Climate Action Merri-bek
P.O. Box 381
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11 August 2024

To: DCCEEW
Email: Net Zero <NetZero@infrastructure.gov.au>

Re: Submission: Transport and Infrastructure Net Zero Consultation Roadmap

We are a grassroot group of citizens in the municipality of Merri-bek in Melbourne's Northern suburbs active on climate advocacy since 2008. We bring our experience and knowledge of climate science and the need for rapid decarbonisation to address the climate emergency, especially as it applies to our own municipality, but also generally for Australia as a whole.

We have had representatives attend four UN Climate Change Conferences since COP21 in Paris in 2015 as NGO Observers.

Our group has had a focus on addressing transport issues since 2018. While we advocate strongly for increased public transport and active transport infrastructure, we are also well aware of some of the issues with freight logistics, and the niche areas of aviation and shipping emissions.

We thank the Net Zero Unit for this opportunity to put in a submission on the Net Zero Transport Roadmap. We apologise that we needed to seek an extension of time for preparing our submission. We have followed the question format in the Consultation document.

John Englart
Convenor, Climate Action Merri-bek
for and on behalf of Climate Action Merri-bek

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Submission: Transport and Infrastructure Net Zero Consultation Roadmap

1. Do you agree with the proposed guiding principles?
Yes

1.1. Please add details to your response.
The guiding principles make sense and we concur:
1. Maximise emissions reduction
2. Value for money
3. Maximise economic opportunity
4. Inclusive and equitable
5. Evidence-based

Avoid-Shift-Improve Framework

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

2.1. Please add details to your response.
We generally agree with the *Avoid-shift-improve* framework. In particular, transport demand management and telecommuting is particularly relevant to apply in reducing aviation emissions. Modal Shift is particularly important for reducing urban transport emissions for changing behaviours for greater uptake of active and public transport.

A Note on hydrogen as an alternative fuel or fuel source.

Hydrogen can be used in many different ways in transport and infrastructure and in industrial processes. Ramping up renewable hydrogen production will take time and its use should be prioritised.

The bulk of hydrogen today is used to make fertiliser or in fuel refineries and petrochemical plants. But it uses fossil fuel methane gas as a feedstock, so is highly carbon intensive. Currently about 99% of the 94 million tonnes of hydrogen we use globally (2022) is produced from fossil fuels. It is responsible for just under 2.5% of current global emissions.[1]

Using renewable hydrogen as an alternative fuel for transport is already in competition with cleaning up established fossil fuel emissions intensive industrial processes and fertiliser manufacture. The value of hydrogen and hydrogen derived transport fuels should be assessed within this competitive use framework. We draw upon the work of Michael Liebreich on The Hydrogen Ladder for assessing priorities for hydrogen use.[2]

[1] IEA, Global Hydrogen Review 2022, https://www.iea.org/reports/global-hydrogen-review-2022
[2] See Michael Liebreich, 21 October 2023, Hydrogen Ladder Version 5.0 https://www.linkedin.com/pulse/hydrogen-ladder-version-50-michael-liebreich/

Active and Public Transport

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

3.1. Please add details to your response.
Much of our experience relates to urban transport from inner urban to middle ring suburbs in the northern region of Melbourne. Public and active transport is already important in this area, and has the capacity to be greatly increased by modal shift with the implementation of the correct suite of targeted and co-ordinated policies at the Federal, State and Local Government levels

Climate Action Merri-bek sat down together and formulated what we would like to see in tackling transport emissions in the inner northern municipality of Merri-bek (formerly Moreland) in 2018. We refreshed this document with some updates in 2023. It outlines clearly the roles different government levels should play in tackling transport emissions in our municipality and region. See Appendix 1: Transport Policy in Merri-bek for the Climate Emergency

4. What should be included in a national policy framework for active and public transport and how should it be developed?
We welcome the establishment of the Active Transport Fund and National Urban Policy unit which will contribute to a national policy framework for active and public transport. The initial $100 million over 4 years for the Active Transport Fund is welcome, but seems relatively small for the infrastructure task at hand. In comparison we note that In May 2023, the French government announced plans to spend €2 billion in the 4 years to 2027 to promote cycling. The funds will finance the Bicycle Mobility Plan. This comes on top of municipal spending on cycling infrastructure, such as under Mayor Hidalgo in Paris.[3]

We also note the research by Dr Elliot Fishman, Dr Mahsa Naseri, Dr Liam Davies, Jessie Tran and Takuya Katsu on *Prioritising Active Transport* published by Ausroads in June 2024. Their research found that “to grow active transport mode share, a mix of interventions is required, including those that reduce or remove current incentives that encourage car use alongside interventions designed to encourage walking and cycling.”[4]

Comfort for active transport users can encourage mode shift.

Ensuring pedestrian and cycling routes are comfortable by providing shade, public water fountains, occasional seating, shelters at bus stops and tram stops.

[3] European Commission, 31 May 2023, France plans to invest €2 billion in cycling https://urban-mobility-observatory.transport.ec.europa.eu/news-events/news/france-plans-invest-eu2-billion-cycling-2023-05-31_en
[4] Dr Elliot Fishman, Dr Mahsa Naseri, Dr Liam Davies, Jessie Tran and Takuya Katsu, June 2024, AusRoads Research paper, Prioritising Active Transport, ISBN 978-1-922994-37-0 Austroads Project No. EAS6377, Austroads Publication No. AP-R711-24, https://austroads.com.au/__data/assets/pdf_file/0031/653368/AP-R711-24_Prioritising_Active_Transport.pdf

Cool walkability needs to be considered to encourage modal shift, argue researchers in this study currently going through peer review.[5]

Shaded Safe cycling routes are essential with protected lanes or shared use paths to encourage more women, children and families to cycle in comfort and safely for transport.

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?
There are a number of further actions that should be considered. We note actions have been taken at the Federal level to reduce EV pricing to encourage EV sales. We would like to see an e-bike subsidy program also implemented, which encourages active transport. In the middle ring suburbs e-bikes can enable longer distance cycle commuting to work or study. Modern cargo e-bikes can also avoid purchase of a second family car and be used for school and childcare drop-offs and for shopping. But modern e-bikes and cargo bikes can cost several thousand dollars.

We believe there is a strong case for a national e-bike subsidy scheme, and that this provides great value for money in addition to the discounts for EVs. See We Ride and their advocacy for a national e-bike subsidy for Australia.[6]

Tax loophole on oversized Utes.

We note with deep concern a tax loophole has been identified by the Australia Institute on Luxury oversized Utes not being charged a luxury tax. This has implications for transport emissions and safety on Australian streets. [7]

This tax loophole subsidy has already cost some $250 million and dwarfs the initial contribution to the Active Transport Fund. Key Findings of the report included:

- Luxury car tax is paid on the sale or importation of most cars valued above $81,000.
- However, any vehicle that can carry twice the weight in payload that it can carry in people, is exempt regardless of what it is used for.
- Non-luxury utes, used by most tradies, sit below this threshold and would be unaffected by the removal of the luxury ute loophole.

[5] Henrik Wolf, Ane Rahbek Vierø, Michael Szell, 2 May 2024, CoolWalks: Assessing the potential of shaded routing for active mobility in urban street networks https://arxiv.org/html/2405.01225v1
[6] Dr Elliot Fishman and Liam Davies, Institute for Senesible Transport, We Ride, November 2021, E-Bike Subsidy for Australians https://www.weride.org.au/wp-content/uploads/2022/04/WeRide_e-Bike_Subsidy_Report_FINAL-lores.pdf
[7] Australia Institute, 22 July 2024, Luxury Car Tax and the Ute Loophole https://australiainstitute.org.au/report/luxury-car-tax-and-the-ute-loophole/

Freight and Supply Chain Strategy

6. The Australian Government has already engaged in consultation on the 2023 review of the National Freight and Supply Chain Strategy and those consultations will also inform the final Roadmap and Action Plan.

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?

As stated in our initial survey response submitted in December 2023 we identified as a top priority:

> "Lack of substantial investment in rail network. Long range freight has been steadily moving to road as interstate roads have been upgraded. There needs to be investment to upgrade the rail network to increase its speed and efficiency. We are not talking about High Speed rail, but some key upgrades could reduce intercapital rail times for freight and passenger service. This might also provide an alternative to some aviation travel."[8]

We are glad to see identified Government leadership as an opportunity for improvements to net zero pathway for freight, including: Mode shift from road to rail, Urban Planning, Intermodal innovation and optimisation, Rail resilience, Urban freight consolidation centres, Improvements to last kilometre delivery, Incentives for fleet owners to invest in emission reduction technologies.

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

For us in an urban environment last kilometre delivery incorporating micro mobility freight options definitely appears achievable. Already many food deliveries are made on electric bikes. There is an opportunity for more articles and small goods transported in last kilometre delivery by cargo bikes within metropolitan areas.

[8] Philip Laird, The Conversation, 19 December 2023, Australia's freight used to go by train, not truck. Here's how we can bring back rail – and cut emissions, https://theconversation.com/australias-freight-used-to-go-by-train-not-truck-heres-how-we-can-bring-back-rail-and-cut-emissions-219332 in Climate Action Merribek, 21 December 2023, Submission on Federal Government Transport and Infrastructure Net Zero Roadmap and Action Plan https://climateactionmerribek.org/2023/12/21/submission-on-federal-government-transport-and-infrastructure-net-zero-roadmap-and-action-plan/

New Vehicle Efficiency Standard and National Electric Vehicle Strategy

7. Do you agree with the proposed net zero pathway for light road vehicles?
While we would have preferred a more ambitious New Vehicle Efficiency Scheme, we appreciate the present scheme will encourage uptake and sales of Electric vehicles.

7.1. Please add details to your response.

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.

In our submission to the New Vehicle Emission Standard we said “The government’s preferred Option B should be viewed as a minimum basis for the standard.” and argued for the most ambitious option C. We appreciate that the NVES adopted at least puts us on a trajectory for lowering light vehicle fleet emissions over time. But this is not sufficient. We also need policies to encourage mode share change to active and public transport and adoption of light electric vehicles in the form of e-bikes and e-scooters.

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?
We are dis-satisfied that Light Electric vehicles such as e-bikes and e-scooters have not been sufficiently considered worthy of promoting and subsidising. The benefits of micro mobility is to reduce congestion issues and save emissions more effectively than just a simple conversion and uptake of electric vehicle cars.

We note the current roadmap identifies sales of heavier passenger vehicles. This is, at least partly driven, by Motor vehicle company advertising for petrol/diesel SUVs and large Utes. These larger vehicles pose both an increased safety risk to pedestrians and cyclists, and due to their heavier greenhouse gas emissions a greater contribution to climate change, and air pollution health threats to human life. In the past society has identified tobacco advertising as a major health issue and resolved to ban this advertising. The same is possible to do with fossil fuel product advertising, or products with high carbon intensity like petrol and diesel powered SUVs and Utes.

Regulate advertising based on product carbon intensity

The Federal Government should look to regulate advertising based on product carbon intensity. This should be part of a suite of policy measures to change behaviour in the uptake of new vehicles, and unthinking use of aviation. We draw your attention to research from the UK on using better product labelling as a way to start to control fossil fuel advertising.[9]

[9] Lancaster University, Jacob Ainscough and Rebecca Willis, June 2024, Managing adverts for high carbon products and services. Findings from a citizens’ jury and national polling, https://climatecitizens.org.uk/wp-content/uploads/2024/06/Lancaster-University.-Public-attitudes-to-management-of-advertising-for-high-carbon-products-and-services.pdf See also Jacob Ainscough, The Conversation, 21 June 2024, Labelling is a popular choice as a way to control fossil fuel advertising –

The researchers found that people proposed three possibilities for changes to the current way adverts of high-carbon products and services are managed. They developed three proposals for fossil fuel advertising:

- Introduce a traffic light labelling system on adverts to show the true carbon emissions of the product or service being advertised.
- Introduce a levy on adverts of high-carbon products and services.
- Restrict advertising of high carbon products and services to children and introduce informative advertising and education on climate change.

Regulating and limiting advertising for aviation is also a policy option for aviation emissions.

We have banned tobacco advertising. Regulating fossil fuel product advertising is a next step and can assist in reducing the demand for fossil fuel products including petrol/diesel cars and aviation. For arguments and rationale for regulating fossil fuel product advertising in the European context see Clemens Kaupa, July 2023.[10] For the Australian context for a ban on fossil fuel advertising see Professor Matthew Rimmer submission to the ACT Legislative Assembly Standing Committee on Environment, Climate Change and Biodiversity, in March 2024.[11]

In June 2024 the UN Secretary General in a speech in New York called for every country to ban advertising from fossil fuel companies, He also urged news media and tech companies to stop taking fossil fuel advertising.[12]

So why isn't a fossil fuel ad ban included in this consultation?

8.2. How would these actions address the identified challenges and opportunities to reduce light vehicle emissions?

Regulation of Advertising of products based on carbon intensity would have ramifications beyond transport emissions, and would provide a positive system of choice for consumers in assessing products before purchase.

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new study
https://theconversation.com/labelling-is-a-popular-choice-as-a-way-to-control-fossil-fuel-advertising-new-study-232871

[10] Kaupa C. Promoting the Apocalypse? The Legality of a Ban on Advertising for Fossil Fuels and Other Carbon-Intensive Products under European Law. European Journal of Risk Regulation. Published online 2023:1-23. doi:10.1017/err.2023.54

[11] Rimmer, Matthew, A Submission on the Environment Protection (Fossil Fuel Company Advertising) Amendment Bill 2024 (ACT) (March 13, 2024). Standing Committee on Environment, Climate Change and Biodiversity, ACT Legislative Assembly, Available at SSRN: https://ssrn.com/abstract=4757605

[12] Oliver Millman, 6 June 2024, The Guardian, 'Godfathers of climate chaos': UN chief urges global fossil-fuel advertising ban
https://www.theguardian.com/environment/article/2024/jun/05/antonio-guterres-un-chief-fossil-fuels-advertising

Net zero pathway for heavy road vehicles

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

9.1. Please add details to your response.
Battery electric provides the most promising technology, broadly speaking.

Recent Australian research examined life cycle emissions for Battery Electric, Hydrogen Fuel Cell and current Diesel technologies:

> "Our modelling shows battery electric trucks will provide deep emission cuts of 75-85%, on average, across the fleet in the future decarbonised scenario. Hydrogen (fuel cell) trucks will provide large cuts of 50-70%, on average.
>
> Hydrogen trucks are expected to emit about twice the amount of life-cycle emissions per kilometre compared to battery electric trucks. The latter's extra reduction in emissions will be vital for getting road transport closer to the net-zero target in 2050.
>
> The life-cycle emissions of the hydrogen trucks also have the largest uncertainty of all the powertrains we assessed. This reflects a general lack of data and information for this technology.
>
> This uncertainty is important for policymakers to consider. Hydrogen (fuel cell) trucks carry a higher risk of not achieving anticipated emission cuts.
>
> Using the available evidence, our study suggests policies to cut Australian trucking emissions should focus on promoting battery electric trucks wherever possible."[13]

Hydrogen Fuel Cell Electric vehicle cars are an inefficient use of hydrogen and should not be supported. Hydrogen Fuel Cell technology will likely be a niche technology for long distance heavy road vehicles. Battery Electric will provide the major opportunity for heavy vehicles. There are feedstock issues with Low Carbon Electric fuels use in heavy freight and competition with use of these fuels in aviation. As stated previously we need to move more road freight to more emissions efficient rail use.

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.
Battery Electric
Hydrogen Fuel Cell
low carbon liquid fuels

[13] Robin Smit, The Conversation, 18 January 2024, Why electric trucks are our best bet to cut road transport emissions
https://theconversation.com/why-electric-trucks-are-our-best-bet-to-cut-road-transport-emissions-219960

10.1. Please add details to your response. Why did you rank them in that order?
Battery Electric shows the most promise for technological development and to play the major role in heavy freight vehicles.Battery technology research and development will likely result in more efficient and lighter batteries in the future.

Hydrogen Fuel Cell may have a niche role for long distance freight transport. But there are issues with setting up a refuelling infrastructure, safety issues with transporting hydrogen widely. As highlighted in the Consultation document, there are niche roles for FCEV trucks where renewable hydrogen is generated locally for trucks with a specific purpose and route as per ARK Energy Corporation in Townsville. Could this have been done at the same lifecycle emissions intensity and efficiency using battery electric trucks?

Low carbon liquid fuels. Limited feedstock. Competition with use by aviation. Its ease of use with existing vehicles means it may have a transitional role as battery and hydrogen fuel cell technologies develop further.

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

If we are to maintain rates of aviation, we will need to restrict low carbon liquid fuels in heavy freight vehicles to a small transitional role.

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?

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

Net zero pathway for Rail

13. Do you agree with the proposed net zero pathway for rail?
Recent research shows that mode shift to electric rail for freight and passenger service would deliver substantial transport emissions reduction.[14]

Electrification of rail is important.

Battery Electric will also play a role in regional and freight services.

Hydrogen fuel cell may play a niche role for freight

Low Carbon liquid fuels should be restricted to aviation but may play a transitional role

13.1. Please add details to your response.
As highlighted, Rail is already relatively low emissions. Mode shift is needed for both passengers and freight from vehicle use to reduce emissions. An infrastructure program for Electric rail provides substantial emissions reduction potential, and environmental and health savings.

Australia should be aiming to electrify more of its rail network. Australia has electrified 3,488 kilometres, around 10 percent of the Australian heavy railways network. In comparison, India as of 1 July 2024, Indian Railways has electrified 63,971 km or 96.96% of the total broad-gauge route length. European Union has about 56% electrification.[15]

The Australian study found that

> "Shifting from road to e-rail is estimated to cut emission intensity for passenger transport (grams of CO_2-equivalent per passenger kilometre) by 75% in 2019 and 90% in 2030 and 2050. For freight transport, shifting from road to e-rail cuts emission intensity by an estimated 45% in 2019 and 80% in 2030 and 2050."

For urban areas, rail electrification provides value in providing more efficient, less polluting and more frequent service. In the Northern suburbs of Melbourne Infrastructure Australia identified a transport capacity issue in the CBD-northern suburbs transport corridor affecting the Hume freeway, and two suburban rail lines: the Craigieburn and Upfield lines, and the V-line rail service for passengers in the new residential developments between Craigieburn and Wallan. The Upfield line is single track between Gowrie and Upfield, producing a bottleneck restricting the current service frequency.[16]

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[14] Robin Smit, The Conversation. 29 July 2024, We compared land transport options for getting to net zero. Hands down, electric rail is the best https://theconversation.com/we-compared-land-transport-options-for-getting-to-net-zero-hands-down-electric-rail-is-the-best-234092
[15] Wikipedia, List of countries by rail transport network size, Accessed 5 August 2024 https://en.wikipedia.org/wiki/List_of_countries_by_rail_transport_network_size
[16] Patrick Hatch, The Age, 7 August 2024, 'Ridiculous in a city this size': The push to unclog Melbourne's most infuriating train line https://www.theage.com.au/national/victoria/ridiculous-in-a-city-this-size-the-push-to-unclog-melbourne-s-most-infuriating-train-line-20240806-p5jzw3.html

By 2031 the population in the suburbs north of Craigieburn will be approaching 100,000 people, yet the Victorian State Government is silent on duplicating the Upfield line, and extending it to Craigieburn and duplicating and extending the track to Wallan.[17]

We have also identified the extension of light rail (trams) further north: the number 19 Sydney Road tram extend to Campbellfield; and the No 58 Melville Road tram extend up into Pascoe Vale and Hadfield. Both these extensions will add to encourage mode shift.

Electrification of regional freight and V-line passenger service is possible in the medium term. Battery electric and perhaps hydrogen fuel cell may play a niche role..

For the Melbourne-Sydney intercapital rail route fixing some of the ageing rail infrastructure and better aligning the rail route might make significant service improvements at minimal expenditure compared to High Speed Rail.[18]

For the long term an electrified East Coast High Speed Rail network linking Melbourne, Canberra, Sydney and Brisbane would reduce land based transport emissions and also reduce aviation emissions through mode shift.

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.

1. Electrification where it provides value (outer urban areas) in the short to medium term such as Melbourne-Melton, Melbourne-Wallan. Electrification of major interregional lines such as Melbourne-Geelong, Melbourne-Ballarat, Melbourne-Shepparton for the medium term.
2. battery electric, for longer distances
3. hydrogen fuel cell , perhaps a niche role
4. low carbon liquid fuels.

14.1. Please add details to your response. Why did you rank them in that order?

15. What role should low carbon liquid fuels play in rail decarbonisation?
As there will be intense competition over the limited feedstocks of low carbon liquid fuels, use of these fuels should be minimal, and require business case justification for short term transitional use.

16. What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to reduce rail emissions?

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[17] See Upfield Transport Alliance on population growth forecasts for northern Melbourne region peripheral suburbs, 25 September 2023, Demands for Upfield Line track duplication and line extension to Wallan grow
https://upfieldtransportalliance.org/2023/09/25/demands-for-upfield-line-track-duplication-and-line-extension-to-wallan-grow/

[18] Philip Laird, The Conversation, 4 August 2022, More than ever, it's time to upgrade the Sydney–Melbourne railway
https://theconversation.com/more-than-ever-its-time-to-upgrade-the-sydney-melbourne-railway-187169

An electrified rail network including battery electric engines requires extensive renewables generation. Hydrogen fuel cell powered engines are also dependent on renewable energy devoted to industrial electrolysis providing the hydrogen.

16.1. How would these actions address the identified challenges and opportunities to reduce rail emissions?

Net zero pathway for Maritime

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

17.1. Please add details to your response.
The Maritime Emissions Reduction National Action Plan (MERNAP) establishes a pathway to reducing Australia's maritime emissions.

Given Australia relies on international shipping companies heavily, the Maritime Single Window to improve port efficiency and reduce emissions would appear to be important. One of the primary opportunities when ships are berthed is that they draw power from the local grid to avoid using ship based power that also causes emissions and pollution

We will see over coming decades a move away from using bunker fuels to fuels such as ammonia which can be produced from renewable hydrogen. This will require electrolyzers and hydrogen storage and ammonia production near port facilities, and will require regulatory actions.

Establishing green shipping corridors is also important. Research shows that Route optimisation using ocean currents and eddies may save 10% fuel use globally.[19]

About a third of all goods transported by ship are fossil fuels: coal, oil and gas. So the implementation of the Paris Agreement should see a reduction in transport of fossil fuels. However, this may be countered by a growing opportunity to export renewables based energy as hydrogen, ammonia, or in embedded green iron, steel and aluminium, or as critical minerals.

Although Australia has no national maritime fleet, it can be effective through its participation in the International Maritime Organisation and in international diplomacy to support ambitious efforts to decarbonise the maritime sector. Australia appears to have opposed in July 2023 ambitious efforts by Pacific Island nations including Solomon Islands and Marshall Islands, for the introduction of a $100 per tonne levy on maritime emissions in order to make cleaner fuels cost-competitive with the dirtier heavy fuel oil that is the industry standard. Australia needs to do better, and be more transparent in its actions at the IMO.[20]

In a discussion between UK Professors Alice Larkin and Kevin Anderson in January 2024 they highlighted the opportunities for decarbonising shipping. These include both technology and operational changes that can be made in the near term for existing ships:[21]

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[19] John Englart, Climate Citizen, 1 June 2024, Shipping emissions: Route optimisation using ocean currents and eddies may save 10% fuel use globally
https://takvera.blogspot.com/2024/06/shipping-emissions-route-optimisation.html
[20] John Englart, Climate Citizen, 5 July 2023, Shipping levy on maritime emissions opposed by Australia at IMO conference
https://takvera.blogspot.com/2023/07/shipping-levy-on-maritime-emissions.html
[21] John Englart, Climate Citizen, 4 January 2024, Addressing shipping emissions with Professor Alice Larkin in interview with Kevin Anderson
https://takvera.blogspot.com/2024/01/addressing-shipping-emissions-with.html

- Slow steaming. There is a cubed relationship between ship speed and energy consumption.

- Retro-fit ships with wind propulsion technology. This technology is now very advanced, not one size fits all. Fletner rotors, advanced sail technologies and kites.

- Route optimisation in combination with wind technology. On one route up to 60 percent saving modelled.

- Alternative fuels. Bio-methanol, ammonia, hydrogen, batteries. These fuels all have many challenges.

Note that use of ammonia from renewable hydrogen for use as a shipping fuel is in competition with replacing methane gas reformation to produce ammonia for the fertiliser sector, as well as industrial uses of hydrogen in petrochemical plants such as for hydrocracking.

We see ferries becoming battery electric for local waterways and harbours in the short to medium term.

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?

18.2. How would these actions address the identified challenges and opportunities to reduce maritime emissions?

Net zero pathway for Aviation

19. Do you agree with the proposed net zero pathway for aviation?
No

19.1. Please add details to your response.
The document supports aviation growth, despite the rising emissions from the sector and difficulty in decarbonisation.

It fails to identify all possible actions that can be taken.

Specifically, it ignores the many demand management approaches except for voluntary modal shifts.

Managing Aviation Demand

One major absence from this consultation roadmap is managing aviation demand. Scientists have been saying this may be necessary for over a decade and have proposed various options to manage demand. Yet this Document fails to even mention market based and regulatory demand management, let alone the options to do so. Only under flight alternatives is reduction in domestic demand for flights raised (a voluntary action by individuals)

In our previous submission in December 2023 we briefly raised the issue of managing aviation demand:[22]

> "Controlling aviation demand by stopping airport expansion is one option. Imposing a frequent flyer levy is another option.
>
> "Andrew Macintosh and Lailey Wallace (ANU Centre for Climate Law and Policy) in the study "International aviation emissions to 2025: Can emissions be stabilised without restricting demand?" concluded that "Stabilising international aviation emissions at levels consistent with risk averse climate targets without restricting demand will be extremely difficult."[23]

Professor Alice Bows-Larkin has been publishing research in the area of aviation and shipping emissions. Her 2014 Synthesis article called 'All adrift: aviation, shipping, and climate change policy'[24] outlines the problem and some difficult solutions. Bows-Larkin concludes that "*the more simply structured aviation sector is pinning too much hope on emissions trading to deliver CO 2 cuts in line with 2C. Instead, the solution remains controversial and unpopular – avoiding 2C requires demand management.*"

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[22] Climate Action Merribek, 21 December 2023, Submission on Federal Government Transport and Infrastructure Net Zero Roadmap and Action Plan https://climateactionmerribek.org/2023/12/21/submission-on-federal-government-transport-and-infrastructure-net-zero-roadmap-and-action-plan/

[23] Macintosh and Wallace (2009), International aviation emissions to 2025: Can emissions be stabilised without restricting demand? Energy Policy Volume 37, Issue 1, January 2009, https://doi.org/10.1016/j.enpol.2008.08.029

[24] Alice Bows-Larkin (2015) All adrift: aviation, shipping, and climate change policy, Climate Policy, 15:6, 681-702, DOI: 10.1080/14693062.2014.965125

On demand management of aviation Bows Larkin details her arguments thus:

> 4.3. Demand-side
> It is useful to consider what typical growth rates are ‘allowable’ within the constraints of a 2C target. Assuming an optimistic 2% annual fuel efficiency improvement, for the C + 4 scenario (Figure 1), passenger-km growth rates would need to be cut to zero from 2020, with a 4% p.a. reduction from 2025. C + 5 requires zero growth to 2025, then reductions of 6% p.a. from 2033. Constraining demand for flying is unpopular, with little reference to it as a viable policy option in industry and government literature. Nevertheless, it can be argued that a gradual reduction from the typical 3% p.a. growth seen since 1990, to zero by 2020 to 2025, is no more challenging to achieve than a large-scale and rapid fleet-wide role-out of new technologies, or emissions trading implemented globally and commensurate with 2 8C. A personal carbon quota scheme for CO 2 that includes international flights is one mechanism that could lead to such a radical change in levels of per capita flying (Fawcett, 2010).
>
> Administratively, this type of policy could build upon existing credit-card-type technology (Starkey & Anderson, 2005). It is difficult to imagine how a policy could physically drive a rapid technological overhaul of the global aircraft fleet in a similar timeframe. It is highly desirable therefore that there is more research analysing where absolute cuts in passenger-km through the provision of alternatives such as virtual communications or long-distance, low-carbon rail travel, to add to existing literature (e.g. Coroama, Hilty, & Birtel, 2012; Guldbrandsson & Malmodin, 2010).

Her conclusions for aviation:

> “In aviation, the limit to technical and operational change has led the industry towards a preference to use a global emissions trading scheme to provide net emission cuts. In other words, the sector expects CO 2 savings will generally be made in other sectors of the economy to enable aviation-related CO 2 to grow or be cut by less. Yet, even with trading, a target of a 50% net CO 2 cut is not sufficient to meet the 2C goal. Ironically, by comparing aviation with shipping, it becomes clear that if there were mitigation options available to the air transport sector, its relatively simple institutional set-up, with its small number of manufacturers, fewer markets and actors, as well as a lower number of major national players, would make incentivizing change practical. Instead, with emissions trading disconnected from the 2C challenge, demand-management and biofuels offer the only feasible ways of cutting CO 2 in the timescale compatible with the available CO 2 budget. Yet, both raise interesting ethical and moral issues. Should aviation, which in a global context continues to be dominated by relatively affluent leisure passengers (Williams, 2007), take priority over other sectors for the use of sustainable biofuels in preference to less popular policies aiming to curb or even cut growth rates?”

Bows-Larkin final conclusion in her study is on the need to oppose airport expansion:

> "Ultimately, an uncomfortable and familiar conclusion for aviation remains: a moratorium on airport expansion at least in wealthy nations is one of the few options available to dampen growth rates within a timeframe befitting of the 2C target."

M Sharmina and colleagues also highlight the importance of demand reduction in their modelling study on *Decarbonising the critical sectors of aviation, shipping, road freight and industry to limit warming to 1.5–2°C*.[25] It is also worth keeping this assessment in mind for shipping and road freight sectors.

> "Given the contested feasibility and future scenarios of mitigation (Low & Schäfer, 2020) and the enormity of the 1.5–2°C challenge, we argue that it is appropriate and necessary to diversify mitigation options, particularly related to demand, in order to increase the resilience of the world's mitigation effort. **Without substantial demand reductions in the critical sectors of transport and industry**, the burden of decarbonisation will shift towards the offsetting role of CDR technologies (Vaughan et al., Citation2018; Workman et al.,)." (Emphasis added)

In their table summary of demand reduction options for aviation, their representation in IMAGE, and future steps, Sharmina et al make the policy recommendations:

> "Make alternatives to frequent air travel for leisure and business (e.g. virtual meetings) affordable, practical and mainstream. Ensure greater connectivity between land-based modes (e.g. integrated tickets for all train and bus journeys). **Ban airport expansion. Impose a frequent flyer levy. Trial personal carbon allowances. Discourage and phase out short-haul air travel, while investing in low-carbon travel modes**".(Emphasis added)

Stefan Gössling and Chris Lyle in their 2021 study - Transition policies for climatically sustainable aviation - highlight a list of actions and their relative effectiveness for transport demand change, technology change and social norm change.[26]

Table 2 of the study outlines Policies for the transformation of the aviation sector by Policy type: Voluntary, Market Based, Regulatory, and groupsg policies under Individual/society or Aviation Sector.

For sectorial action it identifies Carbon labels on tickets++ as a voluntary action

For Market based sectorial polices it identifies:

- VAT for all air travel++
- Minimum fare rule++
- Assigning slots based on efficiency++
- Carbon-related landing charges++

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[25] Sharmina, M., Edelenbosch, O. Y., Wilson, C., Freeman, R., Gernaat, D. E. H. J., Gilbert, P., … Le Quéré, C. (2020). Decarbonising the critical sectors of aviation, shipping, road freight and industry to limit warming to 1.5–2°C. Climate Policy, 21(4), 455–474. https://doi.org/10.1080/14693062.2020.1831430

[26] Gössling, S., & Lyle, C. (2021). Transition policies for climatically sustainable aviation. Transport Reviews, 41(5), 643–658. https://doi.org/10.1080/01441647.2021.1938284

- Fossil fuel carbon tax+++
- Staying financial aid, loans and tax relief+++
- Removing subsidies+++

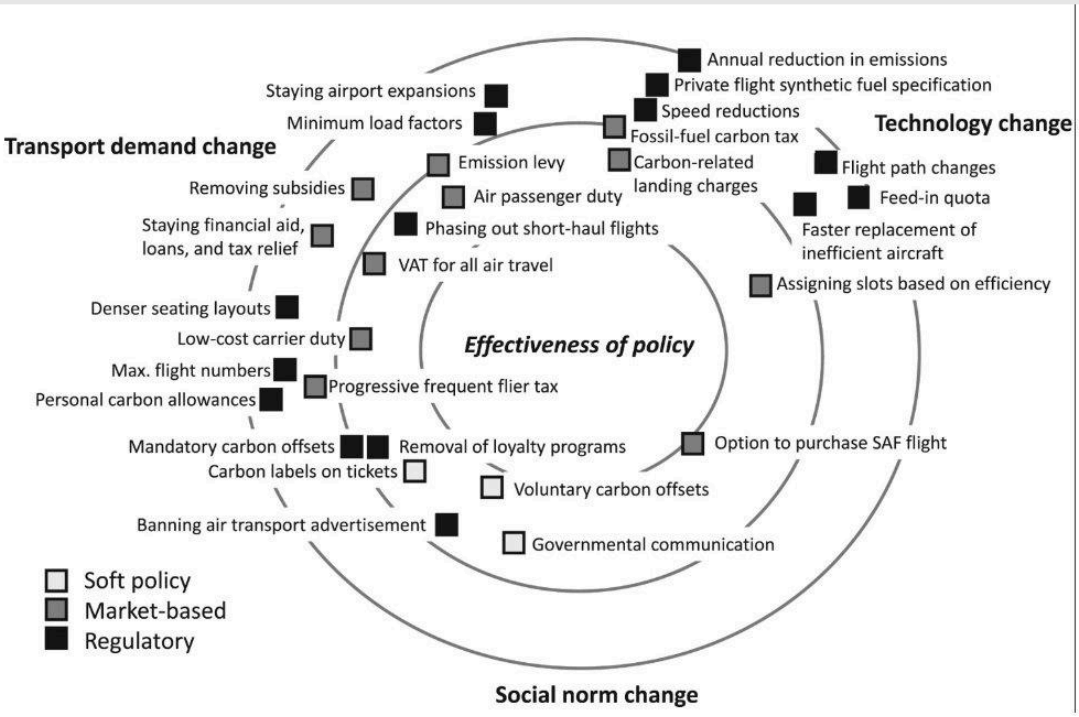
For regulatory sectorial policies it identifies:

- Banning air transport advertisement++
- Speed reductions++
- Phasing out short-haul flights++
- Staying airport expansions++
- Minimum load factors++
- Faster replacement of inefficient aircraft+++
- Private flight synthetic fuel specification++
- Denser premium seating layouts+++
- Flight path changes+++
- Feed-in quota+++
- Annual reduction in emissions+++

Individual/society actions include Progressive frequent flier tax++ under Market based mechanisms.

Under regulatory actions for individuals/Society policies could include: Removal of loyalty programs++ ; Maximum flight quotas+++; Personal carbon allowances+++.

Figure 1. Policy dimensions and their relative effectiveness. *The further outside the concentric rings a policy is located, the more effective it is considered. See Methodology for further information on the positioning process.



Many of the transport demand change options are missing from the Consultation document.

A more recent peer reviewed assessment on *Pathways to net-zero emissions from aviation* by Candelaria Bergero et al (2023) also highlights the need for ambitious reduction in

demand as well as the large quantities of net-zero emissions reductions from biofuels or synthetic fuels that will also be required:[27]

> "We find that ambitious reductions in demand for air transport and improvements in the energy efficiency of aircraft might avoid up to 61% (2.8 GtCO2 equivalent (GtCO2eq)) and 27% (1.2 GtCO2eq), respectively, of projected business-as-usual aviation emissions in 2050."

The selection of scientific articles above highlights the lack of consideration for demand management options. The options provided in the consultation document appear not to question demand growth for aviation, and only suggest soft policy voluntary modal shift options ignoring market based and regulatory options.

If you don't present the full range of soft policy, market based and regulatory policies for aviation, you are already deviating from being science and evidence based.

We think the currently enunciated plan for decarbonisation of aviation will fail.

Electrification of aviation

There are limited electrification opportunities except for limited capacity short haul and regional flights in the short to medium term.

These shorter flights are likely to have much lower energy costs, so might bring some cost reduction in regional aviation.

Sustainable Aviation Fuels

The document identified that Sustainable Aviation Fuels is critical for this sector. We agree, but use of Sustainable Aviation Fuels poses complex issues.

Sustainable Aviation Fuel is a low carbon liquid fuel, but is limited by feedstock capacity and potential uses for shipping, rail and heavy vehicle transportation.

Growing crops for feedstock when grain yields are declining and agriculture is experiencing more extreme heat, storms, floods and drought reducing agricultural production is poor prioritisation. These challenges and potential for poor agricultural crop prioritisation driving environmental damage have been recognised for well over a decade.[28]

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[27] Bergero, C., Gosnell, G., Gielen, D. et al. Pathways to net-zero emissions from aviation. Nat Sustain 6, 404–414 (2023). https://doi.org/10.1038/s41893-022-01046-9

[28] Lüdeke-Freund, F.; Walmsley, D.; Plath, M.; Wreesmann, J. & Klein, A.-M. (2012): Sustainable plant oil production for aviation fuels: Assessment challenges and consequences for new feedstock concepts, Sustainability Accounting, Management and Policy Journal, Vol. 3, No. 2, 186–217. http://dx.doi.org/10.1108/20408021211282313 *(15) (PDF) Sustainable Plant Oil Production for Aviation Fuels - Assessment Challenges and Consequences for New Feedstock Concepts*. Available from https://www.researchgate.net/publication/254933835_Sustainable_Plant_Oil_Production_for_Aviation_Fuels_-_Assessment_Challenges_and_Consequences_for_New_Feedstock_Concepts [accessed Aug 10 2024].

But we do see a role for developing Sustainable Aviation Fuel production in Australia as part of the tools of decarbonisation of aviation, but care needs to be taken regarding feedstock source.

We agree with the essential details in the CSIRO Sustainable Aviation Fuel Roadmap, although this document too, fails to mention the importance of considering demand management strategies and policies, but reverts to 'empowering the consumer' when regulatory action or a market mechanism would be more effective..This document does include a suite of policy interventions worth considering regarding SAF.

Developing local feedstocks and SAF production requires more research and development, setting up certification and regulation regimes and also identifying where the capital required will come from to cover the price gap between SAF and current jet field.

We note research published in April 2024 by Watson et al - *Sustainable aviation fuel technologies, costs, emissions, policies, and markets: A critical review* - highlights:[29]

- SAF costs are 120%–700% higher than fossil-based jet fuel costs.
- SAF reduces CO2 emissions between 27% and 87%.
- The lack of producer incentives poses a significant hurdle to SAF adoption.
- A large gap between current SAF demand and net-zero by 2050 projections.

Should there be an industry market mechanism to cover the investment and increase costs of SAF development?
What sort of market mechanism?
Will these costs be passed on to consumers? What is the projected impact on flight tickets?

Support for International Civil Aviation Organization (ICAO)-led initiatives to reduce emissions from international aviation while still facilitating growth in the industry. There have been many expert criticisms of the ICAO Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), including the carbon accounting integrity of offsets. We also think 'Facilitating growth in the industry' is incompatible with achieving net zero aviation by 2050. This is a fundamental difference as highlighted in the section on Demand Management above.

Fuel efficiency and reduced carbon dioxide emissions at the expense of NOx emissions

Fuel efficiencies in more modern aircraft result in less carbon dioxide emissions, but this comes at the expense of more Nitrous Oxide (NOx) emissions These NOx emissions cause high altitude climate impacts. .

[29] M.J. Watson, P.G. Machado, A.V. da Silva, Y. Saltar, C.O. Ribeiro, C.A.O. Nascimento, A.W. Dowling, Sustainable aviation fuel technologies, costs, emissions, policies, and markets: A critical review, Journal of Cleaner Production, Volume 449, 2024, 141472, ISSN 0959-6526, https://doi.org/10.1016/j.jclepro.2024.141472

All flights need to be assessed both for their CO2 and non-CO2 emissions, and the climate impact of these emissions at various cruising altitudes.

For Long haul flights “time flown on cruise level is an important factor for the climate effect of each flight. The main reason for this is that NOx being emitted on high altitudes (i. e. cruise levels) has an increased climate impact (Lee et al. (2010) and Lee et al. (2009)).” argues Janina Scheelhaase, in a 2019 research paper.[30]

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.

The government continues to support aviation growth, and policies which will not result in achieving net zero for aviation by 2050. There needs to be a path to develop policies, regulations to slow and reduce aviation demand. This should include but not be limited to, a moratorium on airport expansions, progressive frequent flyer tax, and other demand side market based and regulatory policies.

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?

Government needs to manage the demand for aviation and aviation emissions, through a suite of measures including market based and regulatory mechanisms. Aviation emissions reduction targets will not be achieved by technology, efficiency improvements, and use of Sustainable Aviation fuels. Managing the demand for aviation is crucial according to many experts.

20.2. How would these actions address the identified challenges and opportunities to reduce aviation emissions?
Managing demand for aviation may not be politically popular, so a suite of policies are probably needed to be phased in. Demand management is also not popular with the privatised airport corporations or the airlines as it impacts their growth business model.

What we are arguing for is slowing then reversing the growth in aviation demand and use, so that emissions can be adequately managed and reduced through the other policy measures of technology advancement, efficiency gains, operational efficiencies, and Sustainable Aviation Fuels.

[30] Scheelhaase, Janina D., 2019. “How to regulate aviation’s full climate impact as intended by the EU council from 2020 onwards,” Journal of Air Transport Management, Elsevier, vol. 75(C), pages 68-74. https://www.sciencedirect.com/science/article/abs/pii/S096969971830334X

Net zero pathway for transport infrastructure

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

21.1. Please add details to your response.
We have consistently argued in our submissions on transport infrastructure projects in Melbourne's northern region for reuse of materials where possible, use of green cement, facilitating active transport for modal shift, and installing public EV chargers when railways station car parks are redeveloped.

In our experience we have found planning has not necessarily incorporated facilitation of active transport despite the mandate to do so in the Victorian Transport Integration Act. We cite Hume Council's request for a cycling path from Merri Creek at the Ring Road bridge to a local council road as part of the $513 million Major Road Build in the M80 ring road expansion from Sydney Road to Edgars Road. The request was dismissed as not necessary. A pedestrian bridge that crossed the Ring Road had to be expanded, so community engagement focussed on what colour to paint the upgraded bridge, not how to improve other transport modes/bike paths as part of the project.

Secondly, for the Camp Road level crossing removal on the Upfield Line at Campbellfield a cycling path was in the plans to link the Western Ring Road Path to Camp Road, and could have been easily built with few resources needed, but was never implemented. Instead rail cabling was built on the portion of the rail bridge that would be allocated for pedestrian cycling use, and a locked gate installed at Camp Road.

Similarly we have called for green cement/concrete use to be included in building contracts for transport infrastructure projects such as level crossing removal in Merri-bek. We have received no feedback that this occurred. Mandating use of green cement/concrete in government projects increases its production and price competitiveness.

For the level crossing removal project in Coburg and station car park upgrades at Moreland and Coburg stations we called for public EV charging stations but no public EV charging stations were installed. Similarly the Merlynston Station Car park upgrade funded by the Federal Government had no EV charging stations installed.

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?

There needs to be greater priority to plan and fund mode shift to public transport and active transport.

While upgrading materials is important, there needs to be incorporated wider sustainability criteria such as vegetation that helps ameliorate the urban heat island effect which can indirectly affect emissions.

Unshaded car parks indirectly cause greater vehicle emissions

During hot weather shade for parked cars can indirectly reduce vehicle emissions. “Unshaded car parks also indirectly lead to higher emissions by cars…When the driver returns to the car and the air conditioning is turned on at maximum power, it can take up to 20 min to achieve comfortable conditions in the cabin and the emission of NOx, CO2 and other pollutants peak, because of the peak power demand of the air conditioning system (Levinson et al., 2011).”[31]

Tackling heat in urban car parks needs to be addressed. More trees for canopy shade or other structural shade is needed in public and private car parks, which helps in comfort, reducing urban heat microclimates and in reducing vehicle emissions on hot days.

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

Modal shift directly reduces emissions, congestion, wear and tear on road surfaces. Walking and cycling infrastructure is cheaper to maintain.

[31] Pfautsch S., Wujeska-Klause A., Piracha A., Paolini R., van den Nouwelant R., Morrison N. (2022) Despicable urban places: hot car parks. Western Sydney University, 68p. DOI: 10.26183/7q7a-f148 URL: https://doi.org/10.26183/7q7a-f148

Energy Transformation

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. Submissions closed on Friday 12 April 2024 (AEDT). This feedback will be used to inform the development of the Electricity and Energy Sector Plan and Net Zero Plan.
The Australian Government will be undertaking targeted consultation to identify options for production incentives to support the establishment of a made in Australia low carbon liquid fuel industry, including through the release of a low carbon liquid fuels consultation paper.
Feedback heard through this process will also inform development of the final Transport and Infrastructure Net Zero Roadmap and Action Plan.

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?
Transforming the grid to renewable energy is an essential enabler of reducing transport emissions through electrification.

24. How should the use of low carbon liquid fuels be prioritised across different transport modes over time to achieve maximum abatement?
Low Carbon Liquid fuels should be prioritised for use in aviation along with technological change, operational efficiencies, and most importantly, demand management. Australia needs to get off the ‘growth is good’ model for aviation.

Battery electric should be a priority for light vehicles, and much of the road freight. Some niche opportunity for long distance road freight for hydrogen fuel cells. Low carbon liquid fuels may play a niche transition role in long distance road transport.

Reducing maritime import and export will reduce maritime emissions. Buy Australia and Made in Australia, and reducing fossil fuel export are all wide picture partial solutions to reduce import/export trade. Operational efficiencies through optimised routes, slow steaming, wind assisted technologies can all reduce emissions. Alternate fuels derived from renewable hydrogen such as ammonia and e-methanol have a role in decarbonising shipping, but entails building up the production infrastructure, transport and storage.

Collaboration with Industry, business, governments, communities

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

While the Australian Government needs to work collaboratively with industry and business, it needs to be aware of corporate bias and agenda setting that can undermine societal goals and outcomes. This is most clearly evident in the aviation sector. We do not see anyone on the Australian Jet Zero Council likely to be questioning the aviation growth business model.

There has been a lack of coordinated approach at the national level across states and local government.

At the State level goals enshrined in legislation, such as the Victorian Transport Integration Act, to support better transport outcomes in major transport projects, are often ignored due to expediency, and tick the box community engagement.

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?

We need to form partnerships with European cities in how to rapidly transform urban planning, housing and transport away from car dependence with increased active transport and public transport. Paris is one city that is showing the way right at the moment, but Amsterdam and Copenhagen have long been leaders.

We are also very concerned that some of the pathways in international partnerships, such as on carbon capture and storage, lead us down wrong paths that effectively delay decarbonisation. The IEA warned in November 2023 about over-reliance on carbon sequestration,[32] The partnership with Japan on the Hydrogen Energy Supply Chain (HESC) project from brown coal also seems misplaced, not based on renewable hydrogen and carrying substantial carbon sequestration risks.

On an international level, Australia needs to support Pacific Island Nation proposals on decarbonising shipping emissions. Australia's position at IMO's Marine Environment Protection Committee in 2023 was not ambitious and even surprised European observers.[33].

We suspect Australia plays a similar conservative role at ICAO representing industry interests rather than the public interest. There is a general lack of public transparency over Australia policy positions it takes to both the IMO and ICAO international regulatory agencies.

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[32] IEA, 23 November 2023, Oil and gas industry faces moment of truth – and opportunity to adapt – as clean energy transitions advance
https://www.iea.org/news/oil-and-gas-industry-faces-moment-of-truth-and-opportunity-to-adapt-as-clean-energy-transitions-advance

[33] John Englart, Climate Citizen, 5 July 2023, Shipping levy on maritime emissions opposed by Australia at IMO conference
https://takvera.blogspot.com/2023/07/shipping-levy-on-maritime-emissions.html

25.2. What opportunities can the government leverage to show leadership in Australia and internationally?

Ramping up renewable hydrogen production and decarbonising existing hydrogen industrial processes, particularly Urea fertiliser production.

Exploring conversion of hydrogen to forms where it can be more easily exported. Ammonia is one product we could be producing and exporting as a fuel for shipping..

Exploring scaling up renewable e-fuels.

Using our renewable power advantage, and advantage in hydrogen production in initial ore processing for green metals for export those green metals.

Measures and metrics for Net Zero Roadmap and Action Plan

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

Discreet measures based on data for :

- new vehicle sales, percentage EVs
- Public transport use
- Active transport use, e-bike sales, e-scooter data, protected lane km, shared use path km
- Heavy vehicle use
- Freight by transport mode.
- Aviation, including passenger kilometre data, fuel efficiency.

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?

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

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

28.1. Is there anything missing? Are the sections appropriately integrated? Is the Roadmap appropriately ambitious?

We find the section on aviation transport emissions deficient as it takes for granted the aviation growth business model.

It fails to present any market based or demand management policy regulatoryoptions, only considering voluntary modal shift.

It is at odds with scientific expert advice regarding reducing aviation emissions..

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

Please see below in Appendix 1 our thoughts on transport emissions reduction for our local municipality of Merri-bek in the Northern suburbs of Melbourne and identification of actions at the Federal Government, State Government and local government levels. This highlights the need for better coordination between governments to implement changes in transport.

Appendix 1: Transport Policy in Merri-bek for the Climate Emergency (2023 refresh)

All levels of government must lift their game and invest more in public transport and active transport infrastructure.

In 2018 our organisation published Transport Policy in Moreland for the Climate Emergency. In 2023 we have tweaked that document. While there has been some minor progress, most of the actions we have called for have not been implemented, let alone started.

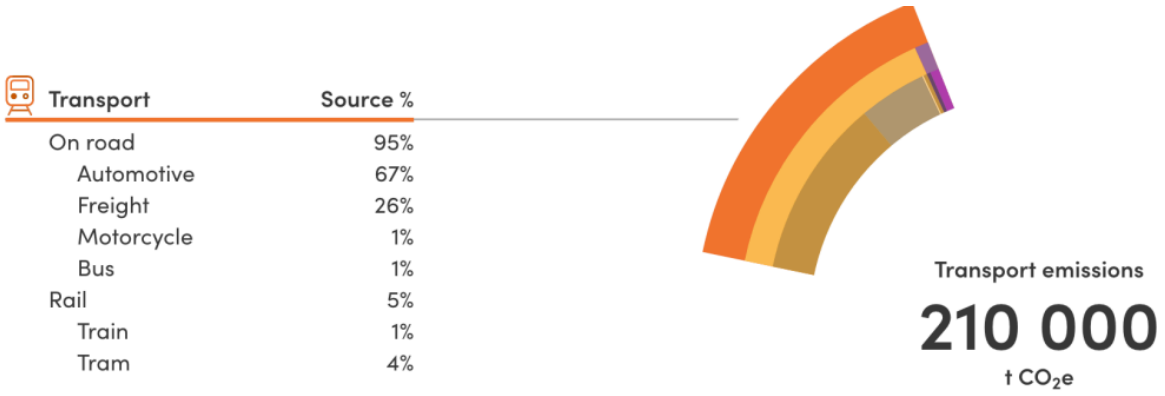
Climate Emergency

The Paris Climate Agreement target limiting global warming to 1.5 to 2 degrees C is now a difficult target to meet. Even meeting the 2C target will still result in huge damage (e.g. loss of the Great Barrier Reef), and perhaps result in passing climate tipping points starting feedback loops. Governments everywhere need to lift their game.

Merri-bek Council acknowledged we are in a state of climate emergency in September 2018. In December 2021, Council has adopted a goal of 75 per cent emissions reduction by 2030 (against 2011/12 baseline), net zero by 2035 and draw-down ('negative emissions') by 2040.

Greenhouse Emissions from Transport

Transport is one of the largest sources of greenhouse gas emissions, amounting to 18.6% Australia wide to Dec 2021 (NGGI), and 16% of emissions in Merri-bek in 2020/21 (Snapshot). On transport emissions governments at all levels need to lift their game.



Merri-bek 2020/21 municipal emissions snapshot for Transport sector. Transport forms 16% of community emissions. Source: Snapshot Climate

Priorities for Transport Infrastructure

At the state level we think a major shift is needed in Transport infrastructure funding. In 2018 Roads funding was 69.1 per cent, Public Transport 30.5 per cent and Active Transport just 0.36 per cent. The UN suggests 20% of the transport budget should be allocated to walking and cycling infrastructure.

Prioritisation of public transport, cycling and walking is supported by the latest IPCC report in 2022.

What should happen in Merri-bek and the northern region to address the climate emergency?

More needs to be allocated to public transport, walking and cycling to address a systemic imbalance over many previous budgets, which has resulted in increasing car dependency, congestion and reducing city-wide livability and sustainability.

Climate Action Merribek advocates:

The Federal Government should:

- invest more in major public transport infrastructure, including shifting freight to rail, instead of funding more roads
- limit emissions from aviation, not approve Melbourne Airport 3rd runway
- build fast trains or High Speed rail network to link regions and state capitals to reduce need for air travel
- Introduce Fuel Efficiency Standards, National Electric Vehicle Strategy

The State Government should:

- boost public transport funding including building the suburban orbital rail loop much earlier than 2050
- immediately start the Melbourne Metro 2 project
- power an expanded urban and regional train network from renewables
- boost funding for completing Principal Bicycle Network across Melbourne, with protected lanes along the strategic cycling network for cycles and Light Electric vehicles such as e-bikes and e-scooters
- Investment in walkable neighbourhoods and shopping precincts

The State Government In Merri-bek and the northern region should:

- upgrade the Upfield line by duplicating the track from Gowrie to Upfield and implement a 10 minute peak hour service like other lines
- extend the Upfield Line through Roxburgh Park and Craigieburn to Wallan.
- extend Number 19 tram to Fawkner and Campbellfield
- extend Number 58 tram to Hadfield and Glenroy
- increase bus frequency to enable practical east-west travel
- better integrate bus and train timetables

- re-vitalize Sydney Road as a destination with prioritisation of trams, disability friendly tram stops, expansion of pedestrian and dedicated protected cycling infrastructure, add trees to reduce urban heat
- Along with Council, increase tree canopy for cooling the local environment and mitigating urban heat island effect especially along pedestrian and cycling routes.
- extend the Upfield Bike Path, as an arterial cycling route, initially to Upfield within Hume Municipality, and further north to Wallan.
- Fund more protected bike lanes on strategic cycling routes
- Implement and fast track fund the Northern Region Trails Strategy (2022 Refresh)

Level Crossing Removal Authority should:

- upgrade the Upfield bike path when level crossings are removed on the Upfield line in Brunswick to enhance and prioritise cycling traffic flow and pedestrian activity and reduce pedestrian/cyclist conflict zones.
- Use temporary protected bike lanes on Sydney Road as the cycling detour during Upfield line disruption
- incorporate bus service interchanges into new station design
- incorporate walking, cycling, and disability access as part of design
- Incorporate urban heat island effect mitigation and sustainable materials as part of design
- Install EV Charging stations as part of station car park upgrades

Merri-bek Council should:

- budget an increase in cycle funding to enable it to fast track its 10 year cycling and walking capital works plan
- Increase the number of protected cycle lanes, especially east-west routes
- Conduct an asset audit of all footpaths. Bring all footpaths up to standard by maintenance, so that all paths in Merri-bek are easily walkable
- assess and reduce roundabouts, which are dangerous for pedestrians and cyclists.
- vigorously pursue traffic calming measures, and local street closures to stop rat running

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We note that some of the Council actions are already embedded in Council Transport Policy. The Federal Labor Government has published its National Electric Vehicle Strategy and opened a consultation for Fuel Emission Standards.

A lot needs to change to provide sustainable transport in Merri-bek for the climate emergency.

The above list above would be a good start.