Transport and Infrastructure Net Zero Consultation Roadmap

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Department of Climate Change, Energy, Environment and Water

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Yes

5 First name
Not answered

6 Last name
Not answered

7 Email
Not answered

8 Phone

Not answered

9 Who are you answering on behalf of?

Organisation

10 Organisation name

Electric Vehicle Council

11 What best describes you or your organisation?

Not answered

12 What sector do you represent?

Not answered

13 What state or territory do you live in?

New South Wales

14 Postcode

2000

15 What area best describes where you live?

City

16 1. Do you support the proposed guiding principles?

Yes

17 1.1 Please add details to your response.

The EVC agrees with the five guiding principles to: maximise emissions reduction, provide value for money, maximise economic opportunity, be inclusive and equitable, and be evidence-based.

Additionally, the EVC recommends the Department consider an additional principle of identifying decarbonisation pathways for transport that complement other sectors of the economy. For example, decarbonisation of transport will have an impact on the energy

sector. With the right settings in place, electrification can be complementary to the decarbonisation of the energy sector by supporting the uptake of renewables through smart
charging and providing grid stability via vehicle-to-grid (V2G).
Conversely, the overuse of energy-intensive technologies (e.g. synthetic fuels) in an attempt to decarbonise our transport system could have a negative impact on the energy sector, inefficiently consuming our limited renewable energy over the medium-term, and maintaining dependency on legacy fossil fuels. The use of these alternatives much be strategic and evidence-based.

18 ## 2. Do you support the use of the avoid-shift-improve framework as a tool to identify opportunities for abatement?

Yes

19 ## 2.1 Please add details to your response.

The EVC has advocated for the use of the 'avoid-shift-improve' framework for several years.
It is consistent with the recommendations of the IPCC, A Framework for an Australian Clean
Transport Strategy (FACTS)1
, Climateworks' Decarbonising Australia's transport sector
report2
, and several international transport decarbonisation strategies.
The EVC supports the use of the avoid-shift-improve framework in this roadmap, on the basis that is adopted using the hierarchy in which it is intended to be applied i.e. first avoid trips where possible, then for the trips that can't be avoided shift them to more carbon efficientmodes / trips, and finally for the trips that cannot be avoided or shifted (or
optimised), improve by means of using more energy-efficient technologies e.g. electrification.
The application of this hierarchy appears to be absent from the consultation paper. This hierarchy is important because 'avoid' and 'shift' strategies make the task of the 'improve' strategies easier – noting that all three categories will be necessary and critical for Australia
to achieve net zero by 2050, and its interim emission reduction targets

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

Yes

21 3.1 Please add details to your response.

The development of a national policy framework for active and public transport is critical for
supporting emissions reduction. While Australia must rapidly move towards a zero emission electric vehicle fleet as soon as possible, it is also necessary to curb growth in
private vehicle usage and encourage opportunities to optimise transport movements to manage road congestion and deliver broader efficiency and economic benefits.
We recommend the government also consider shared transport as part of this framework,
ranging from shared micro-mobility (shared electric bikes and scooters) to car-sharing, car pooling, taxis and ride-sharing. Ultimately, it is this diversity of alternative mode choices
that will be necessary to encourage a material shift away from private vehicle use.

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

The following elements should be included:
- Infrastructure
o Dedicated active transport network, separated lanes
o Dedicated public transport, priority access, cross-modal linkages
o Dedicated shared transport infrastructure, car-share parking spaces, micro mobility access, priority infrastructure access e.g. HOT lanes
o Charging infrastructure for micro-mobility, shared vehicles and public transport
- Incentives
o Rethink pricing of active, shared, public transport support shift towards Mobility as a Service subscriptions e.g. unlimited / capped use instead of PAYG 3,4
o Support companies to develop rewards programs that encourage active, shared and public transport use. These could be dedicated entities, like Mobility as a Service (MaaS) providers, or could be alternative service providers e.g. health insurers, which would co-benefit from customers being more active, less dependent on private vehicles
o Tax deductions to purchase electric bikes that conform to strict safety standards.
- Pricing

o Consideration of opportunities that recognise externalities from different transport choices e.g. road pricing, with revenue raised to fund alternatives modes and infrastructure
o A review into a national road pricing scheme should consider emissions, type of vehicle, size, time of day, location, etc, and apply to all vehicles regardless of fuel type.
o A review should consider the phase-out of existing road related taxes in exchange for a new pricing scheme to deliver real tax reform, while improving the efficiency of our transport network, and driving down emissions.
- Co-funding for state governments
o Work with state and territory governments (and local governments where applicable) to trial innovative solutions and services, while improving trunk infrastructure services, such as public transport frequency and reliability.
Australia needs to be willing to trial new and innovative solutions to encourage active, shared and public transport – even in the face of some of these potential options not being
implemented long-term or delivering sufficient benefits. It is only through an active 'trial and
error' approach that Australia will determine the right mix of options to cater for the diverse
mobility needs of the Australian community, and deliver a material reduction in private car
dependency.

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?

Informing and educating citizens of transport options inclusive of their emissions, alongside
cost and time, and providing them agency to make decisions is critical. More importantly than information and education is planning our cities to allow people to make choices that reduce emissions. This includes encouraging urban densities so that people can implement
the avoid-shift-improve paradigm on a practical basis.
Providing citizens less carbon-intensive transport options that are cost-effective against current options needs to be the priority. A case in point is the increase in electric vehicle fleets which will become second-hand car purchases by private residences. An increased range of ex-fleet electric vehicles will provide cost-effective electric vehicles. At the same time, regulation and pricing to discourage high-pollution vehicles will shift the average

citizen towards less carbon-intensive vehicles.

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?

The movement of goods is the lifeblood of Australian households and businesses. We must
move towards a future where we can support this movement using low and zero carbon technologies. Additionally, as the second largest contributor to transport emissions, if this segment is not supported to decarbonise, it presents a major risk to Australia achieving its
climate targets
Thankfully, electric trucks and vans are already a viable technology for many applications. The key barriers faced by this segment vary according to the size of the vehicle, but in general, include:
- The need for regulatory changes to support the use of electric trucks and vans, recognising these vehicles weight more than equivalent diesel vehicles, and therefore require consideration of this additional weight in order to reduce the commercial impact.
- Support to reduce the upfront cost barrier for some vehicles, primarily through the development of a zero-interest loan scheme that could be paid off over time using the running cost savings of the vehicle (and/or other incentives).
- Dedicated truck charging infrastructure to support movement across the country, as well as support for installing truck charging infrastructure at depots, which includes consideration of upstream electricity infrastructure asset costs.
Additionally, we would note that concerns about road pavement damage arising from electric trucks is stalling uptake across Australia, and resulting in a lack of progress in providing mass concessions. While further research can be undertaken into this matter, Australia cannot afford to wait for the results before stimulating the market, and therefore
should move towards at minimum introducing a limited permit scheme which enables a set
number of electric trucks to operate on our road network. The permit should enable use of
the vehicle for its entire lifetime to provide certainty to fleets investing in the technology that
they will not be left with stranded assets. This permit scheme would also help to collect the

necessary data to inform where infrastructure needs are greatest.
Further delays in enabling the adoption of electric trucks – of all shapes and sizes – with impact Australia's ability to reach net zero, and is not an acceptable outcome. The time for action was yesterday, and we have no further time to afford to waste.
You can read more about our recommendations to support the electrification of trucks here:
https://electricvehiclecouncil.com.au/wp-content/uploads/2022/01/ATA-EVC-Electric trucks_Keeping-shelves-stocked-in-a-net-zero-world-1.pdf
Please also refer to our submission to the recent Parliamentary Inquiry into the transition to electric vehicles: https://electricvehiclecouncil.com.au/submissions/evc-response-to inquiry-into-e v-transition

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.

Per IPCC guidance, electric vehicles are the primary pathway for decarbonising light road vehicles. Alternative technologies may have a role to play in other transport segments, but
in both the short and medium term there is no evidence that any other zero-emission technology will be commercially competitive.
The EVC expects that hybrid vehicles will play a transitionary role over the medium term, and in particular, we support plug-in hybrid electric vehicles (PHEVs) with the right incentive
structures in place to encourage regular charging. Otherwise, the timeline of the transition
appears appropriate.

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?

Please refer to our submission to the recent Parliamentary Inquiry into the transition to electric vehicles: https://electricvehiclecouncil.com.au/submissions/evc-response-to inquiry into-e v-transit

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

Australia needs to prioritise battery-electric vehicles prior to 2030 for short and medium haul applications. To meet our transport emission reduction targets, these must move
speedily beyond trials. In many applications, this can already be undertaken with the right policy and regulatory settings
There is no evidence to support the contention that alternatives to electrification will be commercially viable – even with government support – in the near-term. We need to monitor
international developments to understand if gaps emerge in 2030s, what alternatives may
exist, and use low-carbon-liquid-fuels as an interim measure to fill gaps.

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?

Battery-electric is the primary pathway for decarbonising land transport and is the only option that is commercially viable for many freight applications in the near-term. This should
also include electrification of trailers5
to support a reduction in fuel and energy consumption
from all trucks – regardless of powertrain.
LCLFs, combined with hybridisation, may help to reduce emissions from super heavy / ultra long-haul applications.
It is not clear whether hydrogen fuel cell vehicles will be commercially viable for land transport, and it would be premature to invest in infrastructure prior to further international developments in terms of vehicle technology maturity, and reducing both vehicle and fuel
costs.

34 11. What role should low carbon liquid fuels play in the heavy vehicle decarbonisation?

LCLFs can be complimentary to hybridisation, but should only be strategically used in ultra long-haul and super heavy applications, where full electrification is expected to be challenging in the medium-term e.g. road trains.

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?

The Electric Vehicle Council recommends the following additional actions:
1. Electrification of depots
To the extent that heavy vehicle electrification is contingent on retrofitting depots and other commercial/industrial locations with adequate electrical infrastructure, there will in some cases be split incentive challenges between the property owner, and the party leasing the site and operating the fleet, with regard to who pays for the upgrades, and how those costs are allocated / recovered. Government should investigate this area with a view to establishing concessional finance and de-risking options, in order to ensure that landlord/tenant split incentive problems do not block the electrification of heavy vehicles.
2. Electrification of trailers
As mentioned earlier in this submission, electrification of Australia's trailer fleet provides a further opportunity to reduce emissions – regardless of the fuel type of the truck towing the trailer. Why this technology continues to develop, the

government should work with the local trailer manufacturing industry to explore how partnerships with international providers could be supported to encourage the uptake of this technology.
3. Hybridisation of vehicles where electrification is not yet possible
For some applications, such as ultra-long haul or ultra-heavy trucks e.g. road trains, electrification is not yet possible. Hybridisation provides a pathway to reducing emissions while alternative technology options continue to develop.
4. Consideration of electric roads in the medium-term, based on learning from the EU and UK
Several European countries6,7,8,9 are investigating and/or trialling the deployment of electric roads to support electric trucks. While further work is required to determine the feasibility of this solution, it may prove to be a viable option for some corridors. Australia should maintain a watching brief to understand if this form of charging infrastructure could play a role in the medium and/or long-term.

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.

The Electric Vehicle Council recognises Australia has a significant economic opportunity to
capitalise on from the decarbonisation of transport infrastructure. The government should
develop this net zero pathway as part of broader economic development strategy to export
green products.

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?

Please refer to our submission to the recent Parliamentary Inquiry into the transition to electric vehicles: https://electricvehiclecouncil.com.au/submissions/evc-response-to inquiry into-e v-transition/

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?

Please refer to our submission to the recent Parliamentary Inquiry into the transition to electric vehicles: https://electricvehiclecouncil.com.au/submissions/evc-response-to inquiry-into-e v-transition/

56 24. How should the use of low carbon liquid fuels (LCLFs) be prioritised across different transport modes over time to achieve maximum abatement?

1. Aviation
2. Rail
3. Ultra long-haul road freight
4. Maritime

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?

Australia can look to various successful international comparisons that offer a comprehensive model for supporting transport decarbonisation. What remains consistent
across countries or regions that have achieved significant progress is the effective balancing of both supply-side and demand-side factors, while rolling out new infrastructure.
Supply:
- Introduce a strong fuel (new vehicle) efficiency standard to ensure the overwhelming majority of new light vehicles in Australia are EVs by the mid-2030s, as seen in almost every OECD country.
- Set future EV targets for all vehicle segments to send a signal about the future fleet --> UK, Sweden, Norway, US, New Zealand, China.

- Harmonisation of Australian regulations with international standards to allow direct acceptance of type-approved EVs from global major markets (e.g. EU) in full volume supply to reduce import burden, and increase EV supply, while still maintaining high safety standards.
Demand:
- Financial incentives to reduce upfront costs e.g. tax exemptions (US), rebates (China, Canada, Germany), zero interest loans (ACT), reduced road tax/pricing (London, Stockholm).
- Non-financial incentives e.g. a nationally consistent approach to provision of transit lane access for EVs (Norway, US), mass concession for electric trucks (EU, US).
- Awareness actions e.g. advertising, test drive events, online information, EV experience via rental fleets, showcase projects (US Run on Less: https://runonless.com/).
- Consideration of a crediting mechanism that recognises the use of renewables in the electricity mix when charging EVs, providing a sustainable revenue stream for Charge Point Operators (CPOs) and supporting renewable electricity generation, as seen in the EU RED III, the Canadian Clean Fuel Regulation, and the Californian Low Carbon Fuel Standard (LCFS).
Infrastructure:
- Co-funding robust and reliable infrastructure that caters to vehicles to different shapes and sizes, including towing vehicles (US, EU, China)
- Access to real-time availability of infrastructure (EU)

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?

Guiding Principle Metrics Data
Maximise emissions
reduction
• % CO_2 Reduction
• % EV Sales by
Segment
• % EV Fleet
• Vehicle Model

Availability
• Charger: EVs
Vehicle sales across segments (should be collected by government and made public)
Value for money • Abatement cost
• Co-funding % relative to private investment
Maximise economic impact • Job creation Employment data
Inclusive and equitable • Transport emissions by household income bracket
• Household transport cost per annum
Census
Household Travel Survey
Credible evidence • Domestic and International
Engagement
• Independent, expert review
Expert review panels for ongoing, independent assessment (regardless of government)
Deliver cross-sectoral benefits
• Cross-sectoral CO_2 emission reduction
• Cross-sectoral economic benefit
• Cross-sectoral job creation
Electricity prices
Employment data

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?

Guiding Principle Metrics Data
Maximise emissions reduction
• % CO2 Reduction
• % EV Sales by Segment
• % EV Fleet
• Vehicle Model Availability
• Charger: EVs
Vehicle sales across segments (should be collected by government and made public)
Value for money • Abatement cost
• Co-funding % relative to private investment
Maximise economic impact • Job creation Employment data
Inclusive and equitable • Transport emissions by household income bracket
• Household transport cost per annum
Census
Household Travel Survey
Credible evidence • Domestic and International Engagement
• Independent, expert review
Expert review panels for ongoing, independent assessment (regardless

of government)
Deliver cross-sectoral
benefits
• Cross-sectoral
CO2 emission
reduction
• Cross-sectoral
economic benefit
• Cross-sectoral job
creation
Electricity prices
Employment data

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

The Electric Vehicle Council supports an evidence-based review process, with transparent
modelling of the emissions impact of different strategies adopted under the roadmap – noting there will not be one pathway to Net Zero, but it is critical to have a plan that highlights the minimum thresholds that need to be achieved over the next 25 years in transport.

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

While the Electric Vehicle Council welcomes the development of this roadmap, overall it is
lacking in ambition. Modelling is required following this consultation to provide greater insight into the pathways, and threshold targets, that the transport sector needs to achieve
in Australia to do its fair share in reducing emissions to meet our climate targets.
The EV industry is already taking action to support the decarbonisation of transport, and is
ready, willing and able to do more in cooperation with the government to accelerate this transition.

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?

The EVC strongly advocates for decisive near-term action by the Federal Government towards decarbonising Australia's transport sector. We recommend comprehensive policy
coordination across all levels of government to deliver a cohesive and forward-looking national roadmap that encourages the widespread adoption and support of EVs of all shapes and sizes.
This roadmap needs to send a clear signal about the long-term direction of transport in this
country and demonstrate that the transition to a zero-emission fleet will not only deliver a
reduction in carbon emissions, but also provide a range of other benefits including lower transport costs, improved air quality, reduce reliance on imported fuel, and greater utilisation of Australian-made energy and local energy assets.
By implementing a clear, comprehensive and ambitious plan, Australia can ensure that the transport sector contributes a proportionate share of emission reductions to 2030 and beyond.
As mentioned throughout this submission, please also refer to our submission to the recent
Parliamentary Inquiry into the transition to electric vehicles for further information: https://electricvehiclecouncil.com.au/submissions/evc-response-to-inquiry-into-ev transition

66 Would you like to upload a document?

Yes

67 Have you removed any identifying information from your submission?

Yes

68 Upload a submission

20240726_EVC_Submission_to_Transport_and_Infrastructure_Roadmap.733fd3db_Redacted.pdf

69 Upload a submission

Not answered

70 Upload supporting file

Not answered

71 Upload supporting file

Not answered

26 July 2024

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

Via email: NetZero@infrastructure.gov.au

EVC Submission to Transport and Infrastructure
Net Zero Roadmap and Action Plan

The Electric Vehicle Council (EVC) is the national peak body for the electric vehicle (EV) industry in Australia. Our mission is to accelerate the electrification of transport for a sustainable and prosperous future. We represent members across the EV value chain, including car, bus and truck manufacturers, importers, operators, charging infrastructure suppliers, battery reuse and recycling companies, financiers, and network providers.

The EVC appreciates the opportunity to contribute to the Government's consultation on its Transport and Infrastructure Net Zero Roadmap and Action Plan. Transport makes up almost one-fifth of Australia's emissions, with the vast majority of this attributed to road transport, including passenger vehicles, light commercial vehicles, heavy trucks and buses. Unfortunately, transport is also the greatest laggard when it comes to achieving our emission reduction targets. Current projections suggest that without government action, Australia's transport emissions will likely be significantly higher than 2005-levels in 2030 – undermining the economy-wide target of a 43% reduction. This places undue pressure onto Australian farmers, manufacturers, energy suppliers, and other local businesses to offset transport-related emissions.

As the energy system rapidly decarbonises, it is also expected that the transport sector will become Australia's top-emitting sector by 2030. While current options for abating emissions in maritime shipping and aviation are limited, with significant advancements unlikely until the 2030s, effective technologies to deliver emissions reduction are already available and accessible for land transport. The key challenge for achieving emission reductions in land transport is time; specifically, the amount of time it takes to turnover the vehicle fleet. As such, prioritising decarbonisation of these segments of the transport sector today will be crucial in achieving net zero emissions before 2050.

Despite the potential to continue to significantly increase renewable electricity generation domestically, we must use this resource efficiently to maximise emissions reduction. Electrification of transport is the most energy and cost-efficient pathway for decarbonising the vehicle fleet. While EVs are not yet suitable for every land transport application, the

technology is already fit-for-purpose for the vast majority of applications today. With continuing improvements in EV technology, it is expected that electric vehicles will be suitable for almost all land transport applications by 2050.

The Government should take a cautionary approach to investing in alternatives to EVs where the technology is not cost-competitive and holds significant risk in terms being cost-competitive. A more strategic approach would be to monitor international developments for the minority of segments of road transport where EVs are not yet feasible, and for the remainder, actively support the transition to an EV fleet by or before 2050.

Although marine and aviation contribute minor emissions relative to land transport, it is in these segments where alternatives to electrification will be critical, and where government support and investment in these alternatives should be focussed.

With respect to vehicle-to-grid (V2G), government should take steps to leverage Australia's world leading position in rooftop solar uptake, in order to make Australia a world leader in V2G uptake. This will make EVs a more attractive prospect for consumers, reduce energy costs for all consumers, enhance the security of the energy system, and bring forward closures of coal fired power stations. Should we choose to, we could also become a leading global manufacturer of V2G hardware.

To address these challenges and opportunities, the EVC submits the following key recommendations:

- **Prioritisation of EVs in Decarbonisation of Transport**: Immediate action is needed to decarbonise the land transport sector, given its significant contribution to Australia's emissions. The EVC recommends prioritising the transition to EVs as the most energy and cost-efficient pathway to reduce emissions in the land transport sector.
- **Robust Guiding Principles and Frameworks**: Supporting the proposed guiding principles and the avoid-shift-improve framework for emission reductions. We recommend an additional principle based around identifying decarbonisation pathways for transport that complement other sectors of the economy, including the energy sector.
- **Enable V2G**: As part of the Net Zero Roadmap and Action Plan, we recommend leveraging Australia's leadership in rooftop solar to become a global leader in V2G technology, enhancing energy security and reducing costs while supporting the transition to renewable energy.
- **Urgent Need to Address Freight Decarbonisation**: To achieve emissions reduction in the freight sector, regulatory changes, financial support, and infrastructure development are essential to facilitate the adoption of electric trucks and vans.
- **Development of National Policy for Active and Public Transport**: The EVC supports a national policy framework that includes dedicated infrastructure, incentives, and pricing strategies to promote active, shared, and public transport, reducing reliance on private vehicles.
- **Adopt a Comprehensive National Approach**: We advocate for decisive near-term action by the Federal Government towards decarbonising Australia's transport

sector, and comprehensive policy coordination across all levels of government. The delivery of a forward-looking national roadmap that encourages the widespread adoption of EVs should highlight the long-term direction of transport, demonstrating the benefits of transitioning to a zero-emission fleet, including lower transport costs, improved air quality, reduced reliance on imported fuel, and greater utilisation of Australian-made energy.

Please find attached our responses to the government's consultation questions.

If you have any questions on this submission, please contact [redacted]

Thank you for your consideration of our submission.

Yours sincerely,

[redacted]

Samantha Johnson

Chief Executive Officer

Electric Vehicle Council

Responses to consultation questions:

1. Do you agree with the proposed guiding principles?

The EVC agrees with the five guiding principles to: maximise emissions reduction, provide value for money, maximise economic opportunity, be inclusive and equitable, and be evidence-based.

Additionally, the EVC recommends the Department consider an additional principle of identifying decarbonisation pathways for transport that complement other sectors of the economy. For example, decarbonisation of transport will have an impact on the energy sector. With the right settings in place, electrification can be complementary to the decarbonisation of the energy sector by supporting the uptake of renewables through smart charging and providing grid stability via vehicle-to-grid (V2G).

Conversely, the overuse of energy-intensive technologies (e.g. synthetic fuels) in an attempt to decarbonise our transport system could have a negative impact on the energy sector, inefficiently consuming our limited renewable energy over the medium-term, and maintaining dependency on legacy fossil fuels. The use of these alternatives much be strategic and evidence-based.

2. Do you support the use of the avoid-shift-improve framework as a tool to identify opportunities for abatement?

The EVC has advocated for the use of the 'avoid-shift-improve' framework for several years. It is consistent with the recommendations of the IPCC, A Framework for an Australian Clean Transport Strategy (FACTS)[1], Climateworks' Decarbonising Australia's transport sector report[2], and several international transport decarbonisation strategies.

The EVC supports the use of the avoid-shift-improve framework in this roadmap, on the basis that is adopted using the hierarchy in which it is intended to be applied i.e. first avoid trips where possible, then for the trips that can't be avoided shift them to more carbon-efficient modes / trips, and finally for the trips that cannot be avoided or shifted (or optimised), improve by means of using more energy-efficient technologies e.g. electrification.

The application of this hierarchy appears to be absent from the consultation paper. This hierarchy is important because 'avoid' and 'shift' strategies make the task of the 'improve' strategies easier – noting that all three categories will be necessary and critical for Australia to achieve net zero by 2050, and its interim emission reduction targets.

[1] https://transportfacts.org/
[2] https://www.climateworkscentre.org/resource/decarbonising-australias-transport-sector-diverse-solutions-for-a-credible-emissions-reduction-plan/

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

The development of a national policy framework for active and public transport is critical for supporting emissions reduction. While Australia must rapidly move towards a zero-emission, electric vehicle fleet as soon as possible, it is also necessary to curb growth in private vehicle usage and encourage opportunities to optimise transport movements to manage road congestion and deliver broader efficiency and economic benefits.

We recommend the government also consider shared transport as part of this framework, ranging from shared micro-mobility (shared electric bikes and scooters) to car-sharing, car-pooling, taxis and ride-sharing. Ultimately, it is this diversity of alternative mode choices that will be necessary to encourage a material shift away from private vehicle use.

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

The following elements should be included:

- Infrastructure
    - Dedicated active transport network, separated lanes
    - Dedicated public transport, priority access, cross-modal linkages
    - Dedicated shared transport infrastructure, car-share parking spaces, micro-mobility access, priority infrastructure access e.g. HOT lanes
    - Charging infrastructure for micro-mobility, shared vehicles and public transport

- Incentives
    - Rethink pricing of active, shared, public transport → support shift towards Mobility as a Service subscriptions e.g. unlimited / capped use instead of PAYG [3,4]
    - Support companies to develop rewards programs that encourage active, shared and public transport use. These could be dedicated entities, like Mobility as a Service (MaaS) providers, or could be alternative service providers e.g. health insurers, which would co-benefit from customers being more active, less dependent on private vehicles
    - Tax deductions to purchase electric bikes that conform to strict safety standards.

- Pricing
    - Consideration of opportunities that recognise externalities from different transport choices e.g. road pricing, with revenue raised to fund alternatives modes and infrastructure
    - A review into a national road pricing scheme should consider emissions, type of vehicle, size, time of day, location, etc, and apply to all vehicles regardless of fuel type.

[3] https://imoveaustralia.com/project/odin-pass-a-mobility-as-service-trial-at-uq/
[4] https://imoveaustralia.com/project/mobility-as-a-service-customer-impact-trial-gold-coast-australia/

    - A review should consider the phase-out of existing road related taxes in exchange for a new pricing scheme to deliver real tax reform, while improving the efficiency of our transport network, and driving down emissions.

- Co-funding for state governments
    - Work with state and territory governments (and local governments where applicable) to trial innovative solutions and services, while improving trunk infrastructure services, such as public transport frequency and reliability.

Australia needs to be willing to trial new and innovative solutions to encourage active, shared and public transport – even in the face of some of these potential options not being implemented long-term or delivering sufficient benefits. It is only through an active 'trial and error' approach that Australia will determine the right mix of options to cater for the diverse mobility needs of the Australian community, and deliver a material reduction in private car dependency.

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?

Informing and educating citizens of transport options inclusive of their emissions, alongside cost and time, and providing them agency to make decisions is critical. More importantly than information and education is planning our cities to allow people to make choices that reduce emissions. This includes encouraging urban densities so that people can implement the avoid-shift-improve paradigm on a practical basis.

Providing citizens less carbon-intensive transport options that are cost-effective against current options needs to be the priority. A case in point is the increase in electric vehicle fleets which will become second-hand car purchases by private residences. An increased range of ex-fleet electric vehicles will provide cost-effective electric vehicles. At the same time, regulation and pricing to discourage high-pollution vehicles will shift the average citizen towards less carbon-intensive vehicles.

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

The movement of goods is the lifeblood of Australian households and businesses. We must move towards a future where we can support this movement using low and zero carbon technologies. Additionally, as the second largest contributor to transport emissions, if this segment is not supported to decarbonise, it presents a major risk to Australia achieving its climate targets.

Thankfully, electric trucks and vans are already a viable technology for many applications. The key barriers faced by this segment vary according to the size of the vehicle, but in general, include:

- The need for regulatory changes to support the use of electric trucks and vans, recognising these vehicles weight more than equivalent diesel vehicles, and therefore require consideration of this additional weight in order to reduce the commercial impact.
- Support to reduce the upfront cost barrier for some vehicles, primarily through the development of a zero-interest loan scheme that could be paid off over time using the running cost savings of the vehicle (and/or other incentives).
- Dedicated truck charging infrastructure to support movement across the country, as well as support for installing truck charging infrastructure at depots, which includes consideration of upstream electricity infrastructure asset costs.

Additionally, we would note that concerns about road pavement damage arising from electric trucks is stalling uptake across Australia, and resulting in a lack of progress in providing mass concessions. While further research can be undertaken into this matter, Australia cannot afford to wait for the results before stimulating the market, and therefore should move towards at minimum introducing a limited permit scheme which enables a set number of electric trucks to operate on our road network. The permit should enable use of the vehicle for its entire lifetime to provide certainty to fleets investing in the technology that they will not be left with stranded assets. This permit scheme would also help to collect the necessary data to inform where infrastructure needs are greatest.

Further delays in enabling the adoption of electric trucks – of all shapes and sizes – with impact Australia's ability to reach net zero, and is not an acceptable outcome. The time for action was yesterday, and we have no further time to afford to waste.

You can read more about our recommendations to support the electrification of trucks here: https://electricvehiclecouncil.com.au/wp-content/uploads/2022/01/ATA-EVC-Electric-trucks_Keeping-shelves-stocked-in-a-net-zero-world-1.pdf

Please also refer to our submission to the recent Parliamentary Inquiry into the transition to electric vehicles: https://electricvehiclecouncil.com.au/submissions/evc-response-to-inquiry-into-ev-transition/

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

Per IPCC guidance, electric vehicles are the primary pathway for decarbonising light road vehicles. Alternative technologies may have a role to play in other transport segments, but in both the short and medium term there is no evidence that any other zero-emission technology will be commercially competitive.

The EVC expects that hybrid vehicles will play a transitionary role over the medium term, and in particular, we support plug-in hybrid electric vehicles (PHEVs) with the right incentive structures in place to encourage regular charging. Otherwise, the timeline of the transition appears appropriate.

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. What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to reduce light vehicle emissions? How would these actions address the identified challenges and opportunities to reduce light vehicle emissions?

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9. Do you agree with the proposed net zero pathway for heavy road vehicles?

Australia needs to prioritise battery-electric vehicles prior to 2030 for short and medium-haul applications. To meet our transport emission reduction targets, these must move speedily beyond trials. In many applications, this can already be undertaken with the right policy and regulatory settings

There is no evidence to support the contention that alternatives to electrification will be commercially viable – even with government support – in the near-term. We need to monitor international developments to understand if gaps emerge in 2030s, what alternatives may exist, and use low-carbon-liquid-fuels as an interim measure to fill gaps.

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. Why did you rank them in that order?

Our ranking for prioritisation is:

1. Battery-electric
2. Low carbon liquid fuels (LCLFs)
3. Hydrogen fuel cell.

Battery-electric is the primary pathway for decarbonising land transport and is the only option that is commercially viable for many freight applications in the near-term. This should also include electrification of trailers[5] to support a reduction in fuel and energy consumption from all trucks – regardless of powertrain.

LCLFs, combined with hybridisation, may help to reduce emissions from super heavy / ultra-long-haul applications.

It is not clear whether hydrogen fuel cell vehicles will be commercially viable for land transport, and it would be premature to invest in infrastructure prior to further international

[5] https://newatlas.com/automotive/range-energy-electrified-trailer/

developments in terms of vehicle technology maturity, and reducing both vehicle and fuel costs.

11. What role should low carbon liquid fuels play in heavy vehicle decarbonisation?

LCLFs can be complimentary to hybridisation, but should only be strategically used in ultra-long haul and super heavy applications, where full electrification is expected to be challenging in the medium-term e.g. road trains.

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? How would these actions address the identified challenges and opportunities to reduce heavy vehicle emissions?

The Electric Vehicle Council recommends the following additional actions:

1. Electrification of depots
   To the extent that heavy vehicle electrification is contingent on retrofitting depots and other commercial/industrial locations with adequate electrical infrastructure, there will in some cases be split incentive challenges between the property owner, and the party leasing the site and operating the fleet, with regard to who pays for the upgrades, and how those costs are allocated / recovered. Government should investigate this area with a view to establishing concessional finance and de-risking options, in order to ensure that landlord/tenant split incentive problems do not block the electrification of heavy vehicles.

2. Electrification of trailers
   As mentioned earlier in this submission, electrification of Australia's trailer fleet provides a further opportunity to reduce emissions – regardless of the fuel type of the truck towing the trailer. Why this technology continues to develop, the government should work with the local trailer manufacturing industry to explore how partnerships with international providers could be supported to encourage the uptake of this technology.

3. Hybridisation of vehicles where electrification is not yet possible
   For some applications, such as ultra-long haul or ultra-heavy trucks e.g. road trains, electrification is not yet possible. Hybridisation provides a pathway to reducing emissions while alternative technology options continue to develop.

4. Consideration of electric roads in the medium-term, based on learning from the EU and UK

Several European countries[6,7,8,9] are investigating and/or trialling the deployment of electric roads to support electric trucks. While further work is required to determine the feasibility of this solution, it may prove to be a viable option for some corridors. Australia should maintain a watching brief to understand if this form of charging infrastructure could play a role in the medium and/or long-term.

13 – 20.

With respect to the decarbonisation of rail, maritime and aviation, the EVC supports a strategic approach in planning for a reduction in emissions over the coming decades from these transport segments. This will need to consider not only 'improve' strategies, but importantly also 'avoid' and 'shift' strategies, where it makes sense to do so.

Overall, these segments make a relatively small contribution to transport emissions in Australia, and are not a priority in the near-term, compared to light and heavy vehicles.

21. Do you agree with the proposed net zero pathway for transport infrastructure?

The Electric Vehicle Council recognises Australia has a significant economic opportunity to capitalise on from the decarbonisation of transport infrastructure. The government should develop this net zero pathway as part of broader economic development strategy to export green products.

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

Please refer to our submission to the recent Parliamentary Inquiry into the transition to electric vehicles: https://electricvehiclecouncil.com.au/submissions/evc-response-to-inquiry-into-ev-transition/

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?

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[6] https://www.euronews.com/next/2023/05/09/sweden-is-building-the-worlds-first-permanent-electrified-road-for-evs-to-charge-while-dri
[7] https://www.autobahn.de/storage/user_upload/qbank/Brochure-ELISA_eHighway-crosswise.pdf
[8] https://researchportal.hw.ac.uk/files/103802663/1-s2.0-S2666691X23000507-main.pdf
[9] https://www.theccc.org.uk/wp-content/uploads/2019/05/Zero-Emission-HGV-Infrastructure-Requirements-Ricardo-Energy-and-Environment.pdf

24. How should the use of low carbon liquid fuels be prioritised across different transport modes over time to achieve maximum abatement?

1. Aviation
2. Rail
3. Ultra long-haul road freight
4. Maritime

25. What are the best ways for the Australian Government to work collaboratively with industry, business, governments and communities to implement the proposed pathways? 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? What opportunities can the government leverage to show leadership in Australia and internationally?

Australia can look to various successful international comparisons that offer a comprehensive model for supporting transport decarbonisation. What remains consistent across countries or regions that have achieved significant progress is the effective balancing of both supply-side and demand-side factors, while rolling out new infrastructure.

Supply:

- Introduce a strong fuel (new vehicle) efficiency standard to ensure the overwhelming majority of new light vehicles in Australia are EVs by the mid-2030s, as seen in almost every OECD country.
- Set future EV targets for all vehicle segments to send a signal about the future fleet --> UK, Sweden, Norway, US, New Zealand, China.
- Harmonisation of Australian regulations with international standards to allow direct acceptance of type-approved EVs from global major markets (e.g. EU) in full volume supply to reduce import burden, and increase EV supply, while still maintaining high safety standards.

Demand:

- Financial incentives to reduce upfront costs e.g. tax exemptions (US), rebates (China, Canada, Germany), zero interest loans (ACT), reduced road tax/pricing (London, Stockholm).
- Non-financial incentives e.g. a nationally consistent approach to provision of transit lane access for EVs (Norway, US), mass concession for electric trucks (EU, US).
- Awareness actions e.g. advertising, test drive events, online information, EV experience via rental fleets, showcase projects (US Run on Less: https://runonless.com/).
- Consideration of a crediting mechanism that recognises the use of renewables in the electricity mix when charging EVs, providing a sustainable revenue stream for Charge Point Operators (CPOs) and supporting renewable electricity generation, as seen in the EU RED III, the Canadian Clean Fuel Regulation, and the Californian Low Carbon Fuel Standard (LCFS).

Infrastructure:

- Co-funding robust and reliable infrastructure that caters to vehicles to different shapes and sizes, including towing vehicles (US, EU, China)
- Access to real-time availability of infrastructure (EU)

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

Guiding Principle	Metrics	Data
Maximise emissions reduction	• % CO_2 Reduction • % EV Sales by Segment • % EV Fleet • Vehicle Model Availability • Charger: EVs	Vehicle sales across segments (should be collected by government and made public)
Value for money	• Abatement cost • Co-funding % relative to private investment	
Maximise economic impact	• Job creation	Employment data
Inclusive and equitable	• Transport emissions by household income bracket • Household transport cost per annum	Census Household Travel Survey
Credible evidence	• Domestic and International Engagement • Independent, expert review	Expert review panels for ongoing, independent assessment (regardless of government)
Deliver cross-sectoral benefits	• Cross-sectoral CO2 emission reduction • Cross-sectoral economic benefit • Cross-sectoral job creation	Electricity prices Employment data

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

The Electric Vehicle Council supports an evidence-based review process, with transparent modelling of the emissions impact of different strategies adopted under the roadmap –

noting there will not be one pathway to Net Zero, but it is critical to have a plan that highlights the minimum thresholds that need to be achieved over the next 25 years in transport.

28. Do you have any further feedback on the Consultation Roadmap and proposed pathways? Is there anything missing? Are the sections appropriately integrated? Is the Roadmap appropriately ambitious?

While the Electric Vehicle Council welcomes the development of this roadmap, overall it is lacking in ambition. Modelling is required following this consultation to provide greater insight into the pathways, and threshold targets, that the transport sector needs to achieve in Australia to do its fair share in reducing emissions to meet our climate targets.

The EV industry is already taking action to support the decarbonisation of transport, and is ready, willing and able to do more in cooperation with the government to accelerate this transition.

29. Is there any further information or documentation that you wish to be considered with your submission?

The EVC strongly advocates for decisive near-term action by the Federal Government towards decarbonising Australia's transport sector. We recommend comprehensive policy coordination across all levels of government to deliver a cohesive and forward-looking national roadmap that encourages the widespread adoption and support of EVs of all shapes and sizes.

This roadmap needs to send a clear signal about the long-term direction of transport in this country and demonstrate that the transition to a zero-emission fleet will not only deliver a reduction in carbon emissions, but also provide a range of other benefits including lower transport costs, improved air quality, reduce reliance on imported fuel, and greater utilisation of Australian-made energy and local energy assets.

By implementing a clear, comprehensive and ambitious plan, Australia can ensure that the transport sector contributes a proportionate share of emission reductions to 2030 and beyond.

As mentioned throughout this submission, please also refer to our submission to the recent Parliamentary Inquiry into the transition to electric vehicles for further information: https://electricvehiclecouncil.com.au/submissions/evc-response-to-inquiry-into-ev-transition/