trailers).

Some inquiry participants suggested reviewing these thresholds to support payload parity between diesel and electric vehicles and reduce the challenges of transitioning to electric heavy vehicles (ARENA, sub. 25, p. 6; Ikea, sub. 37, p. 5).

Licence-based weight concessions for electric vehicles have been used overseas to achieve payload parity.

- Drivers in Europe and the United Kingdom with a category B licence (comparable to a class C licence in Australia) can drive zero emissions vehicles of up to 4.25 tonnes to compensate for additional battery weight, compared to 3.5 tonnes for diesel vehicles (Directorate-General for Mobility and Transport 2025; Office for Zero Emission Vehicles 2025).
- Drivers in New Zealand with a full class 1 licence (comparable to a combination of Australia's class C and light rigid licences) can drive certain electric trucks weighing up to 7.5 tonnes, compared to 6 tonnes for all other vehicles. This exemption has several eligibility requirements (for example, dimension and safety requirements) and is time-limited to 2028 (NZ Transport Agency 2025).

Considering a similar exemption for Australian licence classes in the NHVDCF could support the uptake of electric heavy vehicles and reduce emissions.

Recognition of overseas heavy vehicle licences

While an increasing freight task is bolstering demand for heavy vehicle drivers, driver supply is not keeping pace. In 2024, 28,000 truck driving positions went unfilled, a shortage that is projected to grow to over 78,000 by 2029 (Clark 2025a). In submissions to this study, industry has pointed to ineffective and lengthy training, assessment and licensing pathways as a deterrent for new entrants (ALC, sub. 10, p. 4; Australian Industry Group, sub. 15, p. 5; HVIA, sub. 17, pp. 6–7).

There may be opportunities to safely improve the recognition of overseas heavy vehicle driver licences to help fill driver shortages. Current heavy vehicle licensing pathways do not offer recognition of overseas-acquired skills and experience, except in limited circumstances.[14]

While some participants submitted that requirements for overseas heavy vehicle licence holders to progress through Australian licensing pathways, regardless of overseas credentials, are appropriate (ATA, sub. 22, p. 8), others argued for greater recognition of overseas-acquired competency and qualifications. The Australian Industry Group (sub. 15, pp. 5–6) argued that migrant workers should have access to competency-based licence conversion which recognises equivalent experience and skills. The Australian Logistics Council (sub. 10, p. 7) suggested a targeted migration pathway that admits experienced drivers with recognised qualifications.

As a starting point, a more nationally consistent framework for the recognition of overseas heavy vehicle licences, where appropriate and safe, could be established within the NHVDCF. A standardised pathway for the training and assessment of overseas heavy vehicle licence holders where their licence cannot be recognised would also support skilled migration.

Austroads is currently examining the possibility of a national framework for recognising overseas heavy vehicle driver licences from a small number of comparable jurisdictions, training and assessment requirements for non-recognised overseas licence holders to obtain Australian heavy vehicle driver licences, and restrictions on the driving of heavy vehicles with an overseas licence (Austroads, personal communication, 25 February 2026).

Information request 6.2

The PC is seeking feedback on future reform directions for the National Heavy Vehicle Driver Competency Framework, including:

- weight concessions in Australian licence classes to create parity between payloads for electric and diesel heavy vehicles and any safety implications of such a concession
- recognition of the credentials, skills and experience of drivers with overseas heavy vehicle licences within Australia's licensing system, considering the effects on safety, driver supply and productivity.

[14] South Australia allows for conversion to a heavy combination licence for drivers with sufficient experience at that class (South Australian Department of Infrastructure and Transport 2026). Queensland makes some exemptions for New Zealand heavy vehicle licence holders (Queensland Government 2025a).

A. Public engagement

This appendix outlines the engagement process undertaken for this study and lists the organisations and individuals who participated.

The Productivity Commission received the Request for Advice for this study on 30 September 2025. A call for submissions was released on 14 November 2025 inviting public submissions and brief comments.

In total, the PC received 42 submissions (table A.1) and three brief comments. The submissions and brief comments are available online at: www.pc.gov.au/inquiries-and-research/heavy-vehicle-reform/submissions/.

During the study, the PC consulted with participants to prepare this interim report, including the National Transport Commission and the National Heavy Vehicle Regulator, Australian, state and territory and local governments, the freight industry and heavy vehicle manufacturers (table A.2).

You are invited to respond to this interim report by making a written submission or brief comment by 5 May 2026.

The PC would like to thank everyone who participated in this study.

Table A.1 – Submissions

Participants	Submission
Australia Post	40
Australian Food and Grocery Council (AFGC)	36
Australian Industry Group (AIG)	15
Australian Livestock and Rural Transporters Association (ALRTA)	19
Australian Local Government Association (ALGA)	33
Australian Logistics Council (ALC)	10
Australasian Railway Association (ARA)	39
Australian Rail Track Corporation (ARTC)	3
Australian Renewable Energy Agency (ARENA)	25
Australian Retailers Association and National Retail Association (ARA and NRA)	29
Australian Small Business and Family Enterprise Ombudsman (ASBFEO)	32
Australian Trucking Association (ATA)	22
Austroads	31
Bus Industry Confederation (BIC)	21
Cross Border Commissioners of South Australia and Victoria	26
Department of State Growth (TAS)	34
Department of Transport and Main Roads (QLD)	30
Department of Treasury and Finance (Vic)	28
DUKA Tec	5
Electric Vehicle Council (EVC)	18
Energy Networks Australia	42
GrainGrowers	11
Grain Trade Australia	27
Heavy Vehicle Industry Australia (HVIA)	17
IKEA Australia and New Zealand (IKEA)	37
LGA South Australia	14
National Heavy Vehicle Regulator (NHVR)	4
National Road Transport Association (NatRoad)	41
New Energy Transport	6
NSW Farmers	16
Powering Australia	9
South East Australian Transport Strategy (SEATS)	7
Team Global Express	8
Tesla Motors Australia (Tesla)	20

Participants	Submission
The Australia Institute	24
The Cement Concrete and Aggregates Australia (CCAA)	13
The Crane Industry Council of Australia (CICA)	12
Transport for NSW	38
Truck Industry Council (TIC)	35
Volvo Group Australia (Volvo)	23
Western Roads Federation	1
Xseed Solutions	2

Table A.2 – Consultations

Participants
Australasian Railway Association
Australian Building Codes Board
Australian Energy Regulator
Australian Local Government Association (ALGA)
Australian Logistics Council
Australian Renewable Energy Agency (ARENA)
Australian Trucking Association
Austroads
Brisbane City Council
Bureau of Infrastructure and Transport Research Economics (BITRE)
Centre for Connected and Automated Transport (CCAT)
Centre of Policy Studies
Clean Energy Finance Corporation
Container Transport Association Australia (CTAA)
Coles Group
Commonwealth Scientific and Industrial Research Organisation (CSIRO)
Department of Climate Change, Energy, the Environment and Water
Department of Infrastructure and Transport (NSW)
Department of Infrastructure and Transport (SA)
Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts
Department of Logistics and Infrastructure (NT)
Department of State Growth (Tas)
Department of Transport and Planning (Vic)
Department of Transport and Main Roads (Qld)
Department of Treasury (Cth)
Department of Treasury and Finance (SA)
Department of Treasury and Finance (Vic)
Energy Networks Australia
Electric Vehicle Council
Heavy Vehicle Industry Australia (HVIA)

Participants

IKEA
Infrastructure Partnerships Australia
Frontier Economics
Main Roads WA
Mov3ment
National Heavy Vehicle Regulator (NHVR)
National Road Transport Association (NatRoad)
National Transport Commission
Precision Economics
Team Global Express
Transport Canberra and City Services Directorate (ACT)
Transport for NSW
Truck Industry Council (TIC)
Wickham Freight Lines
Woolworths Group
Volvo
Zenobe

B. About the economy-wide modelling

This appendix provides an overview of our approach to assess the economy-wide impacts of the proposed reforms, including the models used and the steps and assumptions taken.

Approach to assessing the economy-wide effects

The Productivity Commission was asked to assess five heavy vehicle reform areas to understand their economic and other benefits to the Australian community, as well as government revenue impacts.

For this interim report, we used computable general equilibrium (CGE) modelling to assess the potential economy-wide impacts of one of the reform areas – increasing access to Australia's road network for heavy vehicles. We intend to apply a similar modelling approach, where feasible, for the other reform areas for the final report.

CGE models are specifically designed to account for economy-wide effects (Burfisher 2021). They fit data from the officially published input-output tables for the Australian economy to a system of equations designed to capture the economic behaviour of firms, households and governments. In so doing, CGE models can simulate how agents respond to changes in specific policy settings. A strength of CGE models is that they explicitly account for economy-wide resource constraints (such as constraints on the national supply of labour), allowing the effects of any modelled policy changes to propagate differently throughout industries and the economy at large.

We used the PC National CGE model for this interim report, which has been used, developed and documented in recent years as part of the National Competition Policy analysis (box B.1). PC National is a comparative-static, national CGE model of the Australian economy.

The remainder of this appendix proceeds as follows. Section B.2 discusses what the economy-wide modelling does and does not do, including the modelling environment and PC National's treatment of heavy vehicles, to inform the interpretation of the economy-wide results. Section B.3 details the steps and assumptions taken to translate each reform into a CGE model shock and discusses the simulation results.

Box B.1 – An overview of PC National

PC National is a CGE model that has been used previously by the PC to analyse the economic impacts of various policies on the Australian economy, including tariff removal, several protectionist trade policies, and National Competition Policy (PC 2017a, 2022, 2024, 2025c). The model has been used in this report because it provides detailed insights into the economic impacts of policy changes, including, but not limited to, effects on output across industries, changes in prices, effects on real wages, and effects on capital utilisation (PC 2024).

PC National differs fundamentally from comparable regional models in that Australia is treated as a single economy, rather than an aggregation of several interacting state and territory economies. While state and territory effects can be derived, PC National operates as a model of a single national economy at its core.

PC National's database is based on the Australian input-output tables for the financial year 2018-19, capturing the structure of the Australian economy for that year. These input-output tables disaggregate and relate connections of production and consumption between 114 industrial categories that comprise Australia's economy. Producers and consumers in this model are households, government and industry itself, and all are assumed to follow profit- or utility- maximising behaviour.

PC National has a highly stylised modelling of labour markets. In modelling the long-run effects, wages adjust based on relative demand changes that occur in response to imposed shocks. The model does not include representations of labour supply or the labour-leisure trade-off, which could add complexity and provide more detailed insights (PC 2017a). However, it effectively illustrates the effect of different productivity improvements in industries to the Australian economy, such as those that may be introduced by specific reforms.

Additions were made to the basic PC National model (theory) and database in 2024 to make it better suited to modelling the effects of the proposed National Competition Policy reform agenda. Further adjustments were made in 2025. Many of these changes have been retained for this analysis, including:

- a module to calculate the implications for GSP
- a module to calculate more detailed implications for the 'cost of living' by identifying the impact of reform on the components of the consumer price index (CPI)
- a module based on the ABS *Government Finance Statistics* to calculate the implications of reform for government revenue and expenditure
- additional technical change terms
- additional reporting variables.

PC National's core equations and mechanisms are outlined in its technical documentation (Zhang 2025). A detailed overview of the model's major recent changes is available in the PC's (2024) National Competition Policy report appendices.

What economy-wide modelling does and does not do

CGE models are designed to assess the economy-wide effects of small policy changes. They start from input-output tables that account for the detailed intersectoral linkages between sectors in the economy and their effects on private and public expenditures and on investment. Most often, they are used to answer the question: 'How different would the economy be if the policy settings that are implied in the initial database were different?'

The economy-wide differences arising from such a change in policy settings are estimated by applying a 'shock' to one of more of the model's many variables and equations. These shocks are calibrated outside of the model, with their magnitude and targets based on estimates of the direct effect of the policy change being modelled. For example, a tariff reduction could be modelled as a negative shock to the ad valorem tariff variable for one or more commodities, whereas cost savings in a particular industry could be modelled as a positive shock to said industry's total factor productivity.

In response to a modelled shock, the economy-wide effects will depend on the following.

- **Scale.** The magnitude of the direct impacts of the modelled change (that is, the shock) and the size of the economic footprint being targeted by said shock. Larger direct effects and economic footprints lead to larger economy-wide impacts.
- **Linkages.** The extent to which the targeted sector has many upstream and downstream connections with the rest of the economy. The more and deeper the linkages, the more widespread the impacts and the larger the multiplier effects.
- **Constraints.** The effects on one sector are transmitted to the rest of the economy through economy-wide resource constraints and changes in prices, including on the use of capital and labour (depending on the modelling environment).

The results from CGE models are not future predictions. Instead, they represent the impact of the scenarios being modelled, given the model theory, parametrisation and database. All models are stylised representations of the economy and employ simplifying assumptions. The modelling presented here does not, for example, capture impacts that vary over time or the anticipation effects of proposed policies. Moreover, multiple, possibly inconsistent, data sources have been used to fill gaps in official economic data and to construct model databases and parameter values (such as the ease of substituting between labour and capital in production, or between domestic and imported goods).

The results presented in this interim report are indicative, early modelling estimates that are subject to change and should be regarded as such. They should also be considered in the context of their chosen modelling environment and the limitations of PC National's treatment of heavy vehicles, discussed below.

Modelling environment

The modelling environment determines how a CGE model responds to the policy changes being modelled.

CGE models often include more variables than equations, so they tend to be under-identified. The equations do not provide sufficient information to derive a unique equilibrium solution for all of the model variables (Burfisher 2021, p. 28). To overcome this, the model's 'closure' specifies some variables as exogenous, to be determined outside of the model. For a given simulation, exogenous variables can be held fixed (implying no change) or change by an amount specified by a shock to that variable, also calculated outside of the model.

The closure, or the choice of which variables are endogenous and which are exogenous, determine the economic environment assumed in the modelling and the nature and interpretation of the results produced. For example, wages are typically held fixed (exogenous) in a short-run modelling environment, with

aggregate employment (and hence unemployment) allowed to adjust in response to simulated policy changes. A longer-run closure reverses this choice, such that aggregate employment (and hence unemployment) is held fixed, with wages allowed to adjust. The key distinction is that there are more rigidities in a short-run closure that prevent the economy from fully adjusting to the modelled policy shocks compared to a long-run simulation.

The PC used a long-run closure for this study, consistent with assuming that the economy has adapted fully to the changes modelled – that is, that all quantities and prices have adjusted to the new policy settings. As PC National is a comparative-static model, it does not model this adjustment dynamically. Instead, it estimates the final structure of the economy after all its agents have made different allocative decisions.

There are several key features of the model closure.

- **Fixed aggregate employment.** In this closure aggregate employment is held fixed, consistent with assuming that aggregate employment is not affected by the changes under consideration. For example, when productivity improves across several industries, they seek to increase their outputs by bidding labour away from other industries. With fixed aggregate employment, wages rise across the economy.
- **Fixed rate of return to capital.** The rate of return to capital is held fixed. To accommodate this, foreign capital is allowed to adjust. For example, when productivity improves across several industries, they seek to increase their outputs by bidding capital away from other industries and increasing demand for foreign capital. The rental price of capital adjusts to maintain the rate of return to capital.
- **Fixed rate of tax**. Tax rates are held fixed, unless shocked as part of the proposed changes.
- **Fixed fiscal balance.** Fiscal balances in the model core are generally held fixed, consistent with assuming that budget deficits are a policy choice. The model maintains fiscal balance by assuming that nominal expenditures move with revenue. A non-distortionary transfer between the household and the government sector may maintain this balance.
- **Fixed savings rate.** The savings rate is assumed to be fixed.
- **Nominal exchange rate as numeraire.**[15] To report on cost-of-living implications, the nominal exchange rate is used as the model numeraire rather than the CPI as is often the case in CGE models. This enables changes in prices to be reported. Changes in the CPI are effectively measured relative to the world price of imports.

Heavy vehicles in PC National

An important consideration for interpreting our interim results is the treatment of heavy vehicles in the PC National database. Heavy vehicle activities are (partially) captured within the Road Transport industry in the ABS input-output tables, which form the basis of the PC National database.

There are two key limitations associated with the Road Transport industry in PC National.

- **Incompleteness.** The Road Transport industry does not capture all heavy vehicles that may be affected by the proposed reforms because it does not include in-house road freight activities. That is, when the vehicles and drivers involved are registered by a business in another industry, such as retail and construction, their activity is counted as part of that industry and not Road Transport (ABS 2023). Estimates suggest that in-house transport activity is substantial and comparable in size to for-hire

[15] All prices in PC National (and most other CGE models) are set relative to a model price, which has to be specified and set exogenously. This is referred to as the model numeraire. The consumer price index is frequently used as the model numeraire in CGE modelling, but this prevents the modelling from reporting the cost-of-living implications (as the CPI would not change, because it would be held fixed). The CPI can be allowed to vary by specifying another price as the model numeraire (such as the nominal exchange rate or investment price index).

transport activity,[16] such that modelling results derived using only the Road Transport industry may materially underestimate the potential economy-wide effects.

- **Overinclusion.** The Road Transport industry captures road vehicle activities beyond road freight transport, namely taxi and bus services, which would be unduly affected by shocks seeking to target heavy vehicle activities. For example, in 2018-19, the reference year for PC National, the share of taxi and bus services amounted to 12.4% of the Road Transport industry's total production (ABS 2021). While these other activities constitute only a minority of the industry, they would also be affected by any shocks to Road Transport in ways that do not reflect the intention of the proposed heavy vehicle reforms.

Despite these limitations, the Road Transport industry in PC National remains adequate to derive the indicative modelling results presented in this interim report – subject to the above caveats. The bulk of the industry (85.9%) *does* capture freight activities in scope of the proposed reforms, including the road transport margin associated with the supply of products to intermediate and final use categories (64.3%) and other road freight transport services including the hire of trucks with a driver (21.6%) (ABS 2021). Moreover, the bulk of Australia's road freight task is performed by heavy vehicles (96.1%) (ABS 2020).

Hence, with appropriately calibrated shocks to the Road Transport industry (that is, scaled to the economic activity in-scope), we can produce an indicative yet informed underestimate of the likely magnitude and direction of the potential economy-wide effects of the proposed heavy vehicle reforms.

Interim simulations and results

The economy-wide modelling results presented in this report are derived from two simulations with different shocks to PC National's Road Transport industry, comprising a lower and upper estimate based on two different sets of assumptions.

The direct effects of increasing heavy vehicle access are drawn from the Bureau of Infrastructure and Transport Research Economics (forthcoming) estimates of the productivity impact of specific vehicle mass limit reforms. This modelling suggests that increasing general mass limits could raise road freight sector productivity between 1.0% and 3.2%, by reducing the number of vehicle trips required to move the same volume of freight. These modelling scenarios serve as a proxy for broader increases in heavy vehicle network access.

The magnitudes of the shocks applied were calibrated by aligning the direct effect of the reforms with the corresponding footprint in PC National (which reflects the level of economic detail in the ABS input-output tables). This involved scaling the direct effect associated with the reform down to align with the more aggregated Road Transport industry structure in PC National, consistent with only part of the broader industry being affected.

Table B.1 outlines the assumptions and steps involved in calibrating the shocks for each simulation.

[16] According to experimental ABS (2023) estimates, for-hire transport activity comprised 4.2% of GDP in 2020-21 and in-house transport activity comprised a further 3.7%. In-house road transport activities specifically may be more than double that of for-hire road transport activities, in gross value-added terms. Most in-house transport activity was road transport.

Table B.1 – Shock calibration for interim model simulations

Steps and assumptions taken to model each scenario

Scenario	Shock calibration from direct effects
Low impact	**Direct effect:** Access reforms lead to a 1% total factor productivity improvement for the heavy vehicle freight sector. **Shock estimation:** 96.1% of road freight task is performed by heavy vehicles affected by the reforms. Assumption – 64.3% of Road Transport industry (only the margin) represents freight. **Modelled shock:** A total factor productivity improvement shock of 0.62% (1% × 96.1% × 64.3%) to the Road Transport model industry.
High impact	**Direct effect:** Access reforms lead to a 3.2% total factor productivity improvement for the heavy vehicle freight. **Shock estimation:** 96.1% of road freight task is performed by heavy vehicles affected by the reforms. Assumption – 85.6% of Road Transport industry (the margin + road freight transport services) represents freight. **Modelled shock:** A total factor productivity improvement shock of 2.64% (3.2% × 96.1% × 85.6%) to the Road Transport model industry.

Source: BITRE (forthcoming), ABS (2020, 2021).

Economy-wide results

The headline results for each simulation are presented in table B.2. They are not forecasts; rather, they are estimates of the impacts on the broader economy from the direct effects modelled, in isolation from any other influences. In particular, the results abstract from any underlying growth, developments in Australia's trade environment or any other influences that might affect the reported variables. They are best interpreted as how different the economy is relative to that represented in the model database, under the different operating or policy environments that result from the modelled shocks. The results do not account for dynamic effects nor implementation costs.

The following discussion presents the primary mechanisms underpinning the modelling results in a stylised manner to aid understanding, but it should be noted that these mechanisms, and more, occur simultaneously in the model. The headline results are the net of several competing factors throughout the economy.

Table B.2 – Interim modelling results for reforms improving heavy vehicle road access

Percentage change from base

	Low impact	High impact
Real gross domestic product (GDP)	0.035	0.148
Real household consumption	0.034	0.147
Real investment	0.035	0.148
Real government consumption	0.007	0.030
Export volumes	0.052	0.223
Import volumes	0.029	0.123

	Low impact	High impact
Real wages[a]	0.045	0.190
Rate of return[b]	0	0
Employment[b]	0	0
Capital stock	0.031	0.130
Exchange rate[c]	0	0
GDP deflator	0.005	0.022
Consumer price index	0.003	0.014
Export prices	-0.010	-0.045
Import prices	0	0
Terms of trade	-0.010	-0.045
Rental price of capital	0.002	0.007
Investment price index	0.002	0.007
Government price index	0.028	0.122

a. Real wage deflated by the consumer price index. **b.** The rate of return to capital and aggregate employment are held fixed in the modelling environment. **c.** Model numeraire. Held fixed by assumption.

Source: PC estimates.

The simulation results indicate that increasing heavy vehicle road access, leading to higher productivity in road transport, could increase Australian GDP by 0.035% to 0.148% or by $950 million to $4.0 billion.[17]

Higher total factor productivity allows the Road Transport industry to increase its domestic output while decreasing its inputs (including capital and labour), ultimately lowering the price of the services it produces. Lower prices translate into higher demand for Road Transport, primarily by households, and cost savings for sectors where road transport services forms a significant input, such as construction, wholesale trade, retail trade and some parts of agriculture. These cost savings ultimately translate to higher industry output.

Lower-priced road transport services also generate smaller cost savings for most other downstream industries, prompting them to also try to expand their output due to newly surplus resources. However, as several industries seek to do this simultaneously, they compete for the limited supply of labour in the economy and ultimately bid wages up, resulting in higher real wages. Conversely, as per the model closure, foreign capital flows into the domestic economy to allow industries to expand their output, such that the capital stock increases but the real rate of return on capital remains stable.

Although most sectors in the economy increase their output in response to the modelled shock and the net effect is positive, there are some exceptions. With a more productive Road Transport sector, other transport industries (such as transport support services, postal services and other modes of transport) become relatively less competitive and decrease their output, freeing up labour and capital for other industries to expand. Likewise, higher productivity in Road Transport prompts the industry to demand fewer intermediate inputs from upstream industries, such as auto repair, oil & gas and motor vehicles & parts.

The above occurs with negligible impacts on the CPI due to opposing effects on its components. Falls in the food and transport components of CPI are only just outweighed by increases in education, health and finance – likely due to higher wage costs in the education and health sectors, which are labour-intensive, and overall higher demand for investment.

[17] Results are reported in 2024-25 dollars using the change in GDP since the model reference year (2018-19) to scale values up.

Annex – Products and industries in PC National

No.	Short name	Product/industry full name
1	ShpGranCattl	Sheep, grains, beef and dairy cattle
2	OthLivestock	Poultry and other livestock
3	OthAgricul	Other agriculture
4	Aquaculture	Aquaculture
5	Forestry	Forestry and logging
6	Fishing	Fishing, hunting and trapping
7	AgriServs	Agriculture, forestry and fishing support services
8	Coal	Coal mining
9	OilGas	Oil and gas extraction
10	IronOre	Iron ore mining
11	NFerMetOre	Non-ferrous metal ore mining
12	NMetMinerl	Non-metallic mineral mining
13	MingServs	Exploration and mining support services
14	MeatProds	Meat and meat product manufacturing
15	ProcSeafood	Processed seafood manufacturing
16	DairyProds	Dairy product manufacturing
17	FruitVege	Fruit and vegetable product manufacturing
18	OilsFats	Oils and fats manufacturing
19	Cereal	Grain mill and cereal product manufacturing
20	Bakery	Bakery product manufacturing
21	Sugar	Sugar and confectionery manufacturing
22	OthFood	Other food product manufacturing
23	SoftDrinks	Soft drinks, cordials and syrup manufacturing
24	Beer	Beer manufacturing
25	WineTobacco	Wine, spirits and tobacco
26	Textile	Textile manufacturing
27	Leather	Tanned leather, dressed fur and leather product manufacturing
28	TextileProds	Textile product manufacturing
29	KnittedPrds	Knitted product manufacturing
30	Clothing	Clothing manufacturing
31	Footwear	Footwear manufacturing
32	Sawmill	Sawmill product manufacturing
33	OthWood	Other wood product manufacturing
34	PulpPaper	Pulp, paper and paperboard manufacturing
35	OthPaperPrds	Paper stationery and other converted paper product manufacturing
36	Printing	Printing (including the reproduction of recorded media)
37	PetrolCoalPr	Petroleum and coal product manufacturing

No.	Short name	Product/industry full name
38	HumPharma	Human pharmaceutical and medicinal product manufacturing
39	VetPharma	Veterinary pharmaceutical and medicinal product manufacturing
40	BasicChem	Basic chemical manufacturing
41	CleangComp	Cleaning compounds and toiletry preparation manufacturing
42	PolyProds	Polymer product manufacturing
43	NatRubber	Natural rubber product manufacturing
44	Glass	Glass and glass product manufacturing
45	CeramicPrds	Ceramic product manufacturing
46	Cement	Cement, lime and ready-mixed concrete manufacturing
47	Plaster	Plaster and concrete product manufacturing
48	OthNMetPrds	Other non-metallic mineral product manufacturing
49	IronSteel	Iron and steel manufacturing
50	NFerMetal	Basic non-ferrous metal manufacturing
51	ForgIronStee	Forged iron and steel product manufacturing
52	StrucMetal	Structural metal product manufacturing
53	MetContainrs	Metal containers and other sheet metal product manufacturing
54	OthFabMetal	Other fabricated metal product manufacturing
55	MotorVParts	Motor vehicles and parts; other transport equipment manufacturing
56	ShipsBoat	Ships and boat manufacturing
57	RailwayRStk	Railway rolling stock manufacturing
58	Aircraft	Aircraft manufacturing
59	ElectronEqp	Professional, scientific, computer and electronic equipment manufacturing
60	ElectricEqp	Electrical equipment manufacturing
61	DomApplns	Domestic appliance manufacturing
62	OthMachine	Specialised and other machinery and equipment manufacturing
63	Furniture	Furniture manufacturing
64	OthManufs	Other manufactured products
65	ElecGenern	Electricity generation
66	ElecTrans	Electricity transmission, distribution, on selling and electricity market operation
67	GasSup	Gas supply
68	WaterSup	Water supply, sewerage and drainage services
69	WasteServs	Waste collection, treatment and disposal services
70	ResidCons	Residential building construction
71	NResidCons	Non-residential building construction
72	CivilEngCons	Heavy and civil engineering construction
73	ConsServs	Construction services
74	Wholesale	Wholesale trade
75	Retail	Retail trade
76	Accommodn	Accommodation

No.	Short name	Product/industry full name
77	FoodServs	Food and beverage services
78	RoadTrans	Road transport
79	RailTrans	Rail transport
80	WaterTrans	Water, pipeline and other transport
81	AirTrans	Air and space transport
82	PostServ	Postal and courier pick-up and delivery service
83	TransServs	Transport support services and storage
84	Publishing	Publishing (except internet and music publishing)
85	MPicSouRec	Motion picture and sound recording
86	Broadcasting	Broadcasting (except internet)
87	InternetServ	Internet service providers, internet publishing and broadcasting, websearch portals and data processing
88	Telecom	Telecommunication services
89	Library	Library and other information services
90	Finance	Finance
91	InsurSuper	Insurance and superannuation funds
92	AuxFinServs	Auxiliary finance and insurance services
93	HiringServs	Rental and hiring services (except real estate)
94	OwnerDwelgs	Ownership of dwellings
95	NResiPtyREst	Non-residential property operators and real estate services
96	SciTechServs	Professional, scientific and technical services
97	ComputerSer	Computer systems design and related services
98	EmpTravServs	Employment, travel agency and other administrative services
99	BldgCleanSrv	Building cleaning, pest control and other support services
100	PublicAdmin	Public administration and regulatory services
101	Defence	Defence
102	PublicSafety	Public order and safety
103	PrimSecEdu	Primary and secondary education services (including pre-schools and special schools)
104	TechTerEdu	Technical, vocational and tertiary education services (including undergraduate and postgraduate)
105	ArtSprtEdu	Arts, sports, adult and other education services (including community education)
106	HealthCare	Health care services
107	ResidCare	Residential care and social assistance services
108	PerformArts	Heritage, creative and performing arts
109	SportsRectn	Sports and recreation
110	Gambling	Gambling
111	AutoRepair	Automotive repair and maintenance
112	OthRepair	Other repair and maintenance
113	PersonalSer	Personal services
114	OthServices	Other services

Abbreviations

Abbreviation	Definition
ABS	Australian Bureau of Statistics
ADR	Australian Design Rule
BITRE	Bureau of Infrastructure and Transport Research Economics
CGE	Computable General Equilibrium
CML	Concessional Mass Limits
CPI	Consumer Price Index
EV	Electric Vehicle
GDP	Gross Domestic Product
GML	General Mass Limits
GSP	Gross State Product
GVM	Gross Vehicle Mass
HC	Heavy Combination
HML	Higher Mass Limits
HR	Heavy Rigid
HVAMS	Heavy Vehicle Access Management System
HVIA	Heavy Vehicle Industry Australia
HVNL	Heavy Vehicle National Law
HVSAPS	Heavy Vehicle Structural Assessment Permit System
HZEV	Heavy Zero Emissions Vehicle
IT	Information Technology
ITMM	Infrastructure and Transport Ministers Meeting
LR	Light Rigid
MC	Multi Combination
MR	Medium Rigid
NAAS	National Automated Access System
NCP	National Competition Policy
NHVDCF	National Heavy Vehicle Driver Competency Framework
NHVR	National Heavy Vehicle Regulator
NTC	National Transport Commission
OECD	Organisation for Economic Co-operation and Development

Abbreviation	Definition
PBS	Performance-Based Standards
PC	Productivity Commission
RAV	Restricted Access Vehicle
RIS	Regulatory Impact Statement
SEPP	State Environmental Planning Policy
SLGAAP	Strategic Local Government Asset Assessment Project
TGE	Team Global Express
VET	Vocational Education and Training

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