

Transport and Infrastructure Net Zero Consultation Roadmap

Take the survey

Department of Climate Change, Energy, Environment and Water

Response received at:

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Yes
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- 9 Who are you answering on behalf of?
Organisation
- 10 Organisation name
Not answered
- 11 What best describes you or your organisation?
Not for profit
- 12 What sector do you represent?
Other: "transport R&D"
- 13 What state or territory do you live in?
Victoria
- 14 Postcode
3027
- 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.
Not answered
- 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.
Not answered
- 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.
Not answered
- 22 4. What should be included in a national policy framework for active and public transport and how should it be developed?
Not answered
- 23 5. What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to ensure the movement of people contributes to transport emissions reduction?
Not answered
- 24 6.1 What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to ensure that the movement of goods contributes to transport emissions reduction?
Not answered
- 25 6.2. How would these actions address the identified challenges and opportunities for emissions reduction in the movement of goods?
Not answered
- 26 7. Do you agree with the proposed net zero pathway for light road vehicles?
Yes

- 27 7.1 Please add details to your response.
Not answered
- 28 8. The Australian Government is currently developing an Australian New Vehicle Efficiency Standard and has already begun to implement actions in the National Electric Vehicle Strategy.8.1 What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to reduce light vehicle emissions?
Not answered
- 29 8.2 How would these actions address the identified challenges and opportunities to reduce light vehicle emissions?
Not answered
- 30 9. Do you agree with the proposed net zero pathway for heavy road vehicles?
Yes
- 31 9.1 Please add details to your response
Not answered
- 32 10. The proposed pathway for heavy road vehicles relies on a mix of battery electric, hydrogen fuel-cell and low carbon liquid fuels.Rank from 1 to 3, the order in which these should be prioritised for emissions reduction.
Not answered
- 33 10.1 Please add details to your response. Why did you rank them in that order?
Not answered
- 34 11. What role should low carbon liquid fuels play in the heavy vehicle

decarbonisation?

Not answered

- 35 12. What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to reduce heavy vehicle emissions?

Not answered

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

Yes

- 37 13.1 Please add details to your response.

Not answered

- 38 14. The proposed pathway for rail relies on a mix of battery electric, hydrogen fuel-cell and low carbon liquid fuels. Rank from 1 to 3, the order in which these should be prioritised for emissions reduction.

Not answered

- 39 14.1 Please add details to your response. Why did you rank them in that order?

Not answered

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

Not answered

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

Not answered

- 42 16.1 How would these actions address the identified challenges and

opportunities to reduce rail emissions?

Not answered

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

Yes

44 17.1 Please add details to your response.

Not answered

45 18. The Australian Government is engaging in consultation as part of the development of the Maritime Emissions Reduction National Action Plan and those consultations will also inform the final Roadmap and Action Plan. 18.1 What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to reduce maritime emissions?

Not answered

46 18.2 How would these actions address the identified challenges and opportunities to reduce maritime emissions?

Not answered

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

Not answered

48 19.1 Please add details to your response.

Not answered

49 20. The Australian Government has already engaged in consultation on aviation decarbonisation through the development of the Aviation White Paper and those consultations will also inform final Roadmap and Action Plan.

Not answered

- 50 20.1 What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to reduce aviation emissions?
Not answered
- 51 21. Do you agree with the proposed net zero pathway for transport infrastructure?
Yes
- 52 21.1 Please add details to your response.
Not answered
- 53 22. What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to reduce transport infrastructure emissions and ensure that transport infrastructure is ready for and enables low-emission transport modes?
Not answered
- 54 22.1 How would these actions address the identified challenges and opportunities to reduce transport infrastructure emissions?
Not answered
- 55 23. What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to ensure the energy mix is ready to support transport emissions reduction?
Not answered
- 56 24. How should the use of low carbon liquid fuels (LCLFs) be prioritised across different transport modes over time to achieve maximum abatement?
Not answered

- 57 25. What are the best ways for the Australian Government to work collaboratively with industry, business, governments and communities to implement the proposed pathways?
Not answered
- 58 25.1 What are good domestic or international examples of partnership and collaboration on transport and transport infrastructure emissions reduction that could inform the final Roadmap and Action Plan?
Not answered
- 59 25.2 What opportunities can Government leverage to show leadership in Australia and internationally?
Not answered
- 60 26. What measures and metrics should be used to evaluate the final Transport and Infrastructure Net Zero Roadmap and Action Plan?
Not answered
- 61 26.1 What other data and evidence could governments use and how could this offer further insights on the pace, scale and location of transport emissions reduction pathways?
Not answered
- 62 27. Do you have any feedback on the proposed review process?
Not answered
- 63 28. Do you have any further feedback on the Consultation Roadmap and proposed pathways?
Not answered
- 64 28.1 Is there anything missing? Are the sections appropriately integrated? Is the Roadmap appropriately ambitious?
Not answered

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

Not answered

66 Would you like to upload a document?

Yes

67 Have you removed any identifying information from your submission?

Yes

68 Upload a submission

202 Redacted

iMOVE_submission_to_Transport_and_Infrastructure_Net_Zero_Consultation_Roadmap_FINAL.4ca8d41d.pdf

69 Upload a submission

Not answered

70 Upload supporting file

Not answered

71 Upload supporting file

Not answered



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iMOVE submission to the Transport and Infrastructure Net Zero Consultation Roadmap

Introduction

iMOVE Australia is the national centre for transport and mobility R&D. iMOVE receives funding from the federal government Dept. of Industry and works with over 70 industry, government and research partners from across Australia. The centre has been delivering successful multi-party applied research projects since 2017 with over 240 projects initiated in that time.

iMOVE invests approximately \$15 million in transport research per year and aims for every project to deliver outputs that benefit participating partners. As well as ensuring that the project outcomes are used by partners, iMOVE disseminates new knowledge broadly for the benefit of the sector through events and the company website. It also runs programs to prepare new graduates for roles in the transport sector, as well as support PhDs to deliver in-depth knowledge in a wide variety of transport disciplines.

As part of its support to the transport sector, iMOVE is heavily engaged with the challenge to decarbonise the sector and the economy. Decarbonisation can be achieved in many ways, and iMOVE is agnostic to the choice of technology and approach. To initiate projects, we first work with our industry and government partners to progress understanding and identify feasible paths forward. We then apply our research partners' expertise to achieve the desired outcomes.

We have a very broad remit and work with all partners across all modes of transport. We support all partners who are willing to invest in R&D to improve transport for the benefit of Australia. In the seven years we have been in operation we have seen demand for new knowledge and technology grow steadily in the sector, as evidenced by a significant increase in investment in iMOVE projects. Implementation of actions resulting from this current roadmap consultation process is likely to boost this activity even further.

A thriving transport sector is vital to the success of the nation and the economy. However, transport still has much to do to reduce its emissions in line with our national objectives. Consequently, we welcome the conversation generated by this roadmap consultation process.

Following are our observations on the Transport and Infrastructure Net Zero Roadmap and suggestions for moving forward.

SYSTEM ISSUES

Guiding principles

We broadly agree with the guiding principles laid out in the roadmap document. We note that maximising emissions reduction is a delicate balancing act of where and when to focus efforts and funds to secure the maximum reduction emissions but that does not impose excessive costs on the industry or community. We also need to rise above the debate between vested interests in particular domains. There needs to be holistic oversight to ensure that chosen pathways are balanced effectively.



Avoid-Shift-Improve Framework

We are familiar with the Avoid-Shift-Improve framework as it was also used in iMOVE's FACTS report (published 2022). The Avoid-Shift-Improve paradigm provides a helpful framework for the many changes, both behavioural and technological, that need to be undertaken to achieve our decarbonisation objectives.

Avoiding unnecessary travel and persuading people to change to lower emission travel options are important parts of the net zero puzzle, particularly as they offer opportunities for immediate reductions in carbon emissions without time-consuming technology development. COVID gave us a clear indication of what an extreme 'avoid' scenario looks like. While we can't live in permanent lockdown, we can still see the residual effects today of this 'experiment' in 'avoiding' travel. We now see a significant percentage of the population choosing to avoid the daily commute by working from home. However, the pandemic also created a longer lasting reduction in public transport patronage, in favour of private vehicle usage, which is a trend that we anticipate will have to be reversed.

These examples of behaviour change illustrate the complexity of human responses and unintended consequences, as well as the need to further understand how we can push behaviour in a desired net zero direction.

Behaviour change – mode shift for both passengers and freight

Research and trials to date are helping us understand and encourage behaviour change. Through targeted projects, iMOVE has been able to shed some light on the complexities of human needs that drive behaviours (choices) when it comes to travel.

Cost, convenience, accessibility, flexibility and safety all feature strongly as drivers for transport mode choice. Understanding the sweet spot for driving uptake of a particular option is important, as we are learning through trials with Mobility as a Service (MaaS).

Access to accurate and reliable information and mechanisms to plan, undertake and pay for journeys will continue to drive uptake of travel alternatives to the private vehicle. We should continue to invest in understanding and tools with this in mind.



'Active' transport (including micromobility)

In this section we refer to all movement of individuals, with or without a mobility device, that does not require a licence where there is a vehicle of some kind. As such, it includes walking, riding and e-mobility but not car driving, motor bikes, commercial passenger vehicles or mass transit.

Shifting people to 'active' modes is very attractive not just from an environmental viewpoint, but also to capture health and economic benefits. But to build adoption we need to make these options appealing to travellers. This is challenging as we need to convince people that the 'active' option is both convenient and safe. Cycling in particular suffers from a safety image problem where the infrastructure is not supportive in many places, particularly for those with less experience. iMOVE has been active in trying to understand what needs to be done to change this both in [cities](#) and the [regions](#). Traditionally people could also be discouraged by the active nature of cycling, but the advent of electric options presents a significant opportunity for us to overcome this barrier.

E-micromobility is an immediate option to reduce emissions with the technology already widely available in Australia. To encourage use we need to keep focused on safety, both in use of the vehicles and battery care. We also need to ensure that legislation supports uptake noting that regulation of this mode of transport varies widely between jurisdictions.

Schemes for safe charging of vehicles in high density housing and quality assurance of batteries should also be encouraged. Micromobility options also need to be integrated effectively into the transport network in ways that are acceptable to local communities.

To make mode change as seamless as possible users of travel services need to have easy access to information and payment methods such as can be provided with Mobility as a Service apps.

A national policy framework for active and public transport

We support the development of a national policy framework for active and public transport and expect it would deliver numerous benefits. The framework should:

- Be developed following extensive consultation including with people with special transport needs.
- Define the leadership role and the responsibilities of all levels of government.
- Consider holistically how active travel and public transport integrate into the overall movement picture, including other modes and land use.
- Address inequity in community access to transport options.
- Support development of business models and tools that make journey planning seamless and accessible.



- Commit to action on the ground that will reduce emissions.
- Be evidence-based.
- Encourage private investment.

Public transport

Public transport plays a vital role in our transport network. For people to utilise mass transit it has to be convenient, accessible, timely, safe and cost effective (to them). Whilst there are some good examples, much of Australia's population does not enjoy this level of service, especially in outer suburbs of our cities.

Given the constraints on train and tram infrastructure and the flexibility of bus operations, it would seem logical to focus remedial efforts on enhancement of bus services. Bus routes can be adapted to reach more of the population without incurring massive infrastructure costs. Research has been showing for some time how buses can be better optimised to serve the needs of communities. This is also helpful for decarbonisation as buses are at the forefront of the transport electrification transition.

It will also be useful to understand more deeply how fare prices influence public transport patronage. There has already been significant research on the price elasticity of public transport demand. A very recent example is the project recently signed by Transport and Main Roads Queensland and The University of Sydney to investigate the impact on patronage of Queensland's bold move to 50c fares.

TECHNOLOGY ISSUES

Proposed pathways

Broadly speaking we agree with the pathways and timeframes presented in the consultation paper for each of the modes and the technologies.

All pathways involve expediting the adoption of 'new' technologies, some of which are already mature, and others which are still in development. In virtually every case however, the barriers to adoption are lack of user understanding and confidence, strong disadvantage for first adopters, and high upfront costs.

Transport ecosystems: Support transitions, support industries, create new markets

Transport faces a 'chicken and egg' situation with the adoption of many of the technologies proposed in the roadmap. Companies will not invest large sums of money into technologies and products for which supply is insecure or for which there is inadequate demand. To make the necessary investment they need substantial



mitigation of the associated risks. For the transport sector to materially reduce its carbon emissions, the government will have to play an active role in building confidence, mitigating risks and removing barriers to private sector investment.

This applies particularly to the development of LCLFs and hydrogen which will need large investment and currently have no clear pathways. But it also applies to more immediate opportunities such as the electrification of trucks.

In these market failure situations, Government leadership is required to establish an initial market to entice private sector investment. Government may need to underwrite demand by acting as the 'buyer of last resort' to provide the needed confidence for the private sector to invest.

We note that this involvement in 'market making' also intersects with considerations of sovereign capability, the 'Made in Australia' policy, and defence and civilian resilience. We recommend that these lateral references be incorporated into the roadmap as they are likely to influence the role that the Government plays.

Each of these new and emerging transport technology ecosystems needs:

- A clear vision of the solution we are aiming for
- Balanced deployment of vehicles and infrastructure
- Government incentives and support for early adopters
- Partnerships, collaboration and information sharing between industry, government and researchers
- To support innovation, entrepreneurship, capacity building and in some cases sovereign capability.
- A neutral oversight mechanism to identify opportunities and help all parties stay the course

We are exploring new territory as we bring new technologies into the Australia context. We need a model to do this efficiently and effectively.

Mode specific comments

Road freight – Light and Heavy

The road freight sector has particular challenges. Its need for high levels of operational reliability and competitive pricing of inputs limits its ability to experiment and its appetite for risk. Operating margins are slim, so companies have little capacity to absorb the costs arising from changing policies and poor choices of technology. For companies in this sector, the choice of future energy source (battery, hydrogen or LCLF) is particularly important as it is central to their Capex and Opex decisions, and yet no company can afford to be out of step with the overall industry direction.



To overcome this hiatus, leadership is needed from government to establish the future direction and give the sector confidence to invest. For government and industry to resolve the best path to follow, there will likely be needs to further evolve the evidence base for the effectiveness of alternate approaches. This is particularly true for LCLF's and hydrogen, as they are encumbered by high levels of implementation uncertainty. iMOVE anticipates that the path to decarbonisation for the truck sector will differ according to the size class of the truck and the nature of its use case. We expect that as the price of batteries reduces over time, so too will the cost of battery electric trucks. Notwithstanding that battery trucks suffer reduced payload compared to their diesel and petrol equivalents, we expect that the return on investment generated by savings in energy costs (from using electricity rather than fossil fuels) will increase as the costs of the vehicles reduce.

In time, we expect the return on investment associated with purchasing a battery electric truck will switch from negative to positive. Once that occurs we expect market forces will drive adoption. We anticipate that the ROI available to an electric truck owner will vary inversely with the size of the truck. This suggests that small battery electric delivery trucks will quickly become economically attractive, whereas medium trucks will take longer and heavy trucks longer again (if ever).

iMOVE has been heavily involved in researching this area and is well positioned to support the government to define and implement its preferred way forward.

Passenger and Light commercial Vehicles

Generally speaking, electrification should be encouraged to occur as quickly and smoothly as possible. Transition of the passenger vehicle fleet to battery electric will significantly assist Australia to reduce its transport emissions. However, adoption of battery EV's brings numerous new challenges to address, including:

- Generating sufficient clean electricity to meet demand.
- Ensuring community safety during the use and disposal of Li-ion batteries.
- Accommodating the rapid drop in value of the EV battery with the age and usage of the vehicle.
- Ongoing anxiety over vehicle ranges and the availability of charging facilities.
- Road congestion and recharging station congestion due to the peakiness of demand for access to roads and charging stations.
- The lack of consensus over the contribution road users should make towards the funding of road maintenance.
- Scope 2 emissions generated in the manufacture of EV's and their batteries.
- Lack of capacity (and incentive) to recycle cars and batteries at end of life.



Rail

We note that parts of the rail industry such as urban passenger rail and some mine-to-port rail operations are well-progressed with electrification. However, for the parts of the rail industry that are powered by fossil diesel fuel, the path to decarbonisation is less clear. Getting clarity requires us to substantially accelerate our trialling and piloting activity for all the plausible options (LCLF's, Hydrogen, Batteries), so that preferred paths can be identified.

The configuration of Australia's diesel rail sector is different to most other countries so it is likely that Australia will have to resolve for itself the technologies to adopt in the various circumstances. This is a task of national importance and beyond the scope of any individual company. To make meaningful progress on this question will require active collaboration between government and industry leaders and co-investment in trials and pilots.

Whichever technologies are adopted, it is also likely that track and signalling infrastructure will need to be upgraded to enable the new trains to operate safely and efficiently. The sector needs to undertake substantial trialling and evaluation of the competing options and a clear understanding is needed of the support that the government is willing to provide to build the ecosystem around the preferred technologies.

Maritime

Like Rail, Maritime will require help to investigate how best to transition its various segments to zero emission propulsion systems. Given the range of maritime applications in operation, it is very likely that several ZE technologies will find their niche. In the case of large maritime engines, this includes the possibility of retrofitted adaptations. As for rail, the search for best matches between individual maritime applications and alternative ZE power sources will require extensive trialling and evaluation. This is likely to require government support.

Aviation

Given the aviation sector's limited choices for decarbonisation, Sustainable Aviation Fuel (SAF) is touted as the way to 'get started' and maybe even to be a permanent solution. While it has been clearly demonstrated that fossil-based jet fuel can be replaced by SAF, it is very difficult to see how SAF production can be scaled in a cost-effective manner. SAF production is held back by the cost and unavailability of agriculturally generated feedstock, and by the high cost and complexity of producing SAF from atmospheric CO₂. SAF can contribute to the decarbonisation of aviation but at current prices that contribution is likely to remain small.



Transport infrastructure

Infrastructure contributes to the carbon footprint of transport but is also an essential component of the process to reduce the carbon footprint of transport. For example:

- While concrete and steel are encumbered by high levels of ‘embedded carbon’ (i.e. carbon emitted in their manufacture) we will need to increase our use of these materials to strengthen the road and rail infrastructure to cope with the heavier ZE vehicles.
- Large stretches of our road network will have to be rebuilt and resurfaced to cope with higher truck axle weights. We need to be examining every option to reduce the carbon intensity of the materials (such as asphalt) we use in their construction.
- Australia is a big country, and we cannot put charging stations everywhere, but the sparsity of the current deployment is severely retarding EV uptake particularly in rural and regional areas. Resolution of the optimal rollout of car and truck recharging infrastructure by both public and private investors requires substantial further research.
- Digital infrastructure is also becoming important. Emissions from ICE vehicles can be reduced if traffic flow can be smoothed, but traffic smoothing requires high levels of real time data collection and analysis to support continuous optimisation of network performance. iMOVE is currently examining the scale of benefits that could be obtained through widespread adoption of Co-operative Intelligent Transport Systems (C-ITS).
- In the longer term, one of the big factors driving the carbon footprint of Australian transport is the number of kilometres travelled (by people and goods). Kilometres travelled reflects our land use planning policies and the effectiveness of our transport infrastructure in both the cities and regions. Transport infrastructure has a long life, so it is not easy or quick to change course. On the other hand, climate change and carbon emission reductions are also long slow processes. Actions we take now to reconfigure our cities and suburbs (ie via placemaking, urban densification and local transportation initiatives) to reduce the number of kilometres required to be travelled, may only have a small effect in the short term but could have a very large effect in the long run.

Energy

As the transport transition is interwoven with the energy market development, cross-sectoral understanding and coordination is required. iMOVE has been working with C4NET and others in Victoria to understand the implications and smooth the way for successful electrification.

This includes:

- Generating operating models for EV fleets
- Understanding how new products can integrate into the energy market



- Overall system implications arising from increasing demand for electricity from the transport sector
- Understanding the potential contribution of microgrids to powering local transport systems

<https://imoveaustralia.com/project/project-outcomes/facts-a-framework-for-an-australian-clean-transport-strategy/>

<https://imoveaustralia.com/project/preparing-for-electrification-of-transportation/>

<https://imoveaustralia.com/project/consumer-adoption-of-technologies-for-net-zero-emissions/>

Given that Australia's transport sector consumes almost as much energy (in the form of diesel and petrol) as the entire national electricity generating capacity, there is an urgent and substantial need to develop better understanding by both the transport sector and the electricity sector of each other's drivers and constraints.

Measuring progress

There needs to be specific targets to drive change in key transport areas, including specific targets for increases in active and public transport.

To be measurable, and with the difficulties of accurate emissions measurement in mind, the targets would probably focus on the extent of adoption of specific modes and/or technologies.

Targets will have to be distributed between the relevant government departments and levels. This requires extensive consultation and buy-in from all levels of government and other stakeholders, particularly industry.

Enabling change – summary

In the last seven years, iMOVE has been a facilitator and partner of over 70 organisations active in the transport sector. We have acted as an opportunity finder, connector and supporter of R&D for over 240 projects. From this position, and building on existing iMOVE projects, we can see many more opportunities for projects to boost the transition to net zero.

We offer the following suggestions for how to move forward:

- **MULTI-PRONGED EFFORTS:** iMOVE believes it is going to be difficult for the transport sector to deliver the reduction in emissions that is expected of it, especially in the short term. The new technologies that are required to replace the current carbon intensive processes are not sufficiently mature to attract the private sector to invest. In that context we believe multiple strands of activity are required.
- **BENEFIT FROM EASY WINS:** Of foremost urgency is to identify the easiest wins; what can be done now, at reasonable cost that will have an impact.



- **ADAPT FOR AUSTRALIAN CONTEXT:** There is an urgent need for Australia to trial emerging solutions in the Australian environment to develop greater understanding of, and confidence in the available options.
- **INTERNATIONAL ENGAGEMENT:** We need to strengthen our engagement internationally. We are not alone facing the challenge of transport decarbonisation. We should actively seek to learn from the experiences of parties overseas who are dealing with the same issues. Additionally, Australia is primarily a 'technology taker' from the rest of the world and we need to maintain a clear view of technology developments overseas.
- **COLLABORATION:** Transport decarbonisation will be slow if every company and person in the sector must resolve all the investment and operational risks on their own. Very few organisations have that capacity, so it is incumbent on the government to collaborate with the sector and secure the economies of scale that accompany a sectoral approach. Notwithstanding that many operators in the transport sector are competitors, there is a clear role for government to 'herd the cats' and to enable all parties to obtain visibility and information from a series of government supported trials of alternative solution options.
- **CONSENSUS:** From such a joint approach to trialling we would hope to see the emergence of some industry and government consensus over realistic policies and deployment plans for ZE technologies.
- **AVOID MARKET FAILURE:** We would also expect the government to play a 'market maker' role where required at the initial stages of formation of the new transport ecosystems (battery, hydrogen, LCLF etc). To attract private sector investment at scale, the government needs to act to limit the risks associated with first mover disadvantage. This may require the government to intervene on the supply side or the demand side or both in the various ecosystems they seek to establish.
- **COMMUNITY ENGAGEMENT:** At the same time, we believe it is incumbent on governments (state and federal) to bring the community along on the journey to a ZE lifestyle, as it has done many times previously: think seatbelts, bicycle helmets, cigarettes. Achieving zero emissions will require numerous changes to peoples' behaviour and transport choices.
- **LONG-TERM APPROACH:** Given the exposure of government policy to political partisanship, we believe it is important to insulate the path to net zero (as far as possible) from party political volatility. Thus, we envisage the need for a neutral organisation to be established, probably by legislation, to lead the nation on its thirty-year journey to net zero.
- **LONG-TERM INVESTMENT:** Finally, none of this will happen just by wishing for it. It takes time, effort from multiple parties, and substantial investment to build the ecosystems that will support new ZE transport systems. We need to start budgeting for investment activity over many years.

We thank the government for the opportunity to respond to the consultation roadmap and look forward to seeing the outcomes.



We are ready to assist with furthering the implementation of any outcomes relevant to our transport R&D facilitation expertise.

