

Transport and Infrastructure Net Zero Consultation Roadmap

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Department of Climate Change, Energy, Environment and Water

Response received at:

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The Business Council of Australia

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Yes

5 First name

Andrew

6 Last name

Fattal

7 Email



- 8 Phone
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- 9 Who are you answering on behalf of?
Organisation
- 10 Organisation name
The Business Council of Australia
- 11 What best describes you or your organisation?
Industry
- 12 What sector do you represent?
Rail
Heavy road vehicles (trucks, buses etc.)
Light road vehicles (cars, utes etc.)
All transport
Energy
Infrastructure
Climate change/net zero
- 13 What state or territory do you live in?
New South Wales
- 14 Postcode
Not answered
- 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.

1. Do you agree with the proposed guiding principles?

The BCA agrees with the five proposed guiding principles outlined, with further nuance to ensure that the

proposed transition is successful. Specifically:

☒ It will be important that the Government focus on policies that deliver the largest practical reductions in emissions at the earliest opportunity, yet does so in a way that provides value for money for consumers, businesses, and taxpayers. This balance is necessary to ensure that policy outcomes are maximised at the lowest cost possible. Value for money should be considered across all timeframes – that is, including consideration of whether long-term investments and policy changes that support private investment can deliver value for money outcomes by supporting early-stage innovation for new and emerging technologies.

☒ Major changes in the way people travel and goods are moved need to be convenient and as seamless as possible. Impacts to efficient movement will directly impact people's everyday lives, and if they are not received positively or impose undue burden, they will not gain community support.

☒ The focus on inclusivity should be concentrated on the disruption to people's jobs and employment first and foremost. Many of the changes in the transport and infrastructure sectors on the path to net zero will be able to occur with comparatively reduced dislocation of jobs (compared with other industries) through changes in technology, materials, and fuels.

☒ The BCA strongly supports an evidence-based approach to the transition, that recognises and facilitates adoption of technologies as they mature and become market ready. This will mean, conversely, recognising that harder to abate sectors will not have instant and immediate solutions to achieve a net zero outcome and will need to move to interim technologies that reduce but do not eliminate emissions

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 framework provides a reasonable starting point for identification of measures; with the focus on shifting to more sustainable travel and improving technologies and efficiency. Governments should prioritise long-term planning informed by clear policy objectives to enable certainty for business investment. While improved land-use planning is an admirable and supported goal and should be part of long-term thinking in terms of densification of cities to reduce the need for travel, this will be a slow burn that will also be driven by many other factors in respect to how our cities grow. Reducing emissions will be one amongst many reasons to support quality densification in delivery of new homes and infrastructure. Telecommuting and work-from-home arrangements are best left for individual workers and their employers to discuss and arrange as appropriate, rather than to be incorporated into government programs related to emissions reduction. The Government can however consider and ensure that (within its remit) there is appropriate infrastructure in place to support remote working opportunities.

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.

Improved public and active transport will be a significant aspect of facilitating improved environmental sustainability in mobility. Transport and Infrastructure Net Zero Consultation Roadmap 4 The Federal Government should avoid duplicating what should be in place at state and territory level. Rather the Federal Government should encourage states and territories to have proper transport planning that incorporates climate change and the nation's net zero goals. The states and territories are best placed to address this directly, as part of transport planning strategy work. The Federal Government, in its work, should

target modes that are within the federal domain, cross border transport, and other policy areas that would benefit from cross-jurisdictional coordination. Federal funding and expenditure should be targeted to jurisdictions that have properly planned their infrastructure provision. This approach ensures that funds are allocated to strategic priorities without duplicating the efforts of state and territory governments. Ultimately, the Federal Government cannot do this planning work for individual jurisdictions; it instead should incentivise them to do so by prioritising funding to projects that are backed by proper strategic planning, and that achieve practical policy outcomes for the uptake of low- and no-emissions transport

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

We consider that, through Infrastructure Australia, the framework should provide guidance that indicates to jurisdictions where and how the Federal Government will use its own funding, including state and local grants, to advance the net zero agenda in respect to active and public transport.

Infrastructure Australia should work with state and territory governments to ensure that their strategic planning considers how to achieve greater uptake of low and no emissions transport. It should issue guidance that demonstrates the Federal Government's priorities in terms of funding including climate change, using that as a tool to encourage government infrastructure funding grants to prioritise projects that produce emissions reduction outcomes.

☐ The focus of the Federal Government should also include putting in place a clear policy approach for sectors that are clearly within its area of responsibility or that would benefit from cross-jurisdictional cooperation. This includes interstate rail and aviation in terms of specific modes, as well as other more

general work like demand pooling across the states. Broader policy work, such as the Aviation White Paper, the National Rail Action Plan, and the National Rail Manufacturing Plan may address some of this

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?

A primary role for government is ensuring the availability of the infrastructure required to support such movement. The Federal Government's role is particularly important as we move into a period where the major

states are much more constrained in terms of their capital expenditure. This means both direct funding /

investment and ensuring that the policy settings are in place to facilitate private capital investment in the

necessary infrastructure. Policy settings that help build investor confidence in making long-term investments in

infrastructure will be key, particularly as Australia competes with other jurisdictions for capital.

There are a wide variety of investments that are required, from additional low-emissions public transport (a

domain that the Federal Government has begun funding in recent years), to freight rail investment (a key Federal

responsibility), to shared charging infrastructure for electric vehicles, hydrogen refuelling infrastructure, and

active transport routes. In terms of road investment, efficient and low-congestion roads can result in a reduction

in emissions by tackling stop-start traffic, which in of itself is more emissions intensive.

Governments must also ensure that policy settings are in place that support the transition. For government

delivered outcomes this means appropriate procurement policies for government fleet, and business case and

infrastructure procurement policies that reduce embedded carbon. But it also means tackling taxes and

regulations that impede the transition, such as those that limit the ability for electric freight vehicles to better

Transport and Infrastructure Net Zero Consultation Roadmap 5

compete with diesel trucks, or working with industry to put in place frameworks that will

support the transition such as certification and carbon accounting for sustainable aviation fuels. Ultimately, governments must ensure there are a range of economic incentives and disincentives in place that support moving to net zero. It is important however that these do not place undue burden on communities, or impact the mobility of individuals. In investing in public transport, governments should first prioritise facilitating projects that will drive mode share in transport that is more energy efficient. For example, investing in improvements to the reliability of diesel rail services to attract more freight to deliver an immediate carbon dividend in advance of eventual zero emissions solutions. Of course, where there are opportunities to introduce lower emissions services in concert with projects that support mode share they should be taken where they are cost effective. An example would be the replacement of diesel passenger rolling stock with new trains to support additional services, selecting bi-mode trains (diesel trains that are also capable of using the electrified network) that can utilise electrical infrastructure in areas where it is available. It will be important for transparency purposes, particularly for clarity in respect to investors, that the overall glidepath to net zero is the clear ambition with the intention for short- and medium-term solutions to eventually move to zero emitting technologies. This will ensure that investors are clear-eyed when funding what may be transitory investments for carbon reducing solutions that do not achieve full net zero outcomes, particularly when there is a conflict in timeframe between typical infrastructure lifespan and the Government's intentions around the transition period

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 major measures proposed by the BCA in our submission to the National Freight and

Supply Chain Strategy2

that can be directly linked to decarbonisation include:

☒ The Federal Government must prioritise investment in freight rail, especially where it has primary responsibility. This includes significant investment in resilience and reliability of the existing network, and further network expansion.

☒ There should be an underlying strategy for Federal intermodal investment to drive future development, including a particular focus on enabling regional development in conjunction with Inland Rail. Continued partnering with the private sector in this space will also be critical.

☒ Adopt at least a 2.55m maximum vehicle width to facilitate greater import opportunities for electric heavy vehicles, in line with the recommendation from Austroads, which reviewed the safety implications of this change. The BCA notes that there has been significant action in this respect since our National Freight and Supply Chain Strategy submission. Broadly, the move to standardised widths across states and with international markets is a pragmatic approach that will allow additional technology into Australia.

☒ There should be additional weight allowances for zero emissions trucks, to ensure they are not penalised by their heavier power system. Freight curfews should be reformulated to exempt vehicles with lower noise profiles from restrictions, incentivising the uptake of electric (and other zero emission) trucks and freight vehicles. Some BCA members, for example, are seeking to use light commercial electric vehicles to undertake last-mile deliveries which can be quieter, non-emitting, but heavier than combustion engine counter parts.

☒ Consider how lower carbon fuels and alternative technologies can be used to reduce emissions from the existing heavy vehicle fleet, including whether there is a role for incentives to help drive the uptake of these changes.

More broadly, the Government needs to consider what elements of the freight industry has the best ability to

transition to low or no emissions technology (based on available technologies). It should then determine both how to lift capability in elements of the sector where that is necessary, and ensure that appropriate drivers for change are in place to facilitate it. Regulatory regimes should continue to be assessed and developed to ensure they remain fit for purpose in terms of emerging battery and hydrogen drive train technologies

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.

The move to electrification will be the general pathway for the net zero transition for light vehicles.

The successful transition to electric vehicles will rely on multiple factors including reductions in price/price parity, available choice of vehicles, perceived maturity and longevity of technology, and compatibility with user expectations and use cases (particularly around charging and distance).

Based on current technology and manufacturing processes, there is a use-case for hybrid vehicles in the short

term for carbon reduction, particularly for vehicles that are not driven substantial distances and therefore do not

'break even' in respect to their embodied emissions. As the grid decarbonises and battery technology and

manufacturing processes evolve, this will likely diminish, and ultimately the priority will be transitioning to zero

emissions vehicles, which should be the main focus.

It is not clear why the pathway suggests bi-directional charging and vehicle to grid capabilities should take until

the 2040s to become widespread. This timeframe must be accelerated and prioritised.

This is an issue that goes

beyond transport, to the broader needs of the energy grid, providing a backstop for grid reliability and security, and services such as frequency control, system strength, and synthetic inertia. There should also be consideration of the role that biofuels could play in supporting the reduction in emissions from light vehicles that still rely on fossil fuels; noting that the need is likely greater in supporting harder to transition modes such as heavy vehicles and aviation if supply is limited. E10 fuel is already widely available in Australia, and overseas higher ethanol fuel blends are in use. End-use customer education will be useful as part of this discussion. While at present the decarbonisation pathway for light vehicles is focused on battery electric technology, Australia should remain open to the future use of hydrogen as another alternative fuel source.

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?

The BCA made a number of recommendations to the National Electric Vehicle Strategy³, in the context of driving down vehicle emissions:

☐ The BCA supports the introduction of a fuel efficiency standard for light vehicles, with the intention of helping drive more supply and variety of low-emission vehicle types into the Australian market.

☐ The Government should consider how low carbon liquid fuels such as biofuels can be used to reduce emissions from the existing vehicle fleet. While these fuels are primarily necessary for heavy vehicles, they may have a role to play in supporting carbon reduction in non-electric light vehicles provided fuel supplies are sufficiently abundant to meet lower priority needs.

☐ We back the decision by governments to set substantial electric/zero emissions vehicle

targets for their fleets. These purchasing decisions should be used to help expand the range of zero emissions vehicles in Australia through negotiation with manufacturers. Consolidated public reporting should be used to demonstrate progress towards these targets.

☒ States should help incentivise the uptake of zero emissions vehicles by removing stamp duty charges to reduce the cost differential with petrol- and diesel-powered vehicles.

☒ Road user charges should be considered that are nationally consistent, easy to administer for fleet owners and businesses, and replace existing charges beyond fuel excise such as stamp duty and/or registration (particularly where they are targeted at electric vehicles to ensure they reduce upfront price and do not disincentivise uptake).

☒ Governments should continue to work with industry to co-fund and deploy public ultra-fast electric vehicle charging infrastructure. They should also invest in hydrogen fuelling infrastructure, and remove/address regulatory barriers where they exist.

☒ Noting work underway through the Australian Energy Market Operator, the Federal Government should continue to advance work on the standards required to better support vehicle to grid charging infrastructure.

Work undertaken by Deloitte shows by 2033, to meet demand, there is expected to be a need for some 31,500 public chargers (compared to around 4,000 today). This is based around an assumption that 33 per cent of energy demanded by electric vehicles will be provided by public chargers by 2033 (as opposed to at-home charging).⁴

The option of hydrogen powered vehicles should also not be ruled out, with ultimate outcomes dependent on technology and subsequent market/customer demand

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

A focus on low carbon liquid fuels should be the priority in the short- and medium-term (depending on task and size of vehicle – with shorter range/and smaller vehicles able to transition to electric power more readily), as an interim measure, as proposed in the pathway. This should be supplemented with targeted charging infrastructure that is required to support heavy vehicle battery charging. Ultimately the timeframe and pathway to fully transition to hydrogen and fuel cell powered vehicles will depend on technology maturity in terms of transport, storage, and availability of hydrogen. A focus on technology development that provides for the net zero transition in the long term should remain on that goal. Beyond direct emissions reductions achieved through vehicle technology, artificial intelligence and other technology-based planning solutions could be better leveraged to help schedule vehicle movements, providing more efficient transport usage

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?

While hydrogen has the most potential to change the way vehicles move, the technology has the furthest to go to mature. Conversely, while low carbon liquid fuels do not deliver a complete step change to net zero their 'drop in' nature facilitates a faster, easier and more practical transition. Battery vehicles sit

between these two given their semi-maturity (in terms of overseas availability) but their suitability is limited to a subset of tasks, and their costs are still significant.

Note that while the priority in the short and medium term (depending on task and vehicle size) should be on low carbon liquid fuels, this does not mean that battery and hydrogen is not the priority for long term investment and support for development. Indeed, BCA members note that research and development, trials, and pilot projects for battery electric and fuel cell powered trucks will need to be undertaken in the short term to facilitate the medium- and longer-term transition. As such, we do not agree with the need to 'rank' these in a particular order, they each have their place depending on circumstance and context, and each should be advanced.

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

The BCA supports the idea that low carbon liquid fuels will play an important role in the transition, particularly in the short and medium term. This is simply because of the maturity of these technologies, the current limited use cases for battery vehicles, and the longevity of the existing fleet and their cost of replacement. There is a clear limit on the alternatives to deliver emissions abatement at present, which low carbon liquid fuels can fill.

The BCA has made a detailed submission to the 'Low Carbon Liquid Fuels – A Future Made in Australia' discussion paper, which will outline our views in terms of domestic production and support mechanisms.

Australia has significant advantages in terms of feedstock for fuel production.

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?

Refer back to the response for question 6. In the BCA's submission to the National Electric Vehicle Strategy, we identified the following:

☒ We agree that the Federal Government should leverage low carbon liquid fuels to reduce emissions from the existing heavy vehicle fleet, while supporting the development of hydrogen powered vehicles.

☒ Adopt at least a 2.55m maximum vehicle width to facilitate greater import opportunities for electric heavy vehicles. As noted, the Federal Government has made changes to address this recommendation.

☒ There should be consideration of additional weight allowances for zero emissions vehicles (where safe), to ensure they are not penalised by their heavier power systems when compared with diesel trucks of equivalent carrying capacity. This includes weight concessions for C-class licence holders, for example allowing delivery drivers in light commercial vehicles to utilise electric vehicles without an upgraded licence.

☒ Freight curfews should be reformulated to exempt vehicles with lower noise profiles from restrictions, incentivising the uptake of electric (and other zero emission) trucks and freight vehicles.

☒ Investigate incentives or support for bus operators (large and small) to upgrade their depots at scale and consider partnerships with private capital to introduce different funding models for fleet charging.

Depending on the particular route network, hydrogen may also play a role in the bus transition.

☒ Large bus fleet owners, including governments, should develop programs focused on good management of vehicle batteries. This includes targeting the maintenance of battery life, increasing residual value, encouraging second life usage, and circular economy principles with regards to recycling and re-use.

There is also a clear case for mode-shift in the heavy vehicle space to rail, provided there is well located

supporting infrastructure and appropriate transport services for the particular product being moved. There are also opportunities at major intermodal terminals for the creation of hubs that support charging and low carbon liquid fuel refuelling infrastructure across multiple modes but utilising common distribution backbones.

As previously outlined, governments will need to consider technological maturity,

capability for adaption across the freight market, and whether appropriate drivers are in place to achieve the transition

36 13. Do you agree with the proposed net zero pathway for rail?

Not answered

37 13.1 Please add details to your response.

There needs to be a stronger focus on the movement of goods onto rail given the inherent lower emissions

nature of rail over other modes. This is a higher priority than the decarbonisation of rail itself in the short term,

given the relative low emissions profile of a diesel train. There are potential unintended consequences from the

current Safeguard Mechanism around how it captures rail freight operations, which could act as a disincentive

for this mode shift. Most rail freight operations are captured under the Safeguard mechanism because of the size

of individual major rail freight operators, while only a very small portion of trucking is captured given the

prevalence of small truck fleet owners. This economic disincentive, which penalises rail freight in comparison to

heavy road vehicles, should be addressed to maximise the potential of rail freight given its far lower carbon

footprint per tonne kilometre.

The BCA agrees that electrification of track infrastructure may not be economical outside the passenger

networks of the major cities.

The adoption of battery and hydrogen train technology is a realistic pathway forward, which will take time to

mature. This includes refitting existing diesel trains with battery technology in the more immediate term

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?

Low carbon liquid fuels provide the fastest pathway in the short term to reducing emissions from diesel train operations. Battery electric and hydrogen fuel cells require upfront capital investment and will need to further mature as technological solutions to spread beyond early adopters. Ultimately hydrogen and battery solutions will likely play different roles depending on the distances needing to be travelled. Given the nature of diesel rail in Australia, hydrogen solutions that facilitate long distance movement are likely to be of greater importance. Again, we do not agree with the need to 'rank' these in a particular order, they each have their place depending on circumstance and context.

40 15. What role should low carbon liquid fuels play in rail decarbonisation?

Provided their roll out is measured, in a way that does not undermine the economics of rail when compared with other modes (in line with the guiding principles discussed in Question 1), low carbon liquid fuels should play a prominent role in the immediate term. This will allow the lowering of emissions from existing rolling stock, which are a long-life capital asset

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?

As mentioned previously, there needs to be priority placed on improving efficiency and reliability of the rail network. This will be necessary to drive rail mode share, which in turn will reduce overall transport emissions. The focus must be on what will successfully reduce total emissions, rather than a solely mode specific focus, particularly where modes are in competition

- 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?
Yes
- 44 17.1 Please add details to your response.
With a focus on small- and medium-sized vessels and domestic shipping, the proposed pathway makes sense.
Ultimately, turnover time for these long-lived capital assets will be slow, and available technology for battery electric operations is focused on shorter-distance and smaller vessels. This is appropriately reflected in the pathway proposed
- 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?
Policy measures that encourage the uptake of low carbon liquid fuels, and dual-fuel vessels that can burn both green methanol/ammonia and fuel oil, will be needed to facilitate the incremental improvements in the pathway.
There may also be opportunities to incentivise international shipping decarbonisation, and Australia should explore that. This could include providing low-carbon fuel bunkering for both domestic and international shipping.
- 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?

Yes

48 19.1 Please add details to your response.

The use of sustainable aviation fuels will be the principal method for reducing emissions from aviation in the timeframe between now and 2050. The Federal Government should aim to deploy certification and carbon accounting frameworks before 2030 as suggested, noting the importance of international compatibility of such a system with other jurisdictions. Australia's major airlines are also investing significant amounts to deploy next generation aircraft, which will meaningfully reduce emissions in comparison to their immediate replacements

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?

As part of our submission to the Aviation White Paper⁵, the BCA made several recommendations relating to the decarbonisation of aviation:

☑ The Government should move forward with implementing the actions from the Commonwealth Scientific and Industrial Research Organisation (CSIRO) Sustainable Aviation Fuel Roadmap. This should include:

- prioritising certification and integration with carbon accounting
- consideration of subsidy or credits for sustainable aviation fuels production
- a data and development focus on feedstocks, and
- government aviation usage of sustainable aviation fuels.

As noted previously, the BCA has made a detailed submission to the 'Low Carbon Liquid Fuels – A Future Made in

Australia' discussion paper, which will outline our views in terms of domestic production and support mechanisms for low carbon liquid fuels, including sustainable aviation fuels. Additionally, improvements in efficiency of aircraft technology, and operational efficiency measures such as efficient routing by air traffic control, have a role to play in reducing emissions. Overseas, there are a range of measures being pursued in respect to the uptake of sustainable aviation fuels. On the demand side that includes blending mandates and incentives for the use of sustainable aviation fuels. BCA members have differing views on the benefits of these demand-side interventions, and we note that it will be important to also consider the impact these have on consumers (depending on the particular approach), and on the competitiveness of Australian businesses

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 pathway only outlines a portion of what will be required in this space. National standards are necessary, and should draw on the work undertaken at state level, particularly given the states deliver the bulk of this infrastructure. Federal processes will need to be updated to incorporate decarbonisation as part of the project development process to achieve the roadmap articulated

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? Given a large percentage of the nation's transport infrastructure is delivered by or on behalf of governments, government policies can be leveraged to drive emissions reductions in this space. National processes that

support this in business case development and procurement policies will assist. Importantly, processes that drive reductions in carbon which allow engineers and subject matter experts to make key decisions are essential, rather than solely driving this with a top-down prescriptive approach. This may see broader outcomes than a singular focus on replacement materials – for example, reduced material usage and design principles, and zero emissions construction equipment. Infrastructure Australia’s recently released Embodied Carbon Projections for Australian Infrastructure and Buildings⁶ includes recommendations to further the objective of addressing embodied carbon, which should be adopted. This will need to be coupled with work on the net zero sector plans for ‘industry, resources and the built environment’, which includes key building materials such as steel, concrete, and aluminium

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?

The CSIRO undertook extensive work on development of sustainable aviation fuels which should be used to lead the Federal Government’s priorities in aviation fuels.

The rapid decarbonisation of the nation’s electricity grid, with the increase in generation and transition capability to accommodate electrification, will be essential to achieve net zero emissions in the transport sector.

Government focus on overcoming obstacles to the deployment of zero carbon generation, such as fixing planning approvals at state and federal level, will be essential to enabling the transition. Government also has an important role to play in building and maintaining support for the transition and ensuring that all sectors are supported, through the coordination of the six sectoral plans

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

The Safeguard Mechanism and other policies incentivise the reduction in emissions (including from diesel fossil fuel use). Individual companies in each sector will determine the best pathway forward for their circumstances

including the role that low carbon liquid fuels should take.

This will see low carbon liquid fuels prioritised by market participants in an efficient way.

Buyers in different

markets will decide whether to prioritise purchasing of low carbon liquid fuels or other mechanisms to reduce their emissions, based on their circumstances, alternatives available to them, and best cost to achieve emission reductions.

Tools should be put in place to assist the growth of this market, including a guarantee of origin scheme, in

parallel with incentives for supply side development of fuels for various transport types.

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?

Governments must listen to industry expertise on the availability and maturity of technologies, and understand

the economic impact of adoption of particular changes. This will mean consulting on individual elements as

policy and regulation is prepared, with the flexibility to change and adapt to new circumstances and

technological changes.

There should be support for the development and deployment of new technologies which may contribute to a

more energy efficient and lower cost transport system in the future. Governments also will need to examine the

impact of the technology transition more broadly, and work with industry to address it, for example the

establishment of a system to recycle batteries that are required for vehicles once they reach the end of their

useful life

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?

The ultimate outcome and therefore metric is the reduction of emissions. This should be based off modelling

projected emissions in a 'do nothing additional' scenario to understand how the roadmap is performing in

comparison to the status quo. The emissions outcomes for transport also need to be incorporated into the

broader 2030 and 2035 national emission reduction targets, and therefore measured against their expected

contribution to those targets.

Secondary measures such as cost per tonne of CO₂e reduced should also be considered, to drive efficient

reduction of emissions and to be transparent about the relative resources costs and benefits of emissions

abatement in the transport sector versus other sectors in the Net Zero 2050 Plan

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?

Agree that a 5-yearly cycle of updates will be necessary, with flexibility to address rapidly changing technology if

necessary. It will be important that government resources are focused on delivery first and foremost

- 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
BCA submission - Transport and Infrastructure Net Zero Consultation Roadmap.pdf
- 69 Upload a submission
Not answered
- 70 Upload supporting file
Not answered
- 71 Upload supporting file
Not answered

Transport and Infrastructure Net Zero Consultation Roadmap

Submission

July 2024



BCA

Business Council of Australia

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Overview

The Business Council of Australia (BCA) represents the largest companies in Australia from across the economy. Our membership includes freight and transport companies, construction companies, construction materials producers, major freight customers, electricity and power infrastructure companies, transport infrastructure providers, fuel and pipeline companies, as well as finance and consulting firms involved in the industry.

In 2021 we released *Achieving a net zero economy*¹, which backed the transition to net zero by 2050 and supported the introduction of an ambitious 2030 national emissions reduction target. We also support the development of a 2035 national emissions reduction target and the sectoral pathways to achieve a coordinated and well-managed transition that drives investment required for the nation's move to a net zero future.

To this end, we welcome the work by the Government on this roadmap and provide in-principle endorsement of many of the proposals contained within, subject to the comments in this submission.

The BCA is currently engaging with its membership in relation to the national 2035 emissions reduction target, in the context of achieving net zero by 2050. This work is based on a granular 'ground up' analysis of emissions abatement opportunities and challenges across each of the six sectors defined in the Government's Net Zero 2050 Plan.

This work is still underway, and so the detail has not been referenced in this submission. Once this further work is available, we intend to engage with the Government in a more fulsome way. This submission responds to the questions posed in the consultation roadmap.

¹ <https://www.bca.com.au/achieving-a-net-zero-economy>

Responses to consultation questions

Introduction

1. Do you agree with the proposed guiding principles?

The BCA agrees with the five proposed guiding principles outlined, with further nuance to ensure that the proposed transition is successful. Specifically:

- It will be important that the Government focus on policies that deliver the largest practical reductions in emissions at the earliest opportunity, yet does so in a way that provides value for money for consumers, businesses, and taxpayers. This balance is necessary to ensure that policy outcomes are maximised at the lowest cost possible. Value for money should be considered across all timeframes – that is, including consideration of whether long-term investments and policy changes that support private investment can deliver value for money outcomes by supporting early-stage innovation for new and emerging technologies.
- Major changes in the way people travel and goods are moved need to be convenient and as seamless as possible. Impacts to efficient movement will directly impact people’s everyday lives, and if they are not received positively or impose undue burden, they will not gain community support.
- The focus on inclusivity should be concentrated on the disruption to people’s jobs and employment first and foremost. Many of the changes in the transport and infrastructure sectors on the path to net zero will be able to occur with comparatively reduced dislocation of jobs (compared with other industries) through changes in technology, materials, and fuels.
- The BCA strongly supports an evidence-based approach to the transition, that recognises and facilitates adoption of technologies as they mature and become market ready. This will mean, conversely, recognising that harder to abate sectors will not have instant and immediate solutions to achieve a net zero outcome and will need to move to interim technologies that reduce but do not eliminate emissions.

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

The framework provides a reasonable starting point for identification of measures; with the focus on shifting to more sustainable travel and improving technologies and efficiency. Governments should prioritise long-term planning informed by clear policy objectives to enable certainty for business investment.

- While improved land-use planning is an admirable and supported goal and should be part of long-term thinking in terms of densification of cities to reduce the need for travel, this will be a slow burn that will also be driven by many other factors in respect to how our cities grow. Reducing emissions will be one amongst many reasons to support quality densification in delivery of new homes and infrastructure.
- Telecommuting and work-from-home arrangements are best left for individual workers and their employers to discuss and arrange as appropriate, rather than to be incorporated into government programs related to emissions reduction. The Government can however consider and ensure that (within its remit) there is appropriate infrastructure in place to support remote working opportunities.

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

Improved public and active transport will be a significant aspect of facilitating improved environmental sustainability in mobility.

The Federal Government should avoid duplicating what should be in place at state and territory level. Rather the Federal Government should encourage states and territories to have proper transport planning that incorporates climate change and the nation's net zero goals. The states and territories are best placed to address this directly, as part of transport planning strategy work. The Federal Government, in its work, should target modes that are within the federal domain, cross border transport, and other policy areas that would benefit from cross-jurisdictional coordination.

Federal funding and expenditure should be targeted to jurisdictions that have properly planned their infrastructure provision. This approach ensures that funds are allocated to strategic priorities without duplicating the efforts of state and territory governments. Ultimately, the Federal Government cannot do this planning work for individual jurisdictions; it instead should incentivise them to do so by prioritising funding to projects that are backed by proper strategic planning, and that achieve practical policy outcomes for the uptake of low- and no-emissions transport.

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

- We consider that, through Infrastructure Australia, the framework should provide guidance that indicates to jurisdictions where and how the Federal Government will use its own funding, including state and local grants, to advance the net zero agenda in respect to active and public transport. Infrastructure Australia should work with state and territory governments to ensure that their strategic planning considers how to achieve greater uptake of low and no emissions transport. It should issue guidance that demonstrates the Federal Government's priorities in terms of funding including climate change, using that as a tool to encourage government infrastructure funding grants to prioritise projects that produce emissions reduction outcomes.
- The focus of the Federal Government should also include putting in place a clear policy approach for sectors that are clearly within its area of responsibility or that would benefit from cross-jurisdictional cooperation. This includes interstate rail and aviation in terms of specific modes, as well as other more general work like demand pooling across the states. Broader policy work, such as the Aviation White Paper, the National Rail Action Plan, and the National Rail Manufacturing Plan may address some of this.

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

A primary role for government is ensuring the availability of the infrastructure required to support such movement. The Federal Government's role is particularly important as we move into a period where the major states are much more constrained in terms of their capital expenditure. This means both direct funding / investment and ensuring that the policy settings are in place to facilitate private capital investment in the necessary infrastructure. Policy settings that help build investor confidence in making long-term investments in infrastructure will be key, particularly as Australia competes with other jurisdictions for capital.

There are a wide variety of investments that are required, from additional low-emissions public transport (a domain that the Federal Government has begun funding in recent years), to freight rail investment (a key Federal responsibility), to shared charging infrastructure for electric vehicles, hydrogen refuelling infrastructure, and active transport routes. In terms of road investment, efficient and low-congestion roads can result in a reduction in emissions by tackling stop-start traffic, which in of itself is more emissions intensive.

Governments must also ensure that policy settings are in place that support the transition. For government delivered outcomes this means appropriate procurement policies for government fleet, and business case and infrastructure procurement policies that reduce embedded carbon. But it also means tackling taxes and regulations that impede the transition, such as those that limit the ability for electric freight vehicles to better

compete with diesel trucks, or working with industry to put in place frameworks that will support the transition such as certification and carbon accounting for sustainable aviation fuels.

Ultimately, governments must ensure there are a range of economic incentives and disincentives in place that support moving to net zero. It is important however that these do not place undue burden on communities, or impact the mobility of individuals.

In investing in public transport, governments should first prioritise facilitating projects that will drive mode share in transport that is more energy efficient. For example, investing in improvements to the reliability of diesel rail services to attract more freight to deliver an immediate carbon dividend in advance of eventual zero emissions solutions. Of course, where there are opportunities to introduce lower emissions services in concert with projects that support mode share they should be taken where they are cost effective. An example would be the replacement of diesel passenger rolling stock with new trains to support additional services, selecting bi-mode trains (diesel trains that are also capable of using the electrified network) that can utilise electrical infrastructure in areas where it is available.

It will be important for transparency purposes, particularly for clarity in respect to investors, that the overall glidepath to net zero is the clear ambition with the intention for short- and medium-term solutions to eventually move to zero emitting technologies. This will ensure that investors are clear-eyed when funding what may be transitory investments for carbon reducing solutions that do not achieve full net zero outcomes, particularly when there is a conflict in timeframe between typical infrastructure lifespan and the Government's intentions around the transition period.

6. Actions in respect to the movement of goods and freight?

The major measures proposed by the BCA in our submission to the National Freight and Supply Chain Strategy² that can be directly linked to decarbonisation include:

- The Federal Government must prioritise investment in freight rail, especially where it has primary responsibility. This includes significant investment in resilience and reliability of the existing network, and further network expansion.
- There should be an underlying strategy for Federal intermodal investment to drive future development, including a particular focus on enabling regional development in conjunction with Inland Rail. Continued partnering with the private sector in this space will also be critical.
- Adopt at least a 2.55m maximum vehicle width to facilitate greater import opportunities for electric heavy vehicles, in line with the recommendation from Austroads, which reviewed the safety implications of this change. The BCA notes that there has been significant action in this respect since our National Freight and Supply Chain Strategy submission. Broadly, the move to standardised widths across states and with international markets is a pragmatic approach that will allow additional technology into Australia.
- There should be additional weight allowances for zero emissions trucks, to ensure they are not penalised by their heavier power system. Freight curfews should be reformulated to exempt vehicles with lower noise profiles from restrictions, incentivising the uptake of electric (and other zero emission) trucks and freight vehicles. Some BCA members, for example, are seeking to use light commercial electric vehicles to undertake last-mile deliveries which can be quieter, non-emitting, but heavier than combustion engine counter parts.
- Consider how lower carbon fuels and alternative technologies can be used to reduce emissions from the existing heavy vehicle fleet, including whether there is a role for incentives to help drive the uptake of these changes.

² <https://www.bca.com.au/review-of-the-national-freight-and-supply-chain-strategy>

More broadly, the Government needs to consider what elements of the freight industry has the best ability to transition to low or no emissions technology (based on available technologies). It should then determine both how to lift capability in elements of the sector where that is necessary, and ensure that appropriate drivers for change are in place to facilitate it.

Regulatory regimes should continue to be assessed and developed to ensure they remain fit for purpose in terms of emerging battery and hydrogen drive train technologies.

Roads – Light Vehicles

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

The move to electrification will be the general pathway for the net zero transition for light vehicles.

The successful transition to electric vehicles will rely on multiple factors including reductions in price/price parity, available choice of vehicles, perceived maturity and longevity of technology, and compatibility with user expectations and use cases (particularly around charging and distance).

Based on current technology and manufacturing processes, there is a use-case for hybrid vehicles in the short term for carbon reduction, particularly for vehicles that are not driven substantial distances and therefore do not 'break even' in respect to their embodied emissions. As the grid decarbonises and battery technology and manufacturing processes evolve, this will likely diminish, and ultimately the priority will be transitioning to zero emissions vehicles, which should be the main focus.

It is not clear why the pathway suggests bi-directional charging and vehicle to grid capabilities should take until the 2040s to become widespread. This timeframe must be accelerated and prioritised. This is an issue that goes beyond transport, to the broader needs of the energy grid, providing a backstop for grid reliability and security, and services such as frequency control, system strength, and synthetic inertia.

There should also be consideration of the role that biofuels could play in supporting the reduction in emissions from light vehicles that still rely on fossil fuels; noting that the need is likely greater in supporting harder to transition modes such as heavy vehicles and aviation if supply is limited. E10 fuel is already widely available in Australia, and overseas higher ethanol fuel blends are in use. End-use customer education will be useful as part of this discussion.

While at present the decarbonisation pathway for light vehicles is focused on battery electric technology, Australia should remain open to the future use of hydrogen as another alternative fuel source.

8. What actions need to be taken now and into the future to reduce light vehicle emissions?

The BCA made a number of recommendations to the National Electric Vehicle Strategy³, in the context of driving down vehicle emissions:

- The BCA supports the introduction of a fuel efficiency standard for light vehicles, with the intention of helping drive more supply and variety of low-emission vehicle types into the Australian market.
- The Government should consider how low carbon liquid fuels such as biofuels can be used to reduce emissions from the existing vehicle fleet. While these fuels are primarily necessary for heavy vehicles, they may have a role to play in supporting carbon reduction in non-electric light vehicles provided fuel supplies are sufficiently abundant to meet lower priority needs.
- We back the decision by governments to set substantial electric/zero emissions vehicle targets for their fleets. These purchasing decisions should be used to help expand the range of zero emissions vehicles in

³ <https://www.bca.com.au/submission-on-the-national-electric-vehicle-strategy>

Australia through negotiation with manufacturers. Consolidated public reporting should be used to demonstrate progress towards these targets.

- States should help incentivise the uptake of zero emissions vehicles by removing stamp duty charges to reduce the cost differential with petrol- and diesel-powered vehicles.
- Road user charges should be considered that are nationally consistent, easy to administer for fleet owners and businesses, and replace existing charges beyond fuel excise such as stamp duty and/or registration (particularly where they are targeted at electric vehicles to ensure they reduce upfront price and do not disincentivise uptake).
- Governments should continue to work with industry to co-fund and deploy public ultra-fast electric vehicle charging infrastructure. They should also invest in hydrogen fuelling infrastructure, and remove/address regulatory barriers where they exist.
- Noting work underway through the Australian Energy Market Operator, the Federal Government should continue to advance work on the standards required to better support vehicle to grid charging infrastructure.

Work undertaken by Deloitte shows by 2033, to meet demand, there is expected to be a need for some 31,500 public chargers (compared to around 4,000 today). This is based around an assumption that 33 per cent of energy demanded by electric vehicles will be provided by public chargers by 2033 (as opposed to at-home charging).⁴

The option of hydrogen powered vehicles should also not be ruled out, with ultimate outcomes dependent on technology and subsequent market/customer demand.

Roads – Heavy Vehicles

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

A focus on low carbon liquid fuels should be the priority in the short- and medium-term (depending on task and size of vehicle – with shorter range/and smaller vehicles able to transition to electric power more readily), as an interim measure, as proposed in the pathway. This should be supplemented with targeted charging infrastructure that is required to support heavy vehicle battery charging. Ultimately the timeframe and pathway to fully transition to hydrogen and fuel cell powered vehicles will depend on technology maturity in terms of transport, storage, and availability of hydrogen. A focus on technology development that provides for the net zero transition in the long term should remain on that goal.

Beyond direct emissions reductions achieved through vehicle technology, artificial intelligence and other technology-based planning solutions could be better leveraged to help schedule vehicle movements, providing more efficient transport usage.

10. Rank from 1 to 3 the order in which battery electric, hydrogen fuel cell, and low carbon liquid fuels should be priorities for emissions reduction.

While hydrogen has the most potential to change the way vehicles move, the technology has the furthest to go to mature. Conversely, while low carbon liquid fuels do not deliver a complete step change to net zero their ‘drop in’ nature facilitates a faster, easier and more practical transition. Battery vehicles sit between these two given their semi-maturity (in terms of overseas availability) but their suitability is limited to a subset of tasks, and their costs are still significant.

Note that while the priority in the short and medium term (depending on task and vehicle size) should be on low carbon liquid fuels, this does not mean that battery and hydrogen is not the priority for long term investment and

⁴ Deloitte, EV Charging Infrastructure: The Next Frontier, January 2024

support for development. Indeed, BCA members note that research and development, trials, and pilot projects for battery electric and fuel cell powered trucks will need to be undertaken in the short term to facilitate the medium- and longer-term transition. As such, we do not agree with the need to 'rank' these in a particular order, they each have their place depending on circumstance and context, and each should be advanced.

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

The BCA supports the idea that low carbon liquid fuels will play an important role in the transition, particularly in the short and medium term. This is simply because of the maturity of these technologies, the current limited use cases for battery vehicles, and the longevity of the existing fleet and their cost of replacement. There is a clear limit on the alternatives to deliver emissions abatement at present, which low carbon liquid fuels can fill.

The BCA has made a detailed submission to the 'Low Carbon Liquid Fuels – A Future Made in Australia' discussion paper, which will outline our views in terms of domestic production and support mechanisms. Australia has significant advantages in terms of feedstock for fuel production.

12. What additional actions are needed to be taken to reduce heavy vehicle emissions?

Refer back to the response for question 6. In the BCA's submission to the National Electric Vehicle Strategy, we identified the following:

- We agree that the Federal Government should leverage low carbon liquid fuels to reduce emissions from the existing heavy vehicle fleet, while supporting the development of hydrogen powered vehicles.
- Adopt at least a 2.55m maximum vehicle width to facilitate greater import opportunities for electric heavy vehicles. As noted, the Federal Government has made changes to address this recommendation.
- There should be consideration of additional weight allowances for zero emissions vehicles (where safe), to ensure they are not penalised by their heavier power systems when compared with diesel trucks of equivalent carrying capacity. This includes weight concessions for C-class licence holders, for example allowing delivery drivers in light commercial vehicles to utilise electric vehicles without an upgraded licence.
- Freight curfews should be reformulated to exempt vehicles with lower noise profiles from restrictions, incentivising the uptake of electric (and other zero emission) trucks and freight vehicles.
- Investigate incentives or support for bus operators (large and small) to upgrade their depots at scale and consider partnerships with private capital to introduce different funding models for fleet charging. Depending on the particular route network, hydrogen may also play a role in the bus transition.
- Large bus fleet owners, including governments, should develop programs focused on good management of vehicle batteries. This includes targeting the maintenance of battery life, increasing residual value, encouraging second life usage, and circular economy principles with regards to recycling and re-use.

There is also a clear case for mode-shift in the heavy vehicle space to rail, provided there is well located supporting infrastructure and appropriate transport services for the particular product being moved. There are also opportunities at major intermodal terminals for the creation of hubs that support charging and low carbon liquid fuel refuelling infrastructure across multiple modes but utilising common distribution backbones.

As previously outlined, governments will need to consider technological maturity, capability for adaption across the freight market, and whether appropriate drivers are in place to achieve the transition.

Rail

13. Do you agree with the proposed net zero pathway for rail?

There needs to be a stronger focus on the movement of goods onto rail given the inherent lower emissions nature of rail over other modes. This is a higher priority than the decarbonisation of rail itself in the short term, given the relative low emissions profile of a diesel train. There are potential unintended consequences from the current Safeguard Mechanism around how it captures rail freight operations, which could act as a disincentive for this mode shift. Most rail freight operations are captured under the Safeguard mechanism because of the size of individual major rail freight operators, while only a very small portion of trucking is captured given the prevalence of small truck fleet owners. This economic disincentive, which penalises rail freight in comparison to heavy road vehicles, should be addressed to maximise the potential of rail freight given its far lower carbon footprint per tonne kilometre.

The BCA agrees that electrification of track infrastructure may not be economical outside the passenger networks of the major cities.

The adoption of battery and hydrogen train technology is a realistic pathway forward, which will take time to mature. This includes refitting existing diesel trains with battery technology in the more immediate term.

14. Rank from 1 to 3 the order in which battery electric, hydrogen fuel cell, and low carbon liquid fuels should be priorities for emissions reduction.

Low carbon liquid fuels provide the fastest pathway in the short term to reducing emissions from diesel train operations. Battery electric and hydrogen fuel cells require upfront capital investment and will need to further mature as technological solutions to spread beyond early adopters. Ultimately hydrogen and battery solutions will likely play different roles depending on the distances needing to be travelled. Given the nature of diesel rail in Australia, hydrogen solutions that facilitate long distance movement are likely to be of greater importance.

Again, we do not agree with the need to 'rank' these in a particular order, they each have their place depending on circumstance and context.

15. What role should low carbon liquid fuels play in rail decarbonisation?

Provided their roll out is measured, in a way that does not undermine the economics of rail when compared with other modes (in line with the guiding principles discussed in Question 1), low carbon liquid fuels should play a prominent role in the immediate term. This will allow the lowering of emissions from existing rolling stock, which are a long-life capital asset.

16. What additional actions need to be taken now and in the future to reduce rail emissions?

As mentioned previously, there needs to be priority placed on improving efficiency and reliability of the rail network. This will be necessary to drive rail mode share, which in turn will reduce overall transport emissions. The focus must be on what will successfully reduce total emissions, rather than a solely mode specific focus, particularly where modes are in competition.

Maritime

17. Do you agree with a proposed net zero pathway for maritime?

With a focus on small- and medium-sized vessels and domestic shipping, the proposed pathway makes sense. Ultimately, turnover time for these long-lived capital assets will be slow, and available technology for battery

electric operations is focused on shorter-distance and smaller vessels. This is appropriately reflected in the pathway proposed.

18. The Australian Government is engaging on the Maritime Emissions Reduction National Action Plan. What additional actions need to be taken?

Policy measures that encourage the uptake of low carbon liquid fuels, and dual-fuel vessels that can burn both green methanol/ammonia and fuel oil, will be needed to facilitate the incremental improvements in the pathway.

There may also be opportunities to incentivise international shipping decarbonisation, and Australia should explore that. This could include providing low-carbon fuel bunkering for both domestic and international shipping.

Aviation

19. Do you agree with the proposed net zero pathway for aviation?

The use of sustainable aviation fuels will be the principal method for reducing emissions from aviation in the timeframe between now and 2050. The Federal Government should aim to deploy certification and carbon accounting frameworks before 2030 as suggested, noting the importance of international compatibility of such a system with other jurisdictions.

Australia's major airlines are also investing significant amounts to deploy next generation aircraft, which will meaningfully reduce emissions in comparison to their immediate replacements.

20. What additional actions need to be taken?

As part of our submission to the Aviation White Paper⁵, the BCA made several recommendations relating to the decarbonisation of aviation:

- The Government should move forward with implementing the actions from the Commonwealth Scientific and Industrial Research Organisation (CSIRO) Sustainable Aviation Fuel Roadmap. This should include:
 - prioritising certification and integration with carbon accounting
 - consideration of subsidy or credits for sustainable aviation fuels production
 - a data and development focus on feedstocks, and
 - government aviation usage of sustainable aviation fuels.

As noted previously, the BCA has made a detailed submission to the 'Low Carbon Liquid Fuels – A Future Made in Australia' discussion paper, which will outline our views in terms of domestic production and support mechanisms for low carbon liquid fuels, including sustainable aviation fuels.

Additionally, improvements in efficiency of aircraft technology, and operational efficiency measures such as efficient routing by air traffic control, have a role to play in reducing emissions.

Overseas, there are a range of measures being pursued in respect to the uptake of sustainable aviation fuels. On the demand side that includes blending mandates and incentives for the use of sustainable aviation fuels. BCA members have differing views on the benefits of these demand-side interventions, and we note that it will be important to also consider the impact these have on consumers (depending on the particular approach), and on the competitiveness of Australian businesses.

⁵ https://www.bca.com.au/aviation_white_paper_submission

Transport Infrastructure

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

The pathway only outlines a portion of what will be required in this space. National standards are necessary, and should draw on the work undertaken at state level, particularly given the states deliver the bulk of this infrastructure. Federal processes will need to be updated to incorporate decarbonisation as part of the project development process to achieve the roadmap articulated.

22. What additional actions are necessary?

Given a large percentage of the nation's transport infrastructure is delivered by or on behalf of governments, government policies can be leveraged to drive emissions reductions in this space. National processes that support this in business case development and procurement policies will assist.

Importantly, processes that drive reductions in carbon which allow engineers and subject matter experts to make key decisions are essential, rather than solely driving this with a top-down prescriptive approach. This may see broader outcomes than a singular focus on replacement materials – for example, reduced material usage and design principles, and zero emissions construction equipment.

Infrastructure Australia's recently released *Embodied Carbon Projections for Australian Infrastructure and Buildings*⁶ includes recommendations to further the objective of addressing embodied carbon, which should be adopted. This will need to be coupled with work on the net zero sector plans for 'industry, resources and the built environment', which includes key building materials such as steel, concrete, and aluminium.

Transport Energy Use

23. What additional actions are needed to ensure the energy mix is ready to support transport emissions reductions?

The CSIRO undertook extensive work on development of sustainable aviation fuels which should be used to lead the Federal Government's priorities in aviation fuels.

The rapid decarbonisation of the nation's electricity grid, with the increase in generation and transition capability to accommodate electrification, will be essential to achieve net zero emissions in the transport sector. Government focus on overcoming obstacles to the deployment of zero carbon generation, such as fixing planning approvals at state and federal level, will be essential to enabling the transition.

Government also has an important role to play in building and maintaining support for the transition and ensuring that all sectors are supported, through the coordination of the six sectoral plans.

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

The Safeguard Mechanism and other policies incentivise the reduction in emissions (including from diesel fossil fuel use). Individual companies in each sector will determine the best pathway forward for their circumstances including the role that low carbon liquid fuels should take.

This will see low carbon liquid fuels prioritised by market participants in an efficient way. Buyers in different markets will decide whether to prioritise purchasing of low carbon liquid fuels or other mechanisms to reduce

⁶ <https://www.infrastructureaustralia.gov.au/reports/embodied-carbon-projections-australian-infrastructure-and-buildings>

their emissions, based on their circumstances, alternatives available to them, and best cost to achieve emission reductions.

Tools should be put in place to assist the growth of this market, including a guarantee of origin scheme, in parallel with incentives for supply side development of fuels for various transport types.

25. What are the best ways for the Australian Government to work collaboratively with industry?

Governments must listen to industry expertise on the availability and maturity of technologies, and understand the economic impact of adoption of particular changes. This will mean consulting on individual elements as policy and regulation is prepared, with the flexibility to change and adapt to new circumstances and technological changes.

There should be support for the development and deployment of new technologies which may contribute to a more energy efficient and lower cost transport system in the future. Governments also will need to examine the impact of the technology transition more broadly, and work with industry to address it, for example the establishment of a system to recycle batteries that are required for vehicles once they reach the end of their useful life.

Measuring success

26. What measures and metrics should be used to evaluate the final Transport and Infrastructure net zero roadmap?

The ultimate outcome and therefore metric is the reduction of emissions. This should be based off modelling projected emissions in a 'do nothing additional' scenario to understand how the roadmap is performing in comparison to the status quo. The emissions outcomes for transport also need to be incorporated into the broader 2030 and 2035 national emission reduction targets, and therefore measured against their expected contribution to those targets.

Secondary measures such as cost per tonne of CO₂e reduced should also be considered, to drive efficient reduction of emissions and to be transparent about the relative resources costs and benefits of emissions abatement in the transport sector versus other sectors in the Net Zero 2050 Plan.

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

Agree that a 5-yearly cycle of updates will be necessary, with flexibility to address rapidly changing technology if necessary. It will be important that government resources are focused on delivery first and foremost.

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

None.

29. Is there any further information or documentation that you wish to include in your submission?

No.

BUSINESS COUNCIL OF AUSTRALIA

GPO Box 1472, Melbourne 3001 T 03 8664 2664 F 03 8664 2666 www.bca.com.au

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