

**Submission to the Department of Infrastructure,
Transport, Regional Development and
Communications on the Safer Freight Vehicles
Discussion Paper.**



The Electric Vehicle Council (EVC) is the national peak body representing the electric vehicle industry in Australia. Our members include companies involved in providing, powering, and supporting electric vehicles.

We welcome the opportunity to make this submission to the Department of Infrastructure, Transport, Regional Development and Communications (the Department) on the Safer Freight Vehicles Discussion Paper (discussion paper).

We would like to commend the Department on identifying the need to amend Australian Design Rules to facilitate an increased take up of safer and/or more efficient heavy freight vehicles in Australia.

Introduction:

There is significant appetite for fleet and logistics operators in Australia to procure electric freight vehicles to reduce emissions and use the latest safety equipment. However, Australia is missing out on the latest electric vehicle models because of a lack of electric vehicle policy and restrictive Australian Design Rules.

Australian Design Rules, and particularly width and mass restrictions, have been highlighted by Electric Vehicle Council members as limiting the ability to import electric freight models to the Australian market, as electric vehicle models are typically designed for the American and European markets.

As the Department correctly notes, it will be increasingly difficult to re-design trucks for the Australian market because of battery/hydrogen storage systems. Therefore, proposed amendment option 2a – to increase the width restrictions to 2.6m in the Australian Design Rules - will enable those that are suitable early adopters (such as refrigerated and last mile delivery operators) to procure from a wider range of electric model availability and reduce heavy vehicle emissions.

However, the amendment for width restriction does not do enough to assist the electric freight industry, as mass restrictions additionally limit the commercial viability to operate electric freight vehicles.

The current mass restrictions do not account for the additional mass of an electric vehicle battery, which reduces the payload of the vehicle. To enable operators to operate an electric freight fleet with the same efficiency (without limitations to payload as a result of increased vehicle weight due to battery size) the Department should also consider amendments to mass restrictions.

Furthermore, Australian Design Rules currently regulate the noxious emissions from heavy passenger and commercial vehicles. To ensure the up-to-date supply of vehicles, Australia must adopt Euro VI emissions standards, so as not to fall behind on vehicle quality - as the Department notes: 'many heavy vehicles entering the Australian fleet use more fuel, produce higher noxious emissions, and offer less protection to drivers and other road users'.¹

Therefore, as the Department considers measures 'to facilitate an increased take up of safer and/or more efficient heavy freight vehicles in Australia' we encourage a holistic approach to the meaning of 'safety' when referring to 'safer and/or more efficient heavy freight vehicles'

It is true and necessary that we promote the adoption of vehicles that protect the public from injury from collision with motor vehicles.

However, we believe there should also be equal consideration paid to the safety implications of the particulate matter and noxious fumes that are a result of internal combustion engine vehicles and subsequently, how amendments to the Australian Design Rules can support the uptake of zero emissions freight vehicles.

This is significant given that Electric Vehicle Council research shows that 60% more people die from vehicle emissions than car crashes in the Sydney-Newcastle-Wollongong region.²

As heavy vehicle emissions standards are regulated through the Australian Design Rules, the Government should bring forward the implementation date for the Euro VI heavy vehicle emissions standard – particularly as this standard has been in place in Europe since 2012.

In doing so, the Government will facilitate the uptake of electric freight vehicles by enabling consumers to procure electric freight vehicles with the latest safety and efficiency technology.

¹ The Department of Infrastructure, Transport, Regional Development and Communications (2020) Heavy Vehicle Emissions Standards for Cleaner Air: <https://www.infrastructure.gov.au/vehicles/environment/forum/files/heavy-vehicle-emission-standards-for-cleaner-air.pdf>

² Electric Vehicle Council (2019) Cleaner and Safer Roads for NSW

It has been noted in the discussion paper that the default safety and emissions features required by the EU and US are often only offered as an option at extra cost in Australia.

It is encouraging that the Department is seeking to update the Australian Design Rules. This can only have a positive impact on the heavy vehicle market and will particularly increase the availability of light, medium and heavy duty electric trucks in the future.

Given that the Australian Design Rules have been designed around internal combustion engine vehicles, the electric freight vehicle sector may face unique challenges that are not currently under review or may have not yet arisen.

Therefore, as the freight sector shifts to zero emissions vehicles, the Department should be flexible in its amendments - Australian Design Rules should promote safety but not limit innovation. The Electric Vehicle Council emphasises that engagement with the freight sector must be ongoing with industry – electric and internal combustion engine.

Finally, the decarbonisation of the freight sector will remain a challenge without targeted policy to accelerate the provision and uptake of electric freight vehicles. The Electric Vehicle Council is ready and willing to assist the Department in the development of this.

The Electric Vehicle Council recommends that:

- 1) The Department consider the definition of 'safety' in Safer Freight Vehicles to recognise that emissions are unsafe to human health.
- 2) The Department engage with the electric vehicle industry to determine how regulatory burden can be reduced specific to electric freight vehicles.
- 3) The Australian Design Rules width restrictions are amended according to option 2a: increase the width limit to 2.6m for goods vehicles and trailers over 4.5 tonnes.
- 4) The Australian Design Rules are amended to account for the increased mass of an electric freight vehicle as a result of battery weight.
- 5) Decarbonisation of the freight sector be supported by policy that facilitates the transition to electric freight transport.
- 6) The implementation date of Euro VI standards is brought forward.

Global context

The transport industry is undergoing its first significant transformation since the internal combustion engine. Vehicle manufacturers, including truck makers, are investing large amounts in electrification (battery and hydrogen) - signalling that the future of freight transport is electric.

BYD, Daimler, Hino, Isuzu, Scania, Tesla (all-electric), and Toyota have all announced intent to electrify. We are seeing commitments to electric freight vehicle model numbers, sales targets, investment, and partnerships:

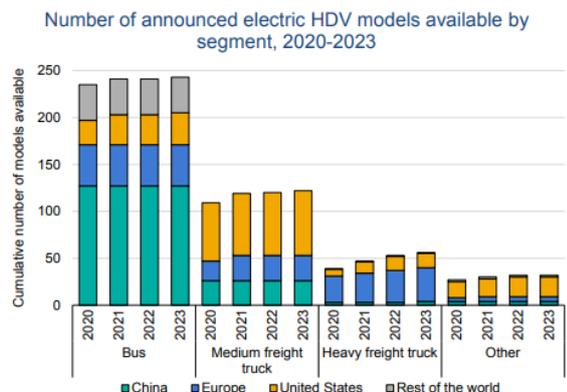
- **Daimler**, the world’s largest truck maker, has said that by 2039, all new trucks it sells will be zero-emissions.
- **Hino, Isuzu, and Toyota** this year established a partnership in commercial vehicles to collaborate in electric, fuel-cell, connected and autonomous driving technologies.
- **Tesla** will begin mass production of the electric Semi in 2021.
- **Traton**, which is owned by Volkswagen is targeting 50 per cent electric sales for its Scania brand and that 60 per cent of Man delivery trucks and 40% of long-haul trucks will be zero emissions by the end of the decade.
- **Volvo Trucks and Buses**, the world’s second largest truck maker, is targeting half of European sales to be electric by 2030.

This is reflected in the global stock of electric heavy-duty trucks – which is now at 31,000. China is the largest procurer registering 6,700 vehicles in 2020. In the same year, Europe registered 450 vehicles and the United States 240.³

As model availability of electric heavy-duty trucks increases, it is expected that the number of registrations will grow exponentially. Government support of the sector will be important in where electric freight vehicles are allocated.

Given that many electric freight vehicles are designed for the European and American markets, it is expected that this is where much of electric freight allocation will go. Therefore, it is important that Australia aligns with the global standards, so as to not miss out on model availability.

This table highlights the announced electric truck model availability for the years 2020-2023.



IEA. All rights reserved.

Notes: Other includes garbage, bucket, concrete mixer, mobile commercial and street sweeper trucks. Rest of the world includes India and South America.

Source: IEA analysis based on [Global Drive to Zero ZETI tool](https://www.iea.org/reports/global-drive-to-zero-zeti-tool).

³ International Energy Agency (2021) Global EV Outlook: <https://www.iea.org/reports/global-ev-outlook-2021>

Australian context

Zero emissions vehicles (ZEVs) reduce carbon emissions and air pollution, decreasing the future impacts of climate change. All state and territory governments in Australia have committed to Net-Zero by 2050. This target is only attainable by decarbonising the transport sector, which currently makes up 19% of our total emissions.⁴ The road freight sector alone contributes 38% of our total transport emissions.⁵

As the Department notes:

'Heavy vehicles in Australia account for a disproportionate share of noxious road vehicle emissions. They constitute approximately four per cent of road vehicles in Australia but perform about eight per cent of road vehicle kilometres travelled (VKT) and account for 23 per cent of all road transport fuel consumed in Australia'.⁶

Therefore, it is important that decarbonisation of the electric freight sector is prioritised to limit emissions growth and air pollution from heavy vehicles.

However, the supply of electric freight vehicles to the Australian market is limited. Few manufacturers have signalled intention to launch models in our market and we are competing for volume and supply of electric freight models that are designed for European and American markets.

The width restrictions as currently imposed by the Australian Design Rules make Australia an unlikely target market for electric models, as they may require (costly and time-consuming) modification. Notably, the placement of battery and hydrogen storage systems means that modification may not be possible with these new drivetrains – compared to the possible reconfiguration of internal combustion engine models.

The Department has aptly noted that emissions standards are also limiting the import of the latest safe and efficient heavy vehicles to the Australian market, noting that:

'Mandating Euro VI for heavy vehicles would also bring Australia's vehicle standards into closer alignment with international standards adopted by major vehicle markets, which also supply the majority of heavy vehicles to Australia. This would increase Australian's access to the latest models fitted with latest safety and fuel saving technologies, by reducing technical and commercial barriers to the importation of vehicles meeting Euro

⁴The Department of Energy and Environment (2019) Australia's Emissions Projections: <https://www.industry.gov.au/sites/default/files/2020-07/australias-emissions-projections-2019-report.pdf>

⁵ClimateWorks (2020) Decarbonisation Futures: <https://www.climateworksaustralia.org/wp-content/uploads/2020/04/Decarbonisation-Futures-March-2020-full-report.pdf>

⁶ The Department of Infrastructure, Transport, Regional Development and Communications (2020) Heavy Vehicle Emissions Standards for Cleaner Air.

VI or equivalent standards. By reducing technical and commercial barriers to the introduction of latest global models, fitted with the latest technologies, mandating Euro VI for all new heavy vehicles sold in Australia, would indirectly improve the safety and fuel efficiency of the Australian heavy vehicle fleet.⁷

In addition, our limited policy support makes Australia an unattractive market to send electric models, this is despite that we rely heavily on freight to transport goods and services around the country.

The role of electric freight vehicles in Australia

The adoption of electric freight vehicles will reduce noxious pollution and associated health impacts; create new jobs in the mining, infrastructure, manufacturing, sustainability, and renewables sectors; encourage sustainable transport and energy choices; reduce transport costs for consumers and businesses; increase fuel security, and lower Australia's carbon emissions.

Additionally, electric freight vehicles are a way for companies to reach their own sustainability targets and reduce their environmental impact. For example, Linfox and Victoria Bitter will deliver VB across Melbourne via a 100% renewably powered electric freight vehicle:

“It is the first of many electric trucks that will deliver our beer. Transitioning our deliveries to electric vehicles will help us achieve our ambitious sustainability goals of reducing our net carbon emissions across our entire supply chain by 30% by 2030 and to zero by 2050.”⁸

Electric freight vehicles act as an agent of safety and productivity in the transport sector:

1) *The importance of promoting the uptake of electric vehicles: safety*

The newest models of freight vehicles are those equipped with the latest safety and efficiency advancements. The discussion paper outlines measure to make freight safer and more efficient, though the Electric Vehicle Council questions the definition of safety.

⁷ The Department of Infrastructure, Transport, Regional Development and Communications (2020) Heavy Vehicle Emissions Standards for Cleaner Air.

⁸ TechAU (2021) VB and Linfox start electric truck deliveries as transport revolution accelerates:

<https://techau.com.au/vb-and-linfox-start-electric-truck-deliveries-as-transport-revolution-accelerates/>

The discussion paper reads so that freight vehicles are 'safe' when this means physical safety, yet polluting vehicles, which cause respiratory illness and death are not dually considered.

Given that air pollution is not safe – we are warned about it constantly – the promotion of safer vehicles must include the accelerated and promoted uptake of zero emissions vehicles (note page 20, where 'emissions control' is in parenthesis).

The Electric Vehicle Council suggests the discussion paper recognise the safety and health benefits of future transport technologies, including electric vehicles, and advocate for measures to increase their uptake – to enable safer conditions for drivers.

This is particularly relevant as electric truck driver feedback suggests that electric trucks improve driver experience– with low level cab vibration; no petrol or diesel fumes; drive assist; lower levels of stress; regenerative braking, and instant torque.

In an article for Commercial Carrier Journal⁹, several logistics operators in the United States remarked on the benefits of electric trucks for heavy vehicle drivers and the positive feedback they received:

- Brandon Taylor, GSC Logistics director of transportation: “I was waiting for the complaints to come but they never came...The guys are just really happy with — they're really quiet, there's a lot less vibrating in the tractor than a diesel tractor. I think it has taken less toll on their bodies than the diesel tractors. They are all happy with the air conditioning and the heater. That worked great. Obviously, no diesel fumes to deal with all though diesels have cleaned up quite a bit in the last few years.”
- Paul Rosa, senior vice president of procurement and fleet planning at Penske Truck Leasing: “A driver even said, 'I am in awe of this. I love it. It is exciting to drive.... Other drivers have praised the trucks' quick acceleration, smooth ride, ability to easily climb hills and “no diesel smell. They get happy about that,”
- Jim O'Leary, vice-president of fleet services for NFI: “When our drivers first went into the trucks they were amazed with the power and how good the ride was: no vibrations, not losing any power on hills—and there's not that many hills—but there are bridges going into the port and things like that...the other thing that I heard from the drivers is not having to deal with the fueling process. Having the trucks cleaner.

⁹ Commercial Carrier Journal (2020) Fleets see electric trucks as driver retention tool: <https://www.cjdigital.com/fleets-see-electric-trucks-as-driver-retention-tool/>

The truck doesn't smell. They don't come home smelling like diesel. They don't have to deal with the fuel lines. They don't have to deal with fuel spills. All of those things that you don't really think about—it's almost like a quality of life kind of thing that the drivers have been really happy with."

In Australia, ANC is a market leader in last mile delivery services. Their website notes the benefits of heavy electric vehicles for drivers:¹⁰

- Improved driver experience through less noise, heat, vibration, and a roomier cab.
- Supports Chain of Responsibility (CoR) objectives, including fatigue and last mile customer experience.

In addition to improved driver health, electric trucks can have significant positive health impacts on communities. Electric heavy vehicles reduce noise pollution and do not produce emissions.

ANC notes that heavy electric vehicles¹¹:

- save an estimated 36 metric tonnes of CO2 annually per truck
- produce less noise in metropolitan urban environments

The Electric Vehicle Council estimates \$3 billion is spent on public health costs as a result of air pollution from vehicles in the Sydney-Newcastle-Wollongong region alone. Additionally, sixty per cent more people die from vehicle emissions than car crashes.¹²

Decarbonisation of the whole transport sector will improve air quality in urban centres, on regional roads and in rural communities. Fewer vehicle emissions related deaths and illnesses will give resources and money back to the health sector.

Furthermore, electric freight vehicles are the transition technology to automated vehicles. Current safety technologies are already some form of automation. In order to facilitate the uptake of automated vehicles in Australia's road transport future, Australia Design Rules must remain flexible to what the freight market is designing and support electrification.

¹⁰ ANC Delivers (2020) ANC delivers new 100% electric vehicles to home delivery market: <https://ancdelivers.com.au/electric-delivery-vehicles>

¹¹ ANC Delivers (2020) Key benefits of 100% electric vehicles: <https://ancdelivers.com.au/electric-delivery-vehicles/#1577773637694-d5201f75-3b1f>

¹² Electric Vehicle Council (2019) Cleaner and Safer Roads.

The safety technologies of automated vehicles were recognised by the (then) Deputy Prime Minister and Minister for Infrastructure, Transport and Regional Development, the Hon Michael McCormack, upon establishing the Office for Future Transport Technologies:

“While representing an emerging business opportunity for the national economy, these technologies also have great potential to reduce the \$27 billion cost of road crashes in Australia each year.

“These advances can also help to reduce the significant social impacts that road deaths and injuries have on families and the wider community.”

Mr McCormack said last month Roads Australia, in responding to the Inquiry into the National Road Safety Strategy, described automated vehicles and other new technologies as road safety “game-changers”.¹³

Given that electric vehicles are the transition technology to automated vehicles, and that automated vehicles are electric, it is important to consider the positive impacts they can have on Australian road safety, and this should be used to incentivise and accelerate uptake of them.

2) *The importance of promoting the uptake of electric vehicles: efficiency*

Electric freight vehicles not only provide safety benefits but are increasingly recognised for their positive impact on fleet efficiency.

A summary of the efficiency benefits is outlined below:

- Climate change: decarbonisation of the transport sector will reduce the impacts of climate change. Given the increasing propensity of Australia to extreme weather events (as a result of climate change), carbon emissions reduction is imperative to a stable economy.
 - For example, the economic damage from the Black Saturday Bushfires in 2009 is set to exceed \$4.4 billion alone.¹⁴
- Curfews: Noise restriction curfews typically limit the operational hours of freight vehicles, however, the reduced noise from an electric freight vehicle will allow fleets to operate at night-time.

¹³ Former Minister the Hon Michael McCormack MP (2018) Office of Future Transport Technologies Revealed: <https://minister.infrastructure.gov.au/mccormack/media-release/office-future-transport-technologies-revealed>

¹⁴ The Guardian (2020) Economic impact of Australia’s Bushfires set to exceed \$4.4billion cost of Black Saturday: <https://www.theguardian.com/australia-news/2020/jan/08/economic-impact-of-australias-bushfires-set-to-exceed-44bn-cost-of-black-saturday>

- Congestion: Where electric freight vehicle operation can be spread over a 24-hour period (due to avoided noise restriction curfews), electric freight vehicles can be taken of the road during peak hours – increasing road traffic efficiency and congestion.
- Emissions: reduced emissions will bring savings to the health sector. Electric Vehicle Council research shows that the annual health costs from air pollution from vehicles in the Sydney-Newcastle-Wollongong region is \$3 billion dollars.
- Savings on fuel: electricity used to recharge an electric vehicle costs less than diesel.
- Savings on maintenance: electric freight vehicles have fewer moving parts than internal combustion engine vehicles therefore requiring less maintenance/servicing and the attributable costs.

Current Australian Design Rules do not promote efficiency or efficient vehicles, as vehicle manufacturers and freight operators are forced to modify vehicles for an Australian context – costing time and money.

Australian Design Rules

Amendments to the Australian Design Rules will significantly impact the operations of the freight sector and the uptake of electric freight vehicles. Amendments should be made to both mass and width restrictions.

1) *Mass*

Electric heavy vehicles are powered by lithium-ion batteries, which are significantly heavier than petrol and diesel fuel tanks. The weight of the battery impacts payload under mass vehicle limits.

Due to current Australian Design Rules an electric vehicle battery may reduce the payload of a freight vehicle. This means that despite that an electric freight vehicle is safer and more efficient, the gross vehicle mass restrictions render the vehicle inefficient due to a reduced payload.

The reduced payload decreases the economic viability for councils, government, and businesses to transition to electric freight vehicles, as companies may require additional vehicles for equivalent operations. As a result, electric freight options are unlikely to be ordered.

To combat this, the European Union has recently provided increased mass limits for electric and hydrogen vehicles to encourage their uptake:

“Alternative powertrains, which include hybrid powertrains, are those which, for the purpose of mechanical propulsion, draw energy from consumable fuel and/or a battery or other electrical or mechanical power storage device. Their use for heavy duty vehicles or buses may generate extra weight but reduces pollution. That extra weight should not be counted as part of the effective load of the vehicle since this would penalise the road transport sector in economic terms. However, the extra weight should not result in the load capacity of the vehicle being increased either.

Future alternatively fuelled vehicles (with heavier powertrains than those used in conventionally fuelled vehicles) might also benefit from an extra weight allowance. Therefore, such alternative fuels may be included in the list of alternative fuels provided for by this Directive, if their use requires an additional weight allowance.”¹⁵

Therefore, and in order to increase the viability of freight transition, the Electric Vehicle Council recommends introducing a higher mass vehicle for electric and hydrogen vehicles, so that payloads remain the same, despite the total vehicle mass.

The Department should consult with industry to determine what increase would support the uptake of safer and more efficient freight vehicles.

2) *Width*

The industry notes that the width regulation of heavy vehicles is a significant barrier to the industry, as they are not in line with global standards.

Enabling a 2.6m width limit will allow for the freight sector to consider electric freight vehicles as a viable option. It may encourage those in the last mile sector to consider electrifying. The additional width may provide further benefits to the refrigerated/food delivery sector, through greater insulation, increasing efficiency.

In regards to safety, wider trucks provide greater roll stability, meaning the vehicle is less likely to flip in the case of an accident. Furthermore, batteries in electric trucks are placed in the base of the vehicle, providing additional centre of gravity benefits.

The Electric Vehicle Council recommends that the Department amend width restrictions to option 2a as outlined in discussion paper – to 2.6m. This will provide the most accessibility for vehicle import into Australia.

¹⁵ EUR – Lex Access to European Law (2021): Directive (EU) 2015/719 of the European Parliament and of the Council of 29 April 2015: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32015L0719>

The need for electric freight vehicle policy

It is positive that the Department is looking at ways to encourage safer and more efficient vehicles to enter the market. However, much more is needed to promote the accelerated uptake of future vehicle technologies.

At its core, the freight sector faces the same challenges that light duty vehicles (cars and light commercial) do with electrification.

Therefore, the sector requires targeted policy to accelerate uptake from three key areas: financial incentives, regulation, and charging infrastructure.

The Electric Vehicle Council recommends that the Government develop electric freight sector policy. This includes:

- Adoption of Euro VI heavy vehicle emissions standards, in line with international markets.
- Investment in electric freight vehicle charging infrastructure
 - Along key freight routes, on highways, and at truck rest stops
 - Through grant schemes for fleet operators to install at base/depot
- Amendments to Australian Design Rules for mass exemptions
- Subsidies to help fleets procure heavy electric vehicles
- Grants to stimulate R&D in heavy vehicle charging infrastructure
- Grants for the development and production of electric vehicle batteries
- Targeted ‘accelerated depreciation’ schemes

Electric freight vehicle policy already exists in many markets across the globe, a summary of some of these is in the table below:

Current zero-emission heavy-duty vehicle policies and incentives in selected countries

Policy Category	Policy	Canada	China	European Union	India	Japan	United States
Regulations vehicles	ZEV sales requirements			Voluntary to earn credits economy standards under fuel. Municipal vehicle purchase requirements.			California: new bus sales 100% ZEV by 2029. California and New Jersey: new truck sales up to 75% by 2035.
	Fuel economy standards	✓	✓	✓	✓	✓	✓
	Weight exemptions			2 tonnes over class.			California: 2 000 pounds over class.
Incentives vehicles	Direct incentives	✓*	✓*	✓*	✓	✓	✓*
Incentives fuels	Low-carbon fuel standards	✓*					✓*
Incentives EVSE	Direct investment	✓			✓	✓	✓*
	Utility investment						✓*

* Indicates implementation only at state/local level.

Notes: ZEV = zero-emission vehicle, which includes BEV, PHEV and FCEV; EVSE = electric vehicle supply equipment. Weight exemptions support freight operators by allowing ZEV trucks to exceed strict weight restrictions by a set amount. Because batteries weigh more than diesel fuel combustion technologies, ZEV truck operators may need to reduce their cargo to meet weight restrictions, resulting in lower profits and inefficient freight delivery. Utility investment: electric utilities tend to be large companies with business interests in EV charging, but they may be unwilling or unable to invest in charging infrastructure. Leading provinces and states have enabled or directed utilities to develop plans and deploy HDV charging infrastructure.

Sources: [See list of sources.](#)

Figure 1: IEA Global EV Outlook 2021

Conclusion

It is positive that the Department intends to amend Australia Design Rules to facilitate the uptake of safer and more efficient vehicles, however, further consultation with the industry will demonstrate that more can be done.

The Electric Vehicle Council looks forward to working with the Department to ensure that the model availability of safer and more efficient freight vehicles increases in the coming years.