

Transport and Infrastructure Net Zero Consultation Roadmap

Take the survey


Department of Climate Change, Energy, Environment and Water

Response received at:

July 26, 2024 at 5:24 PM GMT+10

Response ID:

sbm2f8405fa6960f75e13e8d

- 1 Confirm that you have read and understand this privacy notice.
Yes
- 2 Please indicate how and if you want your submission published.
Public
- 3 Published name
Tesla Motors Australia
- 4 Confirm that you have read and understand this declaration.
Yes
- 5 First name
Kaavya
- 6 Last name
Jha
- 7 Email


- 8 Phone
[REDACTED]
- 9 Who are you answering on behalf of?
Organisation
- 10 Organisation name
Tesla Motors Australia
- 11 What best describes you or your organisation?
Industry
- 12 What sector do you represent?
Light road vehicles (cars, utes etc.)
Energy
Infrastructure
- 13 What state or territory do you live in?
Victoria
- 14 Postcode
3121
- 15 What area best describes where you live?
City
- 16 1. Do you support the proposed guiding principles?
Not answered
- 17 1.1 Please add details to your response.
Not answered
- 18 2. Do you support the use of the avoid-shift-improve framework as a

tool to identify opportunities for abatement?

Not answered

19 2.1 Please add details to your response.

Not answered

20 3. Do you agree the development of a national policy framework for active and public transport will support emissions reduction?

Not answered

21 3.1 Please add details to your response.

Not answered

22 4. What should be included in a national policy framework for active and public transport and how should it be developed?

Not answered

23 5. What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to ensure the movement of people contributes to transport emissions reduction?

Not answered

24 6.1 What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to ensure that the movement of goods contributes to transport emissions reduction?

Not answered

25 6.2. How would these actions address the identified challenges and opportunities for emissions reduction in the movement of goods?

Not answered

26 7. Do you agree with the proposed net zero pathway for light road

vehicles?

Yes

27 7.1 Please add details to your response.

Not answered

28 8. The Australian Government is currently developing an Australian New Vehicle Efficiency Standard and has already begun to implement actions in the National Electric Vehicle Strategy.8.1 What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to reduce light vehicle emissions?

Recommendations for Road – Light Vehicles Net Zero Pathway

General Comments on Safety

Safety is always Tesla's priority across all products and operations. Tesla vehicles are engineered to be some of the safest in the world. We believe the best crash is no crash and are focused on enhancing avoidance mitigations and active safety improvements in our vehicles, as well as ensuring that the risk of fire for EVs and energy storage products is as low as possible, which is critical for mass adoption. We continue to review, test and update our safety requirements and procedures ahead of industry standards. We point the ABCB to the latest data, showing:

- Vehicle fires for Tesla vehicles are eight-times less likely than the U.S. average (7.3 vehicle fires per billion miles driven in a Tesla vs US average of 59.5).
- The fire hazard of EVs is not higher than that of ICE vehicles. In fact, studies have concluded that the heat released from EV fires are less than or equal to the heat released from ICE fires.
- There have been no instances of major fires in parking structure initiated by EVs or EV charging stations.

Beyond our own products, Tesla is committed to helping fire departments and first responders safely handle emergency situations involving the operation of all Tesla products. We have trained thousands of first responders to appropriately handle Tesla vehicles and batteries through virtual and in-person training, through provision of decommissioned vehicles, support lines, and attendance at relevant safety and code conferences.

1 Reliable public data on vehicle sales.

Australia still does not have a trustworthy and transparent public source of data on vehicle sales and vehicle CO2.

Two years ago, the Government embarked on a public policy process to reduce the average CO2/km of new vehicles. It is absurd that when this process began nobody could produce an accurate figure of the current CO2/km of Australian new vehicles. Nor is there any reliable public dataset regarding trends in vehicle size, price, and features. All of these should be collated and published in the interests of good policy making and economic analysis.

Australia stands almost alone in not having a free, public, granular account of vehicle sales and registrations. The National Exchange of Vehicle and Driver Information System (NEVDIS) dataset is notoriously patchy and incomplete.

The VFACTs database administered by the Federal Chamber of Automotive Industries has been deliberately manipulated by that lobby group to obscure actual CO2 data. FCAI has refused to release accurate data about vehicle CO2, instead putting out data that bakes in its preferred multiplier and credit loopholes and vehicle categories. This has drawn sharp criticism from the National Transport Commission, which has been unable to provide accurate and continuous data to inform policy development. VFACTs simply is not a reliable source of data.

For comparison, consider New Zealand's Ministry of Transport fleet statistics reporting. This includes weekly low emissions vehicle reports and comprehensive statistics about new vehicle sales and the existing vehicle fleet. Like Australia, Canada has state and territory registration authorities with various data collection practices but has aggregated these into a national reporting framework.

This could be a simple task. The Federal Government should simply mandate that all OEMs make a monthly report of their delivery data publicly available online.

Alternatively, OEMs could report monthly data to the Department of Transport or the Clean Energy Regulator for compilation and publication as a simple dataset in CSV or JSON format.

The public could quickly build and iterate useful public interfaces on that data as OpenNEM have done for the electricity sector. The Australian Government's initial Data and Digital Government Strategy articulates the Government's aim of "making non-sensitive data open by default" and prioritising "integrity and transparency in service delivery which increases trust in the Australian Government." Both principles are important to apply to New Vehicle Efficiency Standards. The eight principles for open data by the Open Government Working Group also provide a checklist that could inform the Australian Government's approach.

1. Complete: in this case that means including raw CO2 data before any additional credits are applied and publishing granular information on the impact of any multiplier or technology credits.
2. Primary: data as it is collected with the highest possible level of granularity. In this

case that would include marque, model, variant, vehicle category, homologation segment, drivetrain type, fuel economy, and CO2/km.

3. Timely: made available as quickly as possible. In this case that would ideally mean data is collected monthly from OEMs and published within 1 week after being provided back to OEMs for checks.
4. Accessible: available to the widest range of users for the widest range of purposes.
5. Machine processable: reasonably structured to allow automated processing.
6. Non-discriminatory: data is available to anyone, with no requirement of registration.
7. Non-proprietary: available in a format over which no entity has exclusive control.
8. License-free: not subject to copyright, patent, or trademark regulation.

2 Accurately measuring health impacts of vehicle and other air pollution.

Vehicle pollution kills more Australians each year than vehicle accidents. An expert statement on the health impacts of vehicle pollution estimated that 11,105 Australians die early as a result of vehicle pollution each year. This paper was endorsed by leading respiratory physicians as well as the Asthma Australia, Lung Foundation Australia, Cancer Council and many others.

Australia's most common cause of general practitioner presentation in children under five is asthma and allergy. In 2012, Gasana et al. observed that children attending schools near high traffic density roads were exposed to higher levels of vehicle pollutants and had an associated increase in the incidence and prevalence of childhood asthma and wheeze.

Australian governments at all levels spend a great deal on infrastructure and public education to reduce the vehicle accident road toll; government advertising campaigns affirm that "zero is the only acceptable number" of road deaths. These efforts are laudable, and Tesla is proud that its vehicles have the highest Australasian New Car Assessment Program (ANCAP) scores yet recorded.

Deaths caused by vehicle pollution in respiratory wards are no less tragic and preventable than deaths caused by accidents on roads. It is time that governments treated them with the same gravity and urgency.

The long-term impact of air pollution on health should be closely studied and aggressively mitigated. As a starting point, it is important that vehicle pollution deaths and illnesses are adequately measured. It has been 17 years since BITRE released a detailed report on health impacts of transport emissions in Australia.

There is a serious dearth of quality data collected to measure the overall impact of transport pollution, let alone provide granular insights that would allow policy makers to

effectively target and iterate interventions. If road accident data was not collected in sufficient detail to accurately estimate how many Australians died or were injured in accidents, policy makers and public health officials would be justly outraged; the same response is justified for pollution data.

Tesla recommends the federal government fund an expansion of particulate and noxious pollution monitors to better quantify vehicle and other pollution around Australia. Health and Air Pollution New Zealand (HAPINZ 3.0) is a thorough and internationally peer reviewed framework for evaluating the effects of air pollution on human health across New Zealand and the resulting social costs.

Tesla recommends that Australia investigate adapting the HAPINZ 3.0 framework for use in Australia. Furthermore, Tesla recommends that the federal government publish an annual estimated vehicle pollution road toll alongside regular reports on health impacts of anthropogenic air pollution.

3 A national framework for autonomous vehicle regulation.

Autonomous vehicles are the next key step in the electric vehicle transition.

While Tesla and other companies are scaling EV production at unprecedented rates, a further step change in decarbonising transport is possible if we can significantly increase the utilisation of electric vehicles by moving toward autonomous vehicles.

Most passenger vehicles are idle ~95% of the time. Autonomous vehicles could be utilised around the clock, significantly decreasing the cost per kilometre of travel in electric vehicles. This would rapidly accelerate decarbonisation.

Tesla's 2022 Impact Report outlines that on non-highways with Full Self Driving (FSD) engaged had just 0.31 accidents per million miles representing an 80% reduction compared with the US vehicle average of 1.53 accidents per million miles.

Tesla has recently deployed its Full Self Driving Supervised V12 system across the United States and Canada. This represents a significant step toward autonomous vehicle systems, and an enormous improvement in vehicle safety. Australia has an important opportunity to be among the early adopters of advanced driver assistance software that will save lives by aligning with the North American approach to homologation and regulation of driver assistance and autonomous software, in particular ensuring relevant Australian Design Rules remain flexible and allow for innovation as the technology and hardware capabilities evolve over time.

- 29** 8.2 How would these actions address the identified challenges and opportunities to reduce light vehicle emissions?
Not answered
- 30** 9. Do you agree with the proposed net zero pathway for heavy road vehicles?
Not answered
- 31** 9.1 Please add details to your response
Not answered
- 32** 10. The proposed pathway for heavy road vehicles relies on a mix of battery electric, hydrogen fuel-cell and low carbon liquid fuels. Rank from 1 to 3, the order in which these should be prioritised for emissions reduction.
Not answered
- 33** 10.1 Please add details to your response. Why did you rank them in that order?
Not answered
- 34** 11. What role should low carbon liquid fuels play in the heavy vehicle decarbonisation?
Not answered
- 35** 12. What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to reduce heavy vehicle emissions?
Not answered

- 36 13. Do you agree with the proposed net zero pathway for rail?
Not answered
- 37 13.1 Please add details to your response.
Not answered
- 38 14. The proposed pathway for rail relies on a mix of battery electric, hydrogen fuel-cell and low carbon liquid fuels. Rank from 1 to 3, the order in which these should be prioritised for emissions reduction.
Not answered
- 39 14.1 Please add details to your response. Why did you rank them in that order?
Not answered
- 40 15. What role should low carbon liquid fuels play in rail decarbonisation?
Not answered
- 41 16. What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to reduce rail emissions?
Not answered
- 42 16.1 How would these actions address the identified challenges and opportunities to reduce rail emissions?
Not answered
- 43 17. Do you agree with the proposed net zero pathway for maritime?
Not answered
- 44 17.1 Please add details to your response.
Not answered

- 45 18. The Australian Government is engaging in consultation as part of the development of the Maritime Emissions Reduction National Action Plan and those consultations will also inform the final Roadmap and Action Plan. 18.1 What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to reduce maritime emissions?
Not answered
- 46 18.2 How would these actions address the identified challenges and opportunities to reduce maritime emissions?
Not answered
- 47 19. Do you agree with the proposed net zero pathway for aviation?
Not answered
- 48 19.1 Please add details to your response.
Not answered
- 49 20. The Australian Government has already engaged in consultation on aviation decarbonisation through the development of the Aviation White Paper and those consultations will also inform final Roadmap and Action Plan.
Not answered
- 50 20.1 What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to reduce aviation emissions?
Not answered
- 51 21. Do you agree with the proposed net zero pathway for transport infrastructure?
Not answered

52 21.1 Please add details to your response.

Not answered

53 22. What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to reduce transport infrastructure emissions and ensure that transport infrastructure is ready for and enables low-emission transport modes?
Recommendations for Transport Infrastructure Net Zero Pathway

General Comments on EV Infrastructure Safety

EV charging stations have been deployed safely for more than a decade globally, and are not a public safety or 'special hazard'. EV charging is extremely safe by design. Charging cables are only energized when connected and locked to the electric vehicle and communication is established between the charging equipment and the vehicle. The vehicle and charger actively communicate before energy transfer is initiated. This ensures, charging connector latch position, isolation resistance, cell temperature and voltages are within safe parameters for charging. The flow of electricity to the charging cable is automatically shut off if the charging connector is unlocked or communication between the vehicle and charging equipment ceases. This safety is mandated via international standards (e.g. IEC 61851-23:2014) which covers these features (e.g. handshake prior to energy transfer, insulation resistance, cell voltage etc).

As such, establishing clear and consistent standards and codes for EV charging infrastructure is critically important to ensure the efficient use and deployment of EVSE without sacrificing reliability, convenience, safety or accessibility for electric vehicle drivers. Any proposals that inhibit, prohibit, or impose prescriptive locations for EV charging infrastructure, fire apparatus access, requirements for vehicle impact protection, automatic sprinklers, emergency disconnect switches, and signage etc lack technical justification, have not undergone a thorough code review process with expert stakeholder input and will be detrimental to expansion of EV charging infrastructure in Australian buildings going forward. In our view, any such requirements or modifications need to be proposed and fully vetted under the 2025 NCC process.

1 A sensible and equitable national road user charging framework

While Fuel Excise has not been hypothecated to road infrastructure since 1959, the gradual decline of fuel excise revenue due to electrification does represent a gradual

reduction in tax from vehicles toward federal consolidated revenue.

Tesla supports the introduction of equitable and practical road user charging (RUC) policies. When considering RUCs, Tesla urges policy makers to pay particular attention to three key issues:

A – The opportunity to make EVs more equitable.

B – The implications for taxi, rideshare, and other high mileage fleets.

C – The practical implications for Australian motorists.

A – The opportunity to make EVs more equitable.

Any policy that shifts upfront costs to ongoing cost for EVs is a welcome measure that can make EVs more equitably available. While EVs are already at price parity with ICEVs in many segments on a total cost of ownership basis, they often represent a higher upfront cost and lower ongoing cost.

For example, the below total cost of ownership comparison by the New Zealand's Government's GenLess tool shows that the Tesla Model 3 is cheaper to own on a per kilometre basis than a Toyota Camry Hybrid. The NZD12,000 upfront price difference may make it relatively more difficult for those on fixed or lower incomes to buy or finance the EV, leading to a 'boots theory' problem whereby those who are restricted to purchasing cheaper products upfront spend more overall.

A road user charge that imposed a relatively high per kilometre cost on EVs but offset this with an upfront rebate could be a fiscally sustainable way to boost electric vehicle uptake and more equitably distribute the benefits of EV ownership.

B – The implications for taxi, rideshare, and other high mileage fleets.

Road user charging has outsized impact on high mileage vehicles. These are the same vehicles it is most important to electrify in order to accelerate CO2 abatement. Therefore RUCs have an opportunity to particularly incentivise taxi, rideshare and other high mileage fleets to decarbonise, by offering concessional RUC rates for low emission vehicles in these sectors. On the other hand EVs pay a higher road user charge than many ICEVs (as is the case under RUC amendments recently introduced in New Zealand) the effect may be to slow decarbonisation in this most critical sector of vehicles.

C – The practical implications for Australian motorists.

The Victorian Government's EV RUC was an example of policy that resulted in impractical imposts on motorists. This scheme required EV owners to manually photograph and lodge documents with registration bodies that were not technically capable of implementing a practical system of road charging. The result was a highly impractical system that was

unworkable both for motorists and VicRoads. Federal policy makers should carefully consider the practical implications of any proposed RUC lest these mistakes be replicated.

2 Unlocking Australia's EV Fast Charging Infrastructure

Ensuring convenient and cost-effective charging is fundamental to support the uptake of EVs and directly address concerns of range-anxiety. Fast charging public infrastructure is critical for supporting longer-distance electromobility, and the charging needs of those (e.g. apartment dwellers) who lack adequate access to home-based chargers. In 2021, Tesla opened 912 new Supercharger locations around the world, an average of two and half new locations every day. Tesla's global network has grown to include over 50,000 Supercharger stations. Tesla's charging network also includes over 14,000 Destination Charging 'level 2' AC chargers. Tesla is committed to continue expanding these networks to provide a convenient and seamless charging experience for our customers.

However, a lack of national coordination and delayed federal policy has stymied Australia from enjoying an overarching roadmap that can accelerate the rollout of public charging infrastructure. It is not simply a lack of funding – there are a combination of barriers (technical, regulatory, and commercial) that need to be overcome.

Tesla operates the largest network of EV chargers in Australia. In our experience, the most critical barrier to increasing fast-charging infrastructure in Australia is the amount of time it takes to obtain grid connection and transformer upgrades. For Tesla, Australia is the most difficult country in the region to install direct current (DC) fast chargers, with transformer upgrades and grid connections often taking over 1 year for utilities to complete, compared to just 6-8 weeks in other countries. Tesla recommends that government track timeframes for fast-charger installations, aiming to reduce average timeframe from application to site readiness to below 3 months.

As an immediate next step and as part of the upcoming national EV strategy, we recommend the Australian Government, along with DNSPs and charging infrastructure operators, develop a comprehensive plan for the rollout of a public charging network at scale, with the following focus areas:

1. Work with DNSPs to simplify and streamline grid connections (target under 3 months): recognising the rising volume and frequency of EV charger applications over the coming years, and wide variability in deployment processes, ensure dedicated DNSP resources to support and learn from best performers.
2. Update connection frameworks to support multiple connection points at sites – ensuring clear separation from existing electrical boundaries and unbundling tariffs for multi-use sites (e.g. shopping centres).
3. Improve flexibility in capital upgrades: creating competitive procurement processes

for key asset upgrades (e.g. transformers and other long-lead network infrastructure) to expedite fast charger connections.

4. Ensure access to appropriate tariffs for EV chargers: incorporating high variability between peak/off-peak time of use rates and including demand charge waivers to ensure equitable and affordable public charging for all EV drivers.

If done well, Australia can harness the multi-billion investment opportunity to 2030, creating tens of thousands of new infrastructure jobs across planning, assessment, technical studies, technicians and construction for deployment and installation, as well as service for ongoing operation and maintenance. Conversely, failing to act will not only frustrate the ability for customers to charge their EVs conveniently and efficiently, it will slow the uptake of EVs and risk Australia's climate commitments by prolonging the use of high emission vehicles.

Behind the Meter Charging

It is also worth noting that the majority of EV charging is done at drivers' homes or workplaces with lower- to medium-powered (level 2) chargers. Access to off-street charging is one of the most important enablers of EV adoption, and one of the key equity challenges of EVs, because Australians who are less socio-economically advantaged are less likely to own their homes, have off-street parking, or be able to access workplace charging. Tesla recommends that the Federal Government make access to charging a key metric for its National EV Strategy. One approach would be to use census data to map areas where home-ownership and/or off-street parking are low and prioritise these areas for on-street parking trials or multi-unit-dwelling charging programs (see Tesla's response to the National EV Strategy consultation for additional detail on these points).

Here Government also has a critical role to accelerate EV charging infrastructure in private settings by ensuring National Construction Code provisions on EV readiness are integrated into state level instruments, creating programs for EV charging retrofits in apartment complexes, requiring standardised approaches by DNSPs on installation requirements for home charging, and providing training for electricians on EV charger installation. This coordinated approach will also be vital in combating misinformation related to EVs and fire risk that is unnecessary adding delays and costs to EV charging infrastructure.

To be clear, Tesla does not support recent proposals from DNSPs to expand their monopoly over poles and wires into EV charging. As the world's leading supplier and operator of EV charging infrastructure (50,000+ Superchargers globally), we find this deeply concerning on multiple fronts and would be keen to ensure there is no distraction from these types of proposals given (a) there is already a functioning market for EV charging equipment (with strong and continuing growth); (b) it is not clear what problem DNSPs are seeking to solve; and additional involvement would in reality create additional barriers to both EV charging and EV adoption more broadly; and (c) DNSPs already hold a monopoly position on the critical path to EV charging installation and to

date have shown little appetite to improve, simplify, or speed up processes, collaborate with EV charging suppliers, or support EV adoption scale at the pace required.

The advantage of improving access to 'behind the meter' charging is the direct ability to utilise rooftop solar and become part of the optimisation of distributed energy resources (DER). All EV charging that occurs at lower AC levels can leverage 'free' excess solar energy and spare network capacity, providing grid reliability and system security benefits by avoiding low operational demand risks that are already being faced in states with high solar uptake (i.e. WA and SA) and further optimising the grid transition towards and above 82% renewable energy. Whilst some DNSPs are beginning to adapt existing tariffs or even create bespoke 'EV tariffs', more work is needed to ensure fair and transparent costs for actual usage and embed appropriate incentives to control/shift load via a national guide to time-of-use tariffs that incentivise this type of off-peak / high solar charging.

3 Minimum operating standards for publicly-funded fast chargers

Where public charging stations receive funding from government, Tesla supports the proposal to establish minimum standards of reliability and performance that are considered in grant processes.

Establishing clear operating standards for publicly funded EV charging infrastructure is critically important to ensure funding is efficiently used and station deployment accelerated without sacrificing reliability, convenience, safety or accessibility for electric vehicle drivers. However, as currently drafted, the Minimum Operating Standards will restrict the deployment and operation of chargers and increase costs for consumers. It is critical to set the initial standards correctly to avoid prohibitive and impractical requirements that will restrict most charging operators from eligibility. We look forward to working with DCCEEW to ensure fit for purpose standards can be more appropriately defined, ambiguities clarified, and requirements implemented in a way that will ensure optimised operations whilst maximising tax-payer and customer benefits.

Tesla cautions that such measures should be carefully designed to ensure they do not impose unnecessary red tape on operators. For example:

- As general best practice, we suggest site requirements for AC charging be considered and designed completely separately from DC charging. AC vs DC have different products, markets, customer expectations, technical standards, operating profiles, and therefore warrant a different set of minimum requirements for operating standards as well.
- We encourage maximising the value of publicly funded public charging stations and making program budgets go further. This could be achieved by:
 - a) Increasing minimum number of charging units per eligible site (we recommend increasing to at least 4 stalls for remote sites; and at least 8 stalls for high usage sites);

and

b) Setting project finance parameters/caps – to avoid vendors inflating prices to access additional funding. For example, government incentives could be capped at up to \$50k/stall; or as X% of total project costs (where X can vary depending on the commercial viability and expected throughput of the site – where highly frequented sites have a lower cap, e.g. ~50%; and remote stations have up to 100% eligible to ensure equitable coverage in both urban and regional areas.

- We support requirements for high reliability (at least 98% uptime), but strongly recommend this metric is measured at a total site level (rather than individual charging station posts) given larger sites have inherent redundancy built in, and to reflect the true user experience at a charging station. Based on Tesla’s experience deploying our direct current fast charging (DCFC) network, known as the Supercharger Network, over the past decade, station reliability is extremely important to customer experience. Having a reliable, accessible charging network is one of the elements that helps customers consistently rate the Supercharger experience as best in class. In Tesla’s 2021 Impact Report, we highlighted that reliability is a key factor for our network and the chances of not being able to charge at any location at any given time are close to zero.
- Site level requirements will incentivise CPOs to build more charging stations – aligned with the program objectives. In general, when considering where to deploy Superchargers, Tesla proactively builds larger stations. These larger stations inherently have redundancy in the case of unforeseen events that take down one or more of the stalls at a site. For example, customer experience impacts are minimal or non-existent if 2 stalls are temporarily offline at a 20-stall charging station. However, customer experience can be distressingly poor if 2 stalls go off-line at a 4- stall station.

54 22.1 How would these actions address the identified challenges and opportunities to reduce transport infrastructure emissions?

Not answered

55 23. What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to ensure the energy mix is ready to support transport emissions reduction?

Not answered

56 24. How should the use of low carbon liquid fuels (LCLFs) be prioritised

across different transport modes over time to achieve maximum abatement?

Not answered

- 57 25. What are the best ways for the Australian Government to work collaboratively with industry, business, governments and communities to implement the proposed pathways?

Not answered

- 58 25.1 What are good domestic or international examples of partnership and collaboration on transport and transport infrastructure emissions reduction that could inform the final Roadmap and Action Plan?

Not answered

- 59 25.2 What opportunities can Government leverage to show leadership in Australia and internationally?

Not answered

- 60 26. What measures and metrics should be used to evaluate the final Transport and Infrastructure Net Zero Roadmap and Action Plan?

Not answered

- 61 26.1 What other data and evidence could governments use and how could this offer further insights on the pace, scale and location of transport emissions reduction pathways?

Not answered

- 62 27. Do you have any feedback on the proposed review process?

Not answered

- 63 28. Do you have any further feedback on the Consultation Roadmap and proposed pathways?

Not answered

- 64 28.1 Is there anything missing? Are the sections appropriately integrated? Is the Roadmap appropriately ambitious?
Not answered
- 65 29. Is there any further information or documentation that you wish to be considered with your submission?
Not answered
- 66 Would you like to upload a document?
Yes
- 67 Have you removed any identifying information from your submission?
Yes
- 68 Upload a submission
Tesla Submission into DCCEEW Transport Net Zero Pathway .pdf
- 69 Upload a submission
Not answered
- 70 Upload supporting file
Not answered
- 71 Upload supporting file
Not answered

Department of Infrastructure, Transport,
Regional Development, Communications and the Arts
Australian Government

Via email to: NetZero@infrastructure.gov.au

26 July 2024

RE: Transport and Infrastructure Net Zero Consultation Roadmap

Tesla Motors Australia, Pty Ltd (Tesla) welcomes the opportunity to provide a submission to the Transport and Infrastructure Net Zero Consultation Roadmap.

Tesla's mission is to accelerate the world's transition to sustainable energy. Tesla believes the world will not be able to solve the climate change crisis without directly reducing air pollutant emissions including carbon dioxide (CO₂) and other greenhouse gases (GHGs) from the transportation and infrastructure sectors.

To accomplish its mission, Tesla designs, develops, manufactures, and sells high-performance fully electric zero emission vehicles (ZEVs) and battery storage systems, installs, and maintains such systems, and sells solar electricity. This ensures our EVs can charge off an increasingly renewable power grid at our public superchargers, as well as from customer's own excess rooftop solar, where the majority of vehicle charging takes place, maximising fuel savings whilst eliminating emissions¹.

Tesla currently produces and sells five ZEVs: The Model S sedan, the Model X sport utility vehicle (SUV), the Model 3 sedan, the Model Y mid-sized SUV, and the Cybertruck (all purpose utility truck or 'ute'). Tesla is by far the highest-selling manufacturer of ZEVs in Australia, accounting for 2 in every 3 ZEVs sold. Tesla is also investing in its growing network of retail stores, vehicle service centres, and electric vehicle charging stations to accelerate and support the widespread adoption of its EV products. Tesla operates the largest network of EV chargers in Australia.

Key recommendations for road – light vehicles net zero pathway:

1. Reliable public data on vehicle sales.
2. Accurately measuring health impacts of vehicle and other air pollution.
3. A national framework for autonomous vehicle regulation, including Australian Design rules that support flexibility and innovation.

Key recommendations for transport infrastructure net zero pathway:

4. A sensible and equitable national road user charging framework.
5. Unlocking Australia's EV Fast Charging Infrastructure.
6. Minimum operating standards for publicly-funded fast chargers.

Tesla looks forward to working with the government to further the decarbonization of the transport sector. In addition to the recommendations above, Tesla supports positions outlined by the Electric Vehicle Council (EVC) in their proposals for the Net Zero Roadmap, emphasizing the prioritisation of EVs in decarbonisation of transport, robust guiding principles and frameworks, and a comprehensive national approach.

¹ https://www.tesla.com/en_au/support/tesla-app/charge-on-solar

Tesla thanks the government for its ongoing focus on the important questions ahead of us in this transition, and we look forward to being a constructive partner in that effort.

Sincerely,

Tesla Motors Australia

Recommendations for Road – Light Vehicles Net Zero Pathway

General Comments on Safety

Safety is always Tesla's priority across all products and operations. Tesla vehicles are engineered to be some of the safest in the world. We believe the best crash is no crash and are focused on enhancing avoidance mitigations and active safety improvements in our vehicles, as well as ensuring that the risk of fire for EVs and energy storage products is as low as possible, which is critical for mass adoption. We continue to review, test and update our safety requirements and procedures ahead of industry standards. We point the ABCB to the latest data, showing:

- Vehicle fires for Tesla vehicles are eight-times less likely than the U.S. average (7.3 vehicle fires per billion miles driven in a Tesla vs US average of 59.5).²
- The fire hazard of EVs is not higher than that of ICE vehicles. In fact, studies have concluded that the heat released from EV fires are less than or equal to the heat released from ICE fires.³
- There have been no instances of major fires in parking structure initiated by EVs or EV charging stations.⁴

Beyond our own products, Tesla is committed to helping fire departments and first responders safely handle emergency situations involving the operation of all Tesla products. We have trained thousands of first responders to appropriately handle Tesla vehicles and batteries through virtual and in-person training, through provision of decommissioned vehicles, support lines, and attendance at relevant safety and code conferences.

1 Reliable public data on vehicle sales.

Australia still does not have a trustworthy and transparent public source of data on vehicle sales and vehicle CO2.

Two years ago, the Government embarked on a public policy process to reduce the average CO2/km of new vehicles. It is absurd that when this process began nobody could produce an accurate figure of the current CO2/km of Australian new vehicles. Nor is there any reliable public dataset regarding trends in vehicle size, price, and features. All of these should be collated and published in the interests of good policy making and economic analysis.

Australia stands almost alone in not having a free, public, granular account of vehicle sales and registrations. The National Exchange of Vehicle and Driver Information System (**NEVDIS**) dataset is notoriously patchy and incomplete.

The VFACTs database administered by the Federal Chamber of Automotive Industries has been deliberately manipulated by that lobby group to obscure actual CO2 data. FCAI has refused to release accurate data about vehicle CO2, instead putting out data that bakes in its preferred multiplier and credit loopholes and vehicle categories. This has drawn sharp criticism from the National Transport Commission, which has been unable to provide accurate and continuous data to inform policy development⁵. VFACTs simply is not a reliable source of data.

For comparison, consider New Zealand's Ministry of Transport fleet statistics reporting. This includes weekly low emissions vehicle reports and comprehensive statistics about new vehicle sales and the existing vehicle fleet. Like Australia, Canada has state and territory registration authorities with various data collection practices but has aggregated these into a national reporting framework.

² See pg 29 - www.tesla.com/ns_videos/2023-tesla-impact-report-highlights.pdf

³ <https://ineris.hal.science/ineris-00973680/document>

⁴ https://publications.gc.ca/collections/collection_2023/cnrc-nrc/NR24-120-2023-eng.pdf

⁵ 'Blowing smoke: Toyota's emissions advantage splits sector' Sydney Morning Herald, Peter Hannam, August 20, 2021

This could be a simple task. The Federal Government should simply mandate that all OEMs make a monthly report of their delivery data publicly available online. Alternatively, OEMs could report monthly data to the Department of Transport or the Clean Energy Regulator for compilation and publication as a simple dataset in CSV or JSON format.

The public could quickly build and iterate useful public interfaces on that data as OpenNEM have done for the electricity sector. The Australian Government's initial Data and Digital Government Strategy articulates the Government's aim of "making non-sensitive data open by default" and prioritising "integrity and transparency in service delivery which increases trust in the Australian Government." Both principles are important to apply to New Vehicle Efficiency Standards. The eight principles for open data by the Open Government Working Group also provide a checklist that could inform the Australian Government's approach.

1. Complete: in this case that means including raw CO2 data before any additional credits are applied and publishing granular information on the impact of any multiplier or technology credits.
2. Primary: data as it is collected with the highest possible level of granularity. In this case that would include marque, model, variant, vehicle category, homologation segment, drivetrain type, fuel economy, and CO2/km.
3. Timely: made available as quickly as possible. In this case that would ideally mean data is collected monthly from OEMs and published within 1 week after being provided back to OEMs for checks.
4. Accessible: available to the widest range of users for the widest range of purposes.
5. Machine processable: reasonably structured to allow automated processing.
6. Non-discriminatory: data is available to anyone, with no requirement of registration.
7. Non-proprietary: available in a format over which no entity has exclusive control.
8. License-free: not subject to copyright, patent, or trademark regulation.

2 Accurately measuring health impacts of vehicle and other air pollution.

Vehicle pollution kills more Australians each year than vehicle accidents. An expert statement on the health impacts of vehicle pollution estimated that 11,105 Australians die early as a result of vehicle pollution each year⁶. This paper was endorsed by leading respiratory physicians as well as the Asthma Australia, Lung Foundation Australia, Cancer Council and many others.

Australia's most common cause of general practitioner presentation in children under five is asthma and allergy. In 2012, Gasana et al. observed that children attending schools near high traffic density roads were exposed to higher levels of vehicle pollutants and had an associated increase in the incidence and prevalence of childhood asthma and wheeze.

Australian governments at all levels spend a great deal on infrastructure and public education to reduce the vehicle accident road toll; government advertising campaigns affirm that "zero is the only acceptable number" of road deaths. These efforts are laudable, and Tesla is proud that its vehicles have the highest Australasian New Car Assessment Program (ANCAP) scores yet recorded.

Deaths caused by vehicle pollution in respiratory wards are no less tragic and preventable than deaths caused by accidents on roads. It is time that governments treated them with the same gravity and urgency.

The long-term impact of air pollution on health should be closely studied and aggressively mitigated. As a starting point, it is important that vehicle pollution deaths and illnesses are adequately measured. It has been 17 years since BITRE released a detailed report on health impacts of transport emissions in Australia.

⁶ https://www.unimelb.edu.au/__data/assets/pdf_file/0006/4498161/Expert-Position-Statement_Vehicle-emissions_FINAL.pdf

There is a serious dearth of quality data collected to measure the overall impact of transport pollution, let alone provide granular insights that would allow policy makers to effectively target and iterate interventions. If road accident data was not collected in sufficient detail to accurately estimate how many Australians died or were injured in accidents, policy makers and public health officials would be justly outraged; the same response is justified for pollution data.

Tesla recommends the federal government fund an expansion of particulate and noxious pollution monitors to better quantify vehicle and other pollution around Australia. Health and Air Pollution New Zealand (HAPINZ 3.0) is a thorough and internationally peer reviewed framework for evaluating the effects of air pollution on human health across New Zealand and the resulting social costs.

Tesla recommends that Australia investigate adapting the HAPINZ 3.0 framework for use in Australia. Furthermore, Tesla recommends that the federal government publish an annual estimated vehicle pollution road toll alongside regular reports on health impacts of anthropogenic air pollution.

3 A national framework for autonomous vehicle regulation.

Autonomous vehicles are the next key step in the electric vehicle transition.

While Tesla and other companies are scaling EV production at unprecedented rates, a further step change in decarbonising transport is possible if we can significantly increase the utilisation of electric vehicles by moving toward autonomous vehicles.

Most passenger vehicles are idle ~95% of the time. Autonomous vehicles could be utilised around the clock, significantly decreasing the cost per kilometre of travel in electric vehicles. This would rapidly accelerate decarbonisation.

Tesla's 2022 Impact Report outlines that on non-highways with Full Self Driving (FSD) engaged had just 0.31 accidents per million miles representing an 80% reduction compared with the US vehicle average of 1.53 accidents per million miles.

Tesla has recently deployed its Full Self Driving Supervised V12 system across the United States and Canada. This represents a significant step toward autonomous vehicle systems, and an enormous improvement in vehicle safety. Australia has an important opportunity to be among the early adopters of advanced driver assistance software that will save lives by aligning with the North American approach to homologation and regulation of driver assistance and autonomous software, in particular ensuring relevant Australian Design Rules remain flexible and allow for innovation as the technology and hardware capabilities evolve over time.

Recommendations for Transport Infrastructure Net Zero Pathway

General Comments on Safety

EV charging stations have been deployed safely for more than a decade globally, and are not a public safety or 'special hazard'. EV charging is extremely safe by design. Charging cables are only energized when connected and locked to the electric vehicle and communication is established between the charging equipment and the vehicle. The vehicle and charger actively communicate before energy transfer is initiated. This ensures, charging connector latch position, isolation resistance, cell temperature and voltages are within safe parameters for charging. The flow of electricity to the charging cable is automatically shut off if the charging connector is unlocked or communication between the vehicle and charging equipment ceases. This safety is mandated via international standards (e.g. IEC 61851-23:2014) which covers these features (e.g. handshake prior to energy transfer, insulation resistance, cell voltage etc).

As such, establishing clear and consistent standards and codes for EV charging infrastructure is critically important to ensure the efficient use and deployment of EVSE without sacrificing reliability, convenience, safety or accessibility for electric vehicle drivers. Any proposals that inhibit, prohibit, or impose prescriptive locations for EV charging infrastructure, fire apparatus access, requirements for vehicle impact protection, automatic sprinklers, emergency disconnect switches, and signage etc lack technical justification, have not undergone a thorough code review process with expert stakeholder input and will be detrimental to expansion of EV charging infrastructure in Australian buildings going forward. In our view, any such requirements or modifications need to be proposed and fully vetted under the 2025 NCC process.

4 A sensible and equitable national road user charging framework.

While Fuel Excise has not been hypothecated to road infrastructure since 1959, the gradual decline of fuel excise revenue due to electrification does represent a gradual reduction in tax from vehicles toward federal consolidated revenue.

Tesla supports the introduction of equitable and practical road user charging (RUC) policies. When considering RUCs, Tesla urges policy makers to pay particular attention to three key issues:

- A – The opportunity to make EVs more equitable.
- B – The implications for taxi, rideshare, and other high mileage fleets.
- C – The practical implications for Australian motorists.


A – The opportunity to make EVs more equitable.

Any policy that shifts upfront costs to ongoing cost for EVs is a welcome measure that can make EVs more equitably available. While EVs are already at price parity with ICEVs in many segments on a total cost of ownership basis, they often represent a higher upfront cost and lower ongoing cost.

For example, the below total cost of ownership comparison by the New Zealand's Government's GenLess tool shows that the Tesla Model 3 is cheaper to own on a per kilometre basis than a Toyota Camry Hybrid. The NZD12,000 upfront price difference may make it relatively more difficult for those on fixed or lower incomes to buy or finance the EV, leading to a 'boots theory' problem whereby those who are restricted to purchasing cheaper products upfront spend more overall.

A road user charge that imposed a relatively high per kilometre cost on EVs but offset this with an upfront rebate could be a fiscally sustainable way to boost electric vehicle uptake and more equitably distribute the benefits of EV ownership.


Toyota CAMRY
Hybrid SX



RRP	COST P/KM	CO ₂ GRAMS/KM
\$51,990	\$0.31	119

Tesla MODEL 3
RWD

ELECTRIC



RRP	COST P/KM	CO ₂ GRAMS/KM
\$63,990	\$0.27	0

B – The implications for taxi, rideshare, and other high mileage fleets.

Road user charging has outsized impact on high mileage vehicles. These are the same vehicles it is most important to electrify in order to accelerate CO₂ abatement. Therefore RUCs have an opportunity to particularly incentivise taxi, rideshare and other high mileage fleets to decarbonise, by offering concessional RUC rates for low emission vehicles in these sectors. On the other hand EVs pay a higher road user charge than many ICEVs (as is the case under RUC amendments recently introduced in New Zealand) the effect may be to slow decarbonisation in this most critical sector of vehicles.

C – The practical implications for Australian motorists.

The Victorian Government’s EV RUC was an example of policy that resulted in impractical imposts on motorists. This scheme required EV owners to manually photograph and lodge documents with registration bodies that were not technically capable of implementing a practical system of road charging. The result was a highly impractical system that was unworkable both for motorists and VicRoads. Federal policy makers should carefully consider the practical implications of any proposed RUC lest these mistakes be replicated.

5 Unlocking Australia’s EV Fast Charging Infrastructure

Ensuring convenient and cost-effective charging is fundamental to support the uptake of EVs and directly address concerns of range-anxiety. Fast charging public infrastructure is critical for supporting longer-distance electromobility, and the charging needs of those (e.g. apartment dwellers) who lack adequate access to home-based chargers. In 2021, Tesla opened 912 new Supercharger locations around the world, an average of two and half new locations every day. Tesla’s global network has grown to include over 50,000 Supercharger stations⁷. Tesla’s charging network also includes over 14,000 Destination Charging ‘level 2’ AC chargers. Tesla is committed to continue expanding these networks to provide a convenient and seamless charging experience for our customers.

However, a lack of national coordination and delayed federal policy has stymied Australia from enjoying an overarching roadmap that can accelerate the rollout of public charging infrastructure. It is not simply

⁷ https://www.tesla.com/en_au/supercharger

a lack of funding – there are a combination of barriers (technical, regulatory, and commercial) that need to be overcome.

Tesla operates the largest network of EV chargers in Australia. In our experience, the most critical barrier to increasing fast-charging infrastructure in Australia is the amount of time it takes to obtain grid connection and transformer upgrades. For Tesla, Australia is the most difficult country in the region to install direct current (DC) fast chargers, with transformer upgrades and grid connections often taking over 1 year for utilities to complete, compared to just 6-8 weeks in other countries. Tesla recommends that government track timeframes for fast-charger installations, aiming to reduce average timeframe from application to site readiness to below 3 months.

As an immediate next step and as part of the upcoming national EV strategy, we recommend the Australian Government, along with DNSPs and charging infrastructure operators, develop a comprehensive plan for the rollout of a public charging network at scale, with the following focus areas:

1. Work with DNSPs to simplify and streamline grid connections (target under 3 months): recognising the rising volume and frequency of EV charger applications over the coming years, and wide variability in deployment processes, ensure dedicated DNSP resources to support and learn from best performers.
2. Update connection frameworks to support multiple connection points at sites – ensuring clear separation from existing electrical boundaries and unbundling tariffs for multi-use sites (e.g. shopping centres).
3. Improve flexibility in capital upgrades: creating competitive procurement processes for key asset upgrades (e.g. transformers and other long-lead network infrastructure) to expedite fast charger connections.
4. Ensure access to appropriate tariffs for EV chargers: incorporating high variability between peak/off-peak time of use rates and including demand charge waivers to ensure equitable and affordable public charging for all EV drivers.

If done well, Australia can harness the multi-billion investment opportunity to 2030, creating tens of thousands of new infrastructure jobs across planning, assessment, technical studies, technicians and construction for deployment and installation, as well as service for ongoing operation and maintenance. Conversely, failing to act will not only frustrate the ability for customers to charge their EVs conveniently and efficiently, it will slow the uptake of EVs and risk Australia's climate commitments by prolonging the use of high emission vehicles.

Behind the Meter Charging

It is also worth noting that the majority of EV charging is done at drivers' homes or workplaces with lower- to medium-powered (level 2) chargers. Access to off-street charging is one of the most important enablers of EV adoption, and one of the key equity challenges of EVs, because Australians who are less socio-economically advantaged are less likely to own their homes, have off-street parking, or be able to access workplace charging. Tesla recommends that the Federal Government make access to charging a key metric for its National EV Strategy. One approach would be to use census data to map areas where home-ownership and/or off-street parking are low and prioritise these areas for on-street parking trials or multi-unit-dwelling charging programs (see Tesla's response to the National EV Strategy consultation for additional detail on these points).

Here Government also has a critical role to accelerate EV charging infrastructure in private settings by ensuring National Construction Code provisions on EV readiness are integrated into state level instruments, creating programs for EV charging retrofits in apartment complexes, requiring standardised approaches by DNSPs on installation requirements for home charging, and providing training for electricians on EV charger installation. This coordinated approach will also be vital in combating misinformation related to EVs and fire risk that is unnecessary adding delays and costs to EV charging infrastructure.

To be clear, Tesla does not support recent proposals from DNSPs to expand their monopoly over poles and wires into EV charging. As the world's leading supplier and operator of EV charging infrastructure (50,000+ Superchargers globally), we find this deeply concerning on multiple fronts and would be keen to ensure there is no distraction from these types of proposals given (a) there is already a functioning

market for EV charging equipment (with strong and continuing growth); (b) it is not clear what problem DNSPs are seeking to solve; and additional involvement would in reality create additional barriers to both EV charging and EV adoption more broadly; and (c) DNSPs already hold a monopoly position on the critical path to EV charging installation and to date have shown little appetite to improve, simplify, or speed up processes, collaborate with EV charging suppliers, or support EV adoption scale at the pace required.

The advantage of improving access to 'behind the meter' charging is the direct ability to utilise rooftop solar and become part of the optimisation of distributed energy resources (DER). All EV charging that occurs at lower AC levels can leverage 'free' excess solar energy and spare network capacity, providing grid reliability and system security benefits by avoiding low operational demand risks that are already being faced in states with high solar uptake (i.e. WA and SA) and further optimising the grid transition towards and above 82% renewable energy. Whilst some DNSPs are beginning to adapt existing tariffs or even create bespoke 'EV tariffs', more work is needed to ensure fair and transparent costs for actual usage and embed appropriate incentives to control/shift load via a national guide to time-of-use tariffs that incentivise this type of off-peak / high solar charging.

6 Minimum operating standards for publicly-funded fast chargers

Where public charging stations receive funding from government, Tesla supports the proposal to establish minimum standards of reliability and performance that are considered in grant processes.

Establishing clear operating standards for publicly funded EV charging infrastructure is critically important to ensure funding is efficiently used and station deployment accelerated without sacrificing reliability, convenience, safety or accessibility for electric vehicle drivers. However, as currently drafted, the Minimum Operating Standards will restrict the deployment and operation of chargers and increase costs for consumers. It is critical to set the initial standards correctly to avoid prohibitive and impractical requirements that will restrict most charging operators from eligibility. We look forward to working with DCCEEW to ensure fit for purpose standards can be more appropriately defined, ambiguities clarified, and requirements implemented in a way that will ensure optimised operations whilst maximising taxpayer and customer benefits.

Tesla cautions that such measures should be carefully designed to ensure they do not impose unnecessary red tape on operators. For example:

- As general best practice, we suggest site requirements for AC charging be considered and designed completely separately from DC charging. AC vs DC have different products, markets, customer expectations, technical standards, operating profiles, and therefore warrant a different set of minimum requirements for operating standards as well.
- We encourage maximising the value of publicly funded public charging stations and making program budgets go further. This could be achieved by:
 - a) Increasing minimum number of charging units per eligible site (we recommend increasing to at least 4 stalls for remote sites; and at least 8 stalls for high usage sites); and
 - b) Setting project finance parameters/caps – to avoid vendors inflating prices to access additional funding. For example, government incentives could be capped at up to \$50k/stall; or as X% of total project costs (where X can vary depending on the commercial viability and expected throughput of the site – where highly frequented sites have a lower cap, e.g. ~50%; and remote stations have up to 100% eligible to ensure equitable coverage in both urban and regional areas.
- We support requirements for high reliability (at least 98% uptime), but strongly recommend this metric is measured at a total site level (rather than individual charging station posts) given larger sites have inherent redundancy built in, and to reflect the true user experience at a charging station. Based on Tesla's experience deploying our direct current fast charging (DCFC) network, known as the Supercharger Network, over the past decade, station reliability is extremely important to customer experience. Having a reliable, accessible charging network is one of the elements that helps customers consistently rate the Supercharger experience as

best in class. In Tesla's 2021 Impact Report, we highlighted that reliability is a key factor for our network and the chances of not being able to charge at any location at any given time are close to zero.

- Site level requirements will incentivise CPOs to build more charging stations – aligned with the program objectives. In general, when considering where to deploy Superchargers, Tesla proactively builds larger stations. These larger stations inherently have redundancy in the case of unforeseen events that take down one or more of the stalls at a site. For example, customer experience impacts are minimal or non-existent if 2 stalls are temporarily offline at a 20-stall charging station. However, customer experience can be distressingly poor if 2 stalls go off-line at a 4- stall station.