

# Transport and Infrastructure Net Zero Consultation Roadmap

## Take the survey

Department of Climate Change, Energy, Environment and Water

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Response received at:

July 23, 2024 at 4:29 PM GMT+10

Response ID:

sbm2f74609be8349d66020cc

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- 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  
Ausgrid
- 4 Confirm that you have read and understand this declaration.  
Yes
- 5 First name  
Simon
- 6 Last name  
Moore
- 7 Email  


- 8 Phone  
Not answered
- 9 Who are you answering on behalf of?  
Organisation
- 10 Organisation name  
Ausgrid
- 11 What best describes you or your organisation?  
Industry
- 12 What sector do you represent?  
Energy
- 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.  
See attachment for full response
- 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?  
Not answered

- 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?  
Not answered
- 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?  
Not answered
- 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  
Transport and Infrastructure Net Zero Roadmap and Action Plan - Ausgrid response.pdf
- 69 Upload a submission  
Not answered
- 70 Upload supporting file  
Not answered
- 71 Upload supporting file  
Not answered

23 July 2024



Andrew Hutchison  
Branch Head  
Net Zero Taskforce  
Federal Department of Climate Change, Energy, the Environment and  
Water

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Submitted via email: [NetZero@infrastructure.gov.au](mailto:NetZero@infrastructure.gov.au)

Dear Mr Hutchison,

**Ausgrid submission to the Transport and Infrastructure Net Zero Consultation Roadmap.**

Ausgrid is pleased to provide this submission to the Federal Department of Climate Change, Energy, the Environment and Water (**Department**) in response to its *Transport and Infrastructure Net Zero Consultation Roadmap*.

Ausgrid operates the electricity distribution network that powers the homes and businesses of more than 4 million Australians living and working in an area that covers over 22,000 square kilometres from the Sydney CBD to the Upper Hunter in New South Wales.

Ausgrid is committed to supporting the decarbonisation of Australia's electricity and wider energy systems and values the development of this Plan to guide and underpin the energy transition. We are committed to delivering the benefits of electrification and decarbonisation in a timely, equitable and efficient manner. State and national policy should also support these goals.

Our submission responds to selected questions from the Consultation Roadmap, as set out in detail **in Attachment A**. Ausgrid is already playing a key role in facilitating the energy transition for our customers and is keen to partner further with Governments on additional actions to support the transition to net zero.

We recommend strengthening the proposed pathway for electric vehicles in the remainder of this decade. We also recommend that regulatory changes are made to enable regulated electricity distribution networks to provide kerbside electric vehicle charging infrastructure (**EVCI**) to complement at-home and public fast charging, making EVs more accessible to people who cannot easily charge at home.

We look forward to the opportunity to provide further feedback on policy measures to achieve net zero in the transport sector when the forthcoming Action Plan is released. We welcome the opportunity to discuss this submission with the Net Zero Taskforce. For further information please contact [REDACTED] Senior Policy Advisor at [REDACTED]

Yours sincerely,

A solid black rectangular box redacting the signature of Nick Black.

Nick Black,  
Head of EVC & Infrastructure Development

## **Attachment A: Ausgrid responses to selected questions**

### **1. Do you agree with the proposed guiding principles?**

Ausgrid supports the proposed guiding principles (maximise emissions reduction, value for money, maximise economic opportunity, inclusive and equitable, evidence-based) proposed by the Department to guide the *Transport and Infrastructure Net Zero Consultation Roadmap (Roadmap)*.

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

Ausgrid agrees that the main technology pathway to reduce light vehicle emissions will be electrification. The Roadmap notes that this “relies on a renewable electricity grid”. Ausgrid is taking actions to increase the volume of renewables on its network, and to increase the efficient use of renewable energy, including by:

- Facilitating the near doubling of rooftop solar in our network from 2022 to 2029,
- Investing in community batteries to enable excess solar energy produced during the day to be used during evening peak demand,
- Identifying locations suitable for connecting utility-scale renewable generators to our network.

However, Ausgrid sees a significant opportunity for distribution networks to play a greater role in the pathway by enabling them to invest in pole-mounted kerbside charging infrastructure (as opposed to fast chargers more suitable for market-led deployment). The NSW Government estimates that across NSW around 30% of households have no access to off-street parking because they live in terraces, live in apartment buildings that are too costly to retrofit to accommodate charging, or are renting. Many of these residents will benefit most from the savings EVs will bring but they face additional barriers to taking up an EV due to a lack of accessible and low-cost charging, and as a result they may delay their purchase of an EV. For example, a single charger on a pole could service the weekly charging needs of a small apartment block of 10 at a substantially lower cost than retrofitting an existing apartment building and be deployed much quicker as it would avoid the need for a potentially lengthy strata approval process.

This demonstrates that there is a need to go beyond merely “keeping up with projected EV uptake” over the remainder of the decade to 2030 to ensure sufficient EVCI penetration in our network area. Enabling distribution networks to deploy pole mounted kerbside charging infrastructure presents an opportunity to reduce real and perceived barriers to EV uptake. Our proposed model uses existing power poles to install kerbside EVCI quickly, cheaply, and with minimal disruption to the community. This approach would complement existing home charging and fast-charging services and would meet the charging requirements of the over 500,000 electric vehicles expected in our network area by 2030. To increase customer confidence in EVs and support the expected uptake of EVs, we are seeking to roll out (own and maintain, but not operate) 11,000 kerbside EV chargers on power poles in the Ausgrid network area by 2030.<sup>1 2</sup>

This proposed model improves EVCI accessibility so all vehicle owners, not just those with off-street parking, have the confidence to purchase an EV. Networks are also highly regulated with stringent licence obligations, ensuring that distribution network-led pole-mounted EVCI is deployed safely and

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<sup>1</sup> Ausgrid; *Submission to the Draft ISP 2024 Consultation*; pp. 8-9. [https://aemo.com.au/-/media/files/stakeholder\\_consultation/consultations/nem-consultations/2023/draft-2024-isp-consultation/draft-submissions/ausgrid.pdf?la=en](https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2023/draft-2024-isp-consultation/draft-submissions/ausgrid.pdf?la=en)

<sup>2</sup> Caitlin Fitzsimmons; “The one thing that made Eddy hold off on buying an electric vehicle”; *Sydney Morning Herald*; <https://www.smh.com.au/environment/climate-change/eddy-has-bought-an-ev-only-now-that-there-is-a-charger-on-his-street-20240625-p5jomp.html>

efficiently. We would also be able to ensure high levels of reliability for EV chargers through our extensive asset management and maintenance processes and 24/7 workforce.

However, current regulatory settings do not allow for distribution networks to deploy EV charging infrastructure.

With appropriate funding support and regulatory change, we would leverage Ausgrid's existing network assets and skilled workforce so that the chargers are simpler to install and lower cost to maintain than other alternative providers. We would do this while implementing a technology solution that reduces connection costs, facilitates competition and dynamic pricing offers from different EV charging service providers (including electricity retailers and other providers), and increases transparency and reliability of charging infrastructure. Our proposed approach is focussed on enabling customers to select from a choice of electricity suppliers and prices via an app on their phone, or billing the electricity used to their home energy account. Under this approach, we consider kerbside EV charging should be comparable to the cost of charging at home, enabling all EV drivers to benefit from low-cost charging.

***Ausgrid recommends strengthening the pathway item for 2024-2030 "Investments in charging infrastructure keep up with projected EV uptake" so that it reads "Investments in charging infrastructure enable faster EV uptake".***

**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?**

*See response to question 7. Distribution networks can facilitate the transition to electric vehicles.*

AEMO's ISP scenarios anticipate a significant uptake in EVs, with up to 97% of all vehicles forecast to be EVs under the Step Change scenario by 2050.<sup>3</sup> There are around 33,000 EVs currently in Ausgrid's network, which is 63% of the total number of EVs in NSW. We expect this will grow to 1.2 million by 2035 and over 4 million by 2050.

The Commonwealth Government has taken meaningful steps to ensure this uptake is achieved, including introducing a Fringe Benefits Tax exemption for EVs, the Safer Freight Vehicles Package the New Vehicle Efficiency Standard. These are welcome measures. However, the take up of EVs will be impeded if customers do not have confidence that they will be able to conveniently charge their vehicles. Unless the right support and infrastructure is put in place, EV adoption may stall.

*Our EV fleet*

As well as facilitating community EV adoption, we are taking actions within our business to reduce transport emissions.

- Our strategy is to retire our Internal Combustion Engine fleet and electrify 900 vans, utes, cars, and trucks over the next five years.
- This year we rolled out Ausgrid's first-ever heavy electric vehicles, purchasing three small heavy electric vehicles for use as tip trucks and cargo flatbeds.
- We also continued to expand our passenger electric vehicle fleet, with over 100 new cars.

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<sup>3</sup> Australian Energy Market Operator; *2023 Inputs, Assumptions and Scenarios Report*, p. 58; <https://aemo.com.au/-/media/files/major-publications/isp/2023/2023-inputs-assumptions-and-scenarios-report.pdf?la=en>

- 113 EV chargers have been installed across 24 sites.
- These upgrades will save us from consuming roughly 9,600 L in petrol and 30,000 L in diesel per year.

These electric vehicles are an important step forward in reducing our carbon footprint.

#### *Partnering in transition*

Ausgrid is working directly with some of our customers on enabling infrastructure to decarbonise their vehicle fleets. For example, Ausgrid has partnered with the NSW Government on its Zero Emissions Buses strategy, supporting the conversion of Sydney bus depots to support the new battery electric bus fleet. Transport for NSW emissions will be reduced by 509,000 tonnes per year by 2047, when NSW's bus fleet has fully transitioned to Zero Emissions Buses.<sup>4</sup>

#### *Further policy reforms could support the transition to electrification.*

Policy changes could supplement the work of distribution networks in enabling electrification. As well as recommending regulatory reforms which would allow distribution networks to roll-out kerbside charging infrastructure, as highlighted above, we also recommend the transition to EVs is supported by:

- Accelerating the adoption and updating of Australian standards and consumer protections relating to EV interoperability, charging infrastructure and vehicle to grid operations.
- Reinforcing the need for energy regulators and the energy sector to implement electricity tariff structures that encourage efficient off-peak charging of EVs, and which allow EV customers to benefit from selling electricity back to the grid at peak times when it is needed most.
- Facilitating both the development of more Australian test facilities and MOUs with existing global test centres to ensure smart and bidirectional chargers can be tested quickly and efficiently to ensure Australia can access the best technology in the world as quickly and as safely as possible.
- Reviewing customer protections frameworks as they relate to EV charging, building on the AER's Review of consumer protections for future energy services, with a view to harmonising these protections under the existing national framework, rather than adhering to a bespoke solution.
- Continuing trials and innovation projects focusing on understanding and quantifying Vehicle to Grid impacts and opportunities.

### **23. The Australian Government invited views on aspects of the energy transformation that represent the most material challenges and opportunities for the electricity and energy sector... 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?**

Ausgrid provided a submission to the Electricity and Energy Sector Plan and Net Zero Plan.<sup>5</sup> In that response we set out actions to be taken by government, regulators, and industry to enable distribution networks including Ausgrid to play a more involved role in advancing energy transformation.

*Electrification places extra demands on networks, but these are manageable.*

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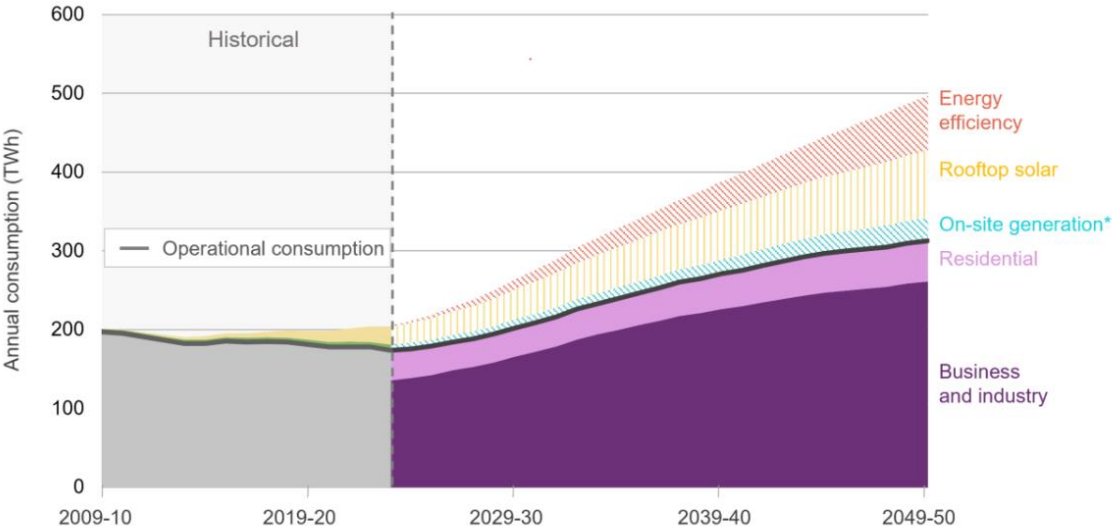
<sup>4</sup> Transport for NSW; <https://www.transport.nsw.gov.au/projects/current-projects/zero-emission-buses>

<sup>5</sup> Ausgrid; Ausgrid submission to Electricity and Energy Sector Plan discussion paper; 26 April 2024. <https://consult.dcceew.gov.au/electricity-and-energy-sector-plan-discussion-paper/new-survey-7563fd36/view/88>

Ausgrid builds, operates, and maintains its distribution network with a focus on providing a safe, reliable and affordable energy supply to all electricity consumers in our network area, both now and over the long term. While we do not consider that electrification of current fossil fuel demand (such as for vehicles or home heating) poses fundamental challenges to the reliability and security of our network, increasing electrification will necessitate investment in our network to accommodate and manage growing demand.

Over the course of the next five years, the forecast compound annual growth rate for peak demand on the Ausgrid network is 1.1% per annum for both summer and winter peak demand. Steady growth in summer maximum demand is underpinned by continuation of elevated levels of commercial and industrial customer connection activity (particularly from users such as data centres), population growth and EV uptake. AEMO forecast that this uplift in demand will be offset by energy efficiency impacts and strong growth in rooftop solar uptake (Figure 1). While Ausgrid’s aggregate peak demand forecast follows a similar trend, there is significant variation across different parts of our network, resulting in uneven growth patterns.

**Figure 1:** Electricity consumption, NEM (TWh, 2009-10 to 2049-50, Step Change scenario)



Note: On-site generation (or “non-scheduled generation”) is non-utility generation that includes on-the-ground PV and small wind and biomass, typically for industrial use.

Source: AEMO<sup>6</sup>

Ausgrid expects to see significant growth in the number of customers owning EVs in the Ausgrid network area, with annual energy consumption from EV charging to increase from around 20 GWh today to over 1,500 GWh by 2028/29. With appropriate policies and incentives, this additional demand can be managed to avoid costly network reinforcement requirements. By incentivising EV owners to charge outside of peak periods, additional demand from EVs can be absorbed into existing network capacity. Further development of vehicle to grid (‘V2G’) capability would provide

<sup>6</sup> Australian Energy Market Operator; 2024 Integrated System Plan; p. 25; <https://aemo.com.au/-/media/files/major-publications/isp/2024/2024-integrated-system-plan-isp.pdf?la=en>

the electricity system with an additional tool to manage peak load and provide EV owners with a potential additional revenue stream to take advantage of.

Electricity generation makes up 35% of Australia's greenhouse gas emissions and EVs can potentially further reduce emissions in this sector via V2G technology, which will enable EVs to operate as batteries for energy storage. If this functionality becomes widely available, it could provide EV owners with significant financial benefits, ease network constraints during peak events, place downward pressure on energy prices, and assist in the transition to renewable energy. For example, if just 30% of EVs are V2G-capable by 2030, there could be up to 4.3GWh cumulative distributed battery storage by 2030 from EVs in Ausgrid's, enough to service current daily demand of 274,000 homes.

A recent study from the Australian Renewable Energy Agency (**ARENA**) and Enix Consulting reviewed the opportunities and challenges for bidirectional charging. ARENA and EnX found "savings per household of \$550 per annum" from V2G compared to smart charging.<sup>7</sup> The study highlights the need for policy that values V2G as a near term priority for industry development, and that networks should collaborate to develop more V2G-supportive tariffs including bidirectional network support tariffs.

The immaturity of Australia's V2G and vehicle to home ("**V2H**") marketplace compared with international peers is another example of the 'chicken and egg' challenge in EVs. Few V2G capable models have been brought to Australia by vehicle manufacturers, therefore there has been less development than has been seen overseas on enabling V2G from a network and regulatory perspective. NSW distribution networks are currently trialling network enhancements to enable V2G with a small number of early adopter customers, but much more needs to be done before the technology is widely available, including:

- Establishing clearly defined standards for Electric Vehicle Supply Equipment
- Providing local testing facilities
- Incentivising customer uptake through network and retail tariffs

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<sup>7</sup> ARENA and EnX (2023) V2X.au Summary Report p. 6; <https://arena.gov.au/knowledge-bank/v2x-au-summary-reportopportunities-and-challenges-for-bidirectional-charger-in-australia>