

# Transport and Infrastructure Net Zero Consultation Roadmap

## Take the survey

Department of Climate Change, Energy, Environment and Water

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9 Who are you answering on behalf of?

Organisation

10 Organisation name

AGL Energy

11 What best describes you or your organisation?

Industry

12 What sector do you represent?

Energy

13 What state or territory do you live in?

Victoria

14 Postcode

3000

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.

AGL agrees with the proposed guiding principles and strongly encourages the Australian Government to ensure that:

- Government focuses on policies that deliver the largest practical reductions in emissions at the earliest opportunity yet do so in a way that is value for money for consumers, businesses, and taxpayers. This balance is necessary to ensure that policy outcomes are maximised at the lowest cost possible.

- Make sure that the transport sector's transition is inclusive and equitable, and every Australian can participate. This is particularly important for lower income households as they face some significant barriers when looking to electrify.
- there is market/policy stability and clear long-term investment signals, given the size of the transformation required and the need for coordinated investment across so many different sectors of the economy.

It is also key that all levels of government work together to help bring about the significant transformation that is required in the transport sector, the electricity and energy sector and all the other sectors of the Australian economy.

**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.

AGL supports the use of the avoid-shift-improve framework. We would encourage the Australian Government to look for ways to support every Australian to avoid-shift-improve, with a focus on helping lower income households gain better access to public and active transport and improve their transport efficiency through electrification. AGL also strongly supports an evidence-based approach to the transition, that identifies and enables the uptake of technologies as they mature and become market ready. This also means acknowledging that harder to abate sectors will not have instant and immediate zero emission solutions and will need to look at interim technologies that reduce but do not eliminate emissions.

**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.

AGL agrees that the development of a national policy framework for active and public transport is a worthwhile undertaking and will support emissions reductions. However, the Australian Government will need to work closely with the states & territories and local governments to ensure that a whole-of-society approach is taken and that any efforts are not duplicative.

**22**

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

Given Australia is a large country in comparison to others, the morphology of active and public services will need to be different to that which has been implemented elsewhere. For public and/or active transport to make a material difference, thought must be given to:

- the normalisation of increased regional workspaces/hubs that people can access rather than enforcing the need to travel to metro centres; and/or
- the reliability, safety and frequency of active and public transport services door-to-door.

#### 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?

Given that electrification is the preferred way forward in decarbonising the light vehicle sector, the federal government should look to implement policies that make EVs accessible to all segments of the Australian community along with supporting the roll-out of the associated infrastructure needed for the widespread uptake of EVs.

The government should also look at funding pilots with industry to test the feasibility of autonomous vehicles. Clear regulations and infrastructure upgrades for autonomous vehicles would likely have the effect of enabling more car and journey sharing and would also help with the transition to EVs. Car and journey sharing would also help solve many of the problems faced by people who are unable to access public transport. However, to date there has not been much work done in this space and the required social capital to enable people to trust autonomous vehicles is yet to be developed.

A major part of decarbonisation is dependent on changing people's expectations and behaviours around energy. A huge lever to change behaviour is cost. As such, the government should review the regulated price tariffs to support EV vehicles 'soaking' up excess solar energy during the day, which has flow on benefits for the entire energy system.

Similarly, driving greater awareness of how emissions are impacted by consumer behaviours is important in driving conscious switches to when/where/how we travel, and in the case of EVs where/when/how we charge.

#### 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?

AGL considers one of the key actions that the Australian Government should be focused on in developing a net zero pathway for freight is encouraging a shift from road to rail. To encourage this shift, there needs to be focused attention on improving the reliability and resilience of the rail network and leveraging existing infrastructure as much as possible. One key here, which is mentioned in the Consultation Paper, are policies that address the productivity and efficiency barriers as we seek to decarbonise freight. There are exciting opportunities to leverage existing sites that can be repurposed as energy hubs. These energy hubs generally have existing infrastructure in place to assist with decarbonising freight and supporting other aspects of our energy transition.

25    6.2. How would these actions address the identified challenges and opportunities for emissions reduction in the movement of goods?

An example of this is AGL's Hunter Energy Hub that has two points of access to heavy rail with unloading facilities that are fit for repurposing from their current use of receiving coal deliveries. AGL's vision is to see these facilities repurposed to support the Hunter Valley supply chain's diversification to containerised freight as coal movements and exports decline. Our ambition is that this existing rail infrastructure will also support the growth of green manufacturing and new circular-economy industries at the former Liddell power station site, and eventually at the Bayswater Power Station site upon its closure in the 2030s.

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.

Accelerating the uptake of EVs will be an integral technology pathway for decarbonising Australia's transport sector and economy more generally. As we previously observed in our submissions to the 2018 Select Committee on Electric Vehicles and the 2021 Senate Economics Legislative Committee's Inquiry, the widespread uptake of EVs, when coupled with the decarbonisation of the electricity grid and increasing penetration of local solar photovoltaic technologies, presents a substantial opportunity to deliver emissions reductions consistent with Australia's long-term commitments under the Paris Agreement.

Given this, AGL generally agrees with the proposed net zero pathway for light road vehicles, and its focus on electrification being the way forward.

With respect to bi-directional charging and vehicle-to-grid (V2G) capabilities, we acknowledge that there is still some significant work to be done in this space, especially with respect to cost. However, AGL considers that the government should aim to have the widespread roll out of bi-directional charging and V2G occur as soon as possible. As such, we suggest that it should be listed in the 2030-2040 period on the net zero pathway. One way to help make V2G and vehicle-to-home (V2H) orchestration more widespread is through clearer guidelines/regulations. For example, how do we reduce the structural barriers for energy retailers, auto original equipment manufacturers, and EV charging providers to enable V2G and V2H? We note that there is work being done in this space as part of the National Consumer Energy Resources Roadmap (CER Roadmap), including looking at removing the barriers to V2G.

## 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?

Australia has an opportunity to stimulate the widespread uptake of EVs for the benefit of consumers and the environment. From a consumer perspective, barriers to EVs have generally centred around choice, affordability and charging network limitations.

AGL welcomes the introduction of a National Electric Vehicle Strategy and its focus on establishing a national framework for the uptake of EVs as part of Australia's decarbonisation ambitions. We support the objectives and outcomes set out in the strategy including increasing supply of affordable and accessible EVs, establishing the resources, systems and infrastructure to enable rapid EV uptake, and encouraging increases in EV demand. AGL also supports the introduction of the New Vehicle Efficiency Standard that will incentivise car companies to supply new cars that use less fuel per kilometre.

Drawing on some of the recommendations we made in our submission to the National Electric Vehicle Strategy, we would encourage the federal government to consider:

- Incentives for taxi and ridesharing services to move towards building out their fleets with EVs, as well as having access to appropriate charging infrastructure. Rideshare and taxi services are increasing in demand and there is opportunity to capture the market and match its speed to accelerate penetration of EVs in Australia. Incentives could look to how they could support charging infrastructure that looks to reduce charging cycles for these types of services.
- How they can support states and territories in making a consistent approach that

enables equitable rights for all Australians who want to install EV charging equipment, whether they own or rent their home, and whether it is a shared or detached dwelling. The lack of viable public charging alternatives will likely continue to drive major demand for charging stations at home, whether in new or existing buildings, such as strata properties. AGL commends the work done to date under the National Construction Code that now requires new apartments built in Australia from October 2023 to be constructed with the capability to charge electric vehicles. However, jurisdictional governments continue to regulate the installation of EV charging infrastructure in shared dwellings in different ways. There is scope for the federal government to consolidate efforts in supporting customers in accessing charging infrastructure in existing dwellings, to ensure both tenants, residents and owners corporations who are willing to invest in EV infrastructure have the right regulatory policy settings to enable investment.

- How they can support businesses with large fleets that are looking to electrify.

Currently funding largely focuses on the availability of public charging, however supporting business looking to transition large fleets will reach high vehicle numbers on Australian roads (e.g. fleets of 300+). Beyond GST exemptions there are no real support mechanisms in place, especially to assist with the initial high capital expense of charging infrastructure.

AGL also welcomes the recent release of the CER Roadmap, with specific measures, timelines, and a national Implementation Plan to deliver equity in the transition and a coordinated vision for household solar and batteries, EVs, and other forms of CER. As part of the CER Roadmap, government will look to develop nationally consistent standards in key areas, including to enable V2G technologies, along with a commitment to a national regulatory framework for CER standards.

We also welcome the Ministers commitment at the July Energy and Climate Change Ministerial Council (ECMC) meeting to a national statement of intent for regional and remote EV charging infrastructure. The roll out of charging infrastructure in regional and remote areas will be guided by a national EV public charging map which will be live by late 2024. This is a crucial step in the rollout of charging infrastructure to enable long distance EV commuting or travel between hubs.

At the ECMC, Ministers recognised the importance of community buy-in to the goals of the CER Roadmap and the need to support consumer energy literacy so that consumers can maximise the benefits of CER. As is highlighted in the CER Roadmap, future work is required to unlock coordinated CER at scale and the potential significant system benefits offered by CER that could offset the need for grid-scale investment. To fully capture the potential benefits, CER needs to be orchestrated and appropriately integrated into the NEM in a way that supports power system reliability and security. Customers need to understand and see the benefits and have trust in the energy sector to achieve this.

AGL considers that retailers, who interact directly with customers, are well place to educate, demonstrate the benefits of and help manage electrification, CER integration

and orchestration for customers through activities such as education campaigns, trials, pilot projects, and innovative product offerings.

One such innovative product offering is AGL's Electric Car Subscription, which provides choice and flexibility with customers able to swap, upgrade or cancel at any time, while also including registration, insurance, tyres, repairs, roadside assistance, optional installation of an EV charger and carbon neutral credits as part of the subscription.

AGL also conducts multiple EV projects and trials and has developed a market-leading understanding of the implications of EV uptake. A key project for AGL has been our AGL's Electric Vehicle Orchestration Trial that commenced in November 2020 with funding from ARENA as part of ARENA's Advancing Renewables Program. The trial on EV charging patterns showed that the assumption that EV owners would plug in every day and max out their charging was not necessarily correct as the data from the trial showed customers responded well to price signals and opted out of charging during peak times. This led to AGL launching its AGL Night Saver Energy Plan to provide customers a discounted offer at a time that has been shown by our trials to suit them and sees customers pay a lower than off-peak rate between midnight and 6am.

AGL notes the concerns about integrating EVs into the energy system and acknowledges that there is still a large volume of work that needs to be done in this space, which hopefully the CER Roadmap will assist with. This will also require some innovation in tariff reform to encourage behaviours like V2G charging and two-way price signalling to incentivise load shifting at different times of the day. However, there are promising signs that energy retailers will be able to manage some of these issues through product design that is based on tariffs that are simple, actionable, and fair.

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

AGL agrees with the proposed net zero pathway for heavy road vehicles.

32 10. The proposed pathway for heavy road vehicles relies on a mix of battery electric, hydrogen fuel-cell and low carbon liquid fuels. Rank



from 1 to 3, the order in which these should be prioritised for emissions reduction.

Not answered

**33** 10.1 Please add details to your response. Why did you rank them in that order?

While AGL does not have a particular view on this, in ranking these technologies we would encourage the government to look at which ones will deliver the largest practical reductions in emissions at the earliest opportunity yet do so in a way that is value for money for consumers, businesses, and taxpayers.

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

While AGL sees EVs as key for road transport, we recognise that LCLF will play an important role in decarbonising fuel reliant sectors that can't readily electrify, such as aviation, heavy vehicles, maritime, construction, mining, and agriculture.

For heavy vehicles, LCLF enables existing diesel technology to continue to be used while significantly reducing its emissions profile. This allows businesses to operate existing trucks/equipment for longer, helping to ease the capital intensity of transitioning to lower carbon vehicle technologies.

Australia can also domestically produce feedstock and manufacture these fuels locally, reducing fuel transport cost and emissions, and improving fuel security.

**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?

Some further actions that could be taken include:

- Governments and industry supporting the transport industry to access predictable and rateable pricing for energy and/or LCLF. The reliability of heavy vehicles is very dependent on maximum utility which means that refuelling flexibility is critical. However, charging trucks at times of high prices can blow out costs easily, impacting many of these businesses.
- Look to coordinate targets amongst state and territory governments to electrify their bus fleets. The uptake of EVs in public transport fleets would provide benefits not only to the transport sector but also to the electricity sector as transport system asset owners are empowered to participate in the electricity distribution market. Furthermore, cohesiveness across the jurisdictions in Australia would support the development and

demand for locally manufactured battery electric buses and help to achieve net-zero emissions by 2050

- Investigate incentives or support for bus operators (large and small) to upgrade their depots at scale and consider partnerships with private capital to introduce different funding models for fleet charging. Large bus fleet owners, including governments, should also develop programs focused on good management of vehicle batteries. This includes targeting the maintenance of battery life, increasing residual value, encouraging second life usage, and circular economy principles with regards to recycling and re-use.

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

Yes

37 13.1 Please add details to your response.

AGL agrees with the proposed net zero pathway for rail, particularly the key role government will play in supporting technology improvements and pilots to help establish the future net zero pathways for rail. Support will also be required in the roll-out of enabling infrastructure, given the expected high costs of full electrification of rail networks, particularly in regions, and spanning vast distances.

There also needs to be a focus on the movement of goods onto rail, that is missing from the pathway, given the inherent lower emissions nature of rail over other modes. This is a higher priority than the decarbonisation of rail itself in the short term, given the relative low emissions profile of a diesel train.

Further, AGL supports interim measures that drive decarbonisation, such as hybrid trains, as a stepping stone on the way to full electrification.

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?

While AGL does not have a particular view on this, in ranking these technologies we would encourage the government to look at which ones will deliver the largest practical reductions in emissions at the earliest opportunity yet do so in a way that is value for money for consumers, businesses, and taxpayers.

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

LCLF will enable the rail industry to reduce its emissions from diesel trains in the short-term, allowing time for the technology for battery electric and hydrogen fuel cell to mature and the associated supporting infrastructure to be rolled out.

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?

Government needs to make improving efficiency and reliability of the rail network a priority. Upgrades to the rail network will be essential to increasing the overall percentage of passengers and freight delivered by rail, which in turn will reduce overall transport emissions.

There is an opportunity for lower cost wins through strategic investment in network upgrades and augmentation to link existing rail networks with growth projects such as Inland Rail, and to also consider and invest in interlinkages between rail networks and ports.

In AGL's view, the focus must be on what will successfully reduce total emissions, rather than only looking at how to reduce emissions for each transport mode, particularly where modes are in competition.

42 16.1 How would these actions address the identified challenges and opportunities to reduce rail emissions?

Not answered

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

Yes

44 17.1 Please add details to your response.

Based on AGL's limited experience with maritime, the proposed net zero pathway appears appropriate. We also agree that government should progress the development of the certification and accounting frameworks to verify LCLF prior to 2030.

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?  
AGL agrees that sustainable aviation fuels (SAF) are a key component for the net zero pathway for aviation between now and 2050. We also agree that government should progress the development of the certification and accounting frameworks to verify LCLF prior to 2030.

- 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?

AGL supports the Commonwealth's investments in projects through the Sustainable Aviation Fuel Funding Initiative and the Hydrogen Headstart program. Investment in SAF technologies and production facilities in Australia is urgently needed given SAF is a drop-in replacement for jet fuel.

As feedstocks for bio-SAF become less able to satisfy the global demand for SAF, investment in eSAF (produced from hydrogen) will be required to ensure sufficient

volumes are produced for the global aviation industry. This will drive a need for additional investment in carbon capture technologies like DAC (direct air capture) to minimise the carbon emissions created by the eSAF production process.

There also needs to be clarity around what will be required for the certification of eSAF. It is important that any certification program has sufficient flexibility to enable the development of new LCLFs - particularly synthetic fuels which require a range of different inputs - while having a clear pathway to zero emissions. Any emissions reduction threshold should be set to deliver a clear emission reduction compared to conventional fossil fuels, with that threshold gradually becoming more ambitious over time. An emissions reduction threshold should also be harmonious with international standards. This will become increasingly important to remain competitive in the global context as nations introduce stricter sustainability standards and introduce carbon border adjustment mechanisms. These need to be complemented by transparent and fair carbon accounting standards.

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

Yes

52 21.1 Please add details to your response.

AGL agrees with the proposed net zero pathway for transport infrastructure, noting that access to sufficient firm renewable electricity and green hydrogen will be vital to the production of low and zero carbon materials at scale, in addition to an enduring green certification scheme and supporting policy to incentivise and build trust in low and zero carbon products.

53 22. What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to reduce transport infrastructure emissions and ensure that transport infrastructure is ready for and enables low-emission transport modes?

As AGL noted in its submission to A Future Made in Australia: Unlocking Australia's green metal opportunity:

- Manufacturing green metals is energy intensive. Building a green metals industry is therefore highly dependent on building and scaling renewable electricity and the green hydrogen industry. We discuss building and scaling renewable electricity in further detail below in question 9. We also note and support work underway to incentivise and scale green hydrogen production, including the Commonwealth's Government's Hydrogen

Headstart program. Green hydrogen has potential to decarbonise sectors where electrification is difficult, such as steelmaking, and is a critical element to realising the green metal export opportunity.

- AGL applauds the Australian Government development of a National Circular Economy Framework in the context of Australia's net zero transition, incorporating manufacturing and trade-based objectives and urges the government to focus on incentivising end-of-life recovery in the green metals industry to improve circularity and sustainability of critical raw materials such as aluminium.
- AGL sees potential for integrated end-to-end manufacturing facilities, or multi-stage facilities, to be established where cost savings are achieved through establishing an end-to-end supply chain at a single factory. Improved rail network connectivity and scrap metal handling capability for trains and ports must be developed in targeted regions for these multi-stage facilities to succeed. In the absence of investment in supporting infrastructure, these growth industries will remain reliant on higher emissions transport (e.g., trucks) to move product to where it is needed.
- Establishing a clear long-term vision for the green metals industry, through long-term policy settings and guidelines, and enduring demand signals, will be critical to providing a stable environment for investment in the industry. Interaction with existing incentives and schemes such as the Powering the Regions fund and Safeguard Mechanism will need to be considered to ensure additionality of action taken and most efficient allocation of funding.
- Transparency around emissions and sustainability criteria will be key to building trust in green metal products and LCLF and ensuring that emissions reductions are real. AGL supports the Australian Government's intention to utilise the Guarantee of Origin (GO) Scheme as a basis for tracking and verifying the emissions and sustainability profile of green metals and LCLF. AGL has been very supportive of the development of the GO Scheme, with certification of renewable electricity through Renewable Electricity Guarantee of Origin certificates (REGOs) a key element not only of driving decarbonisation in the electricity sector, but also supporting decarbonisation of other products and services that use electricity as an energy input. Certification through this scheme will provide the necessary signals and transparency to market participants to make informed choices. It will also provide assurance that purchases of green products is leading to real sustainable outcomes.
- Consideration should also be given to the work that the Australian Government is undertaking with the Australian Sustainable Finance Institute (ASFI) to develop a sustainable finance taxonomy. This piece of work will be important in supporting the flow of capital into sustainable activities and ensuring market integrity, transparency, and fairness. This piece of work may also highlight Australia's comparative advantage in an ESG context, having high standards in terms of environmental, social and governance.

- 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?

As AGL outlined in its submission to the Australian Government's Electricity and Energy Sector Plan discussion paper, the AEMO Draft ISP projections show, electrification is a critical enabler for the industrial, transport and other domestic sectors to reach net zero emission objectives.

Electrification and the sustained uptake of CER will continue to shape energy needs along with the decarbonisation of transport and industrial sectors, which could potentially significantly increase system demand. Given that electrification is the most likely decarbonisation pathway for residential consumers, considering how impacts on system load can be mitigated through better demand management (i.e., by improving energy efficiency and productivity) and orchestration will be critical.

The Capacity Investment Scheme (CIS) is an important policy lever to help accelerate the required renewable electricity to support green hydrogen production, the production of green metals and LCLFs, however there are still several non-market barriers that sit outside the scope of the CIS design, which need to be addressed concurrently. These include planning approvals, connection processes, and supply chain constraints including workforce availability affecting the construction of new projects and social license issues, as identified in the Draft ISP .

While the Australian Government's Rewiring the Nation plan will have positive impacts on some of these issues, particularly in expanding transmission capacity, significant barriers to project development remain.

In AGL's view, to keep Australia's energy transition on track, we need to prioritise and expedite approvals for those projects that are most readily achievable while considering the important issues of delivering on our environment and social licence. This would mean an immediate focus on those projects that utilise existing infrastructure, such as transmission connection.

While AGL acknowledges the importance of having robust planning and environmental approval processes in place, the need for the energy transition to make significant gains in the next six years means that efficiencies in the planning process and a streamlined connection process are key to keeping the transition on track.

AGL acknowledges the work that the federal and state governments are already doing in

this space and would encourage further focus on these areas going forward. We welcome governments leaning into a whole of government approach to the energy transition and engaging across the various portfolios, particularly planning, transport and energy.

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

While we see electric vehicles as key for road transport, we recognise that LCLF will play an important role in decarbonising fuel reliant sectors that can't readily electrify in the short to medium term. This is particularly true for heavy vehicles, rail, maritime and aviation.

- 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?

Decarbonising the transport sector will require significant investments in technology and supporting infrastructure. To achieve the necessary rate and scale of transition, a coordinated approach among federal, state, and local governments, market bodies, industry, and consumers will be key.

Industry will also be key to providing expertise to governments on the availability and maturity of technologies along with helping them understand the impacts of the adoption of particular changes on the transport sector and beyond.

- 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  
186 Redacted AGL\_Submission\_Transport\_Sector\_Plan.298db614.pdf
- 69 Upload a submission  
Not answered
- 70 Upload supporting file

Not answered

**71** Upload supporting file

Not answered



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Australian Government

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

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**Submitted online via consultation hub**

2 August 2024

### **Transport and Infrastructure Net Zero Consultation Roadmap**

AGL Energy (AGL) welcomes the opportunity to make a submission in response to the Australian Government's Transport and Infrastructure Net Zero Consultation Roadmap (Consultation Paper).

AGL is a leading integrated essential service provider, delivering 4.3 million gas, electricity, and telecommunications services to our residential, small, and large business, and wholesale customers across Australia. We operate Australia's largest electricity generation portfolio and have the largest renewables and storage portfolio of any ASX-listed company, having invested \$4.8 billion in renewable and firming generation over the past 20 years and added more than 2,350 MW of new generation capacity to the grid since 2003.

We support Australia's ambition of net zero by 2050 and believe this will underpin the competitiveness of the Australian economy. This will be realised by Australia generating low-cost power using zero emissions wind and solar resources, backed up by technologies like batteries, hydro power and, for some of this transition, gas. As the global community responds to the risks of climate change, AGL recognises the large part that we must play in the transition to a low carbon economy.

AGL is also supportive of the Australian Government taking a whole-of-economy approach to developing Australia's Net Zero Plan, which will guide how Australia can transform our economy to net zero by 2050. The individual sectoral plans that cover all the major components of Australia's economy can ensure that the Net Zero Plan and the development of 2035 emissions targets are informed of all of opportunities, challenges, and constraints faced by Australia in meeting its net zero ambitions. Importantly, there are key interactions between each of the sector plans, particularly the Transport Sector Plan and the Electricity and Energy Sector Plan, which will need to be carefully considered as part of the development of the Net Zero Plan.

The energy transition needs a clear long-term vision, supported by detail on how Australia will identify, acknowledge, and overcome transitional challenges along its journey to net zero. The transition will also involve all parts of the Australian economy contributing towards an accelerated ambition to net zero emissions, in a way that provides opportunities to reduce energy input costs for Australian customers and leverages new industries to create value and opportunities for all Australians. Long-term certainty and signalling of bigger structural changes or policy shifts are critical to deliver the investment that will underpin the energy transition.

While the vision of a decarbonised future should be aspirational, it should not understate the major impacts that the transition will have across the entire economy. The Australian Government's Net Zero Plan should be grounded in maintaining system reliability and security and keeping energy affordable for all Australians in addition to reducing carbon emissions in the energy sector and supporting emissions reductions in other sectors.



Decarbonising the electricity and energy sector will be central to the Australia's Net Zero Plan. This will require rapidly increasing the share of renewable energy sources, uptake of electrification and consumer energy resources (CER) to reduce the dependence on fossil fuels. This will need to be supported by significant investments in grid infrastructure, storage solutions, and demand response mechanisms to ensure reliability and security of supply. Most importantly, achieving the necessary rate and scale of transition will need a coordinated approach among federal, state, and local governments, market bodies, industry, and consumers.

A key challenge for the energy transition is for the price of energy to remain affordable and for system reliability and security to be maintained. If these two factors are not appropriately balanced with the emissions reduction imperative, it will result in poor short-term outcomes for consumers and the energy system generally and undermine the social licence for transition.

With respect to decarbonising Australia's transport sector, accelerating the uptake of Electric Vehicles (EV) will be an integral technology pathway. AGL welcomes the introduction of a National Electric Vehicle Strategy and its focus on establishing a national framework for the uptake of EVs as part of Australia's decarbonisation ambitions. We support the objectives and outcomes set out in the strategy including increasing supply of affordable and accessible EVs, establishing the resources, systems and infrastructure to enable rapid EV uptake, and encouraging increases in EV demand. AGL also supports the introduction of the New Vehicle Efficiency Standard that will incentivise car companies to supply new cars that use less fuel per kilometre.

AGL also welcomes the Australian Government's Future Made in Australia package with its focus on growing new industries that will benefit communities and workers while playing an important role in the transition to net zero. Access to sufficient firm renewable electricity and green hydrogen will be vital to the production of green metals and low carbon liquid fuels (LCLF) at scale, in addition to an enduring green certification scheme and supporting policy to incentivise and build trust in green metal products and LCLF.

We have provided a more detailed response to the questions outlined in the Consultation Paper in **Appendix A** below.

AGL looks forward to continuing to work with the Australian Government to support the energy transition and help Australia reach its net zero by 2050 ambitions.

Should you have any questions in relation to this submission, [REDACTED]  
[REDACTED]

Yours sincerely,  
**AGL Energy**

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## **APPENDIX A – AGL’s response to the Consultation Paper questions**

### **The approach**

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

AGL agrees with the proposed guiding principles and strongly encourages the Australian Government to ensure that:

- Government focuses on policies that deliver the largest practical reductions in emissions at the earliest opportunity yet do so in a way that is value for money for consumers, businesses, and taxpayers. This balance is necessary to ensure that policy outcomes are maximised at the lowest cost possible.
- Make sure that the transport sector’s transition is inclusive and equitable, and every Australian can participate. This is particularly important for lower income households as they face some significant barriers when looking to electrify.
- there is market/policy stability and clear long-term investment signals, given the size of the transformation required and the need for coordinated investment across so many different sectors of the economy.

It is also key that all levels of government work together to help bring about the significant transformation that is required in the transport sector, the electricity and energy sector and all the other sectors of the Australian economy.

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

AGL supports the use of the avoid-shift-improve framework. We would encourage the Australian Government to look for ways to support every Australian to avoid-shift-improve, with a focus on helping lower income households gain better access to public and active transport and improve their transport efficiency through electrification.

AGL also strongly supports an evidence-based approach to the transition, that identifies and enables the uptake of technologies as they mature and become market ready. This also means acknowledging that harder to abate sectors will not have instant and immediate zero emission solutions and will need to look at interim technologies that reduce but do not eliminate emissions.

### **Movement of people: promoting active and public transport**

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

AGL agrees that the development of a national policy framework for active and public transport is a worthwhile undertaking and will support emissions reductions. However, the Australian Government will need to work closely with the states & territories and local governments to ensure that a whole-of-society approach is taken and that any efforts are not duplicative.

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

Given Australia is a large country in comparison to others, the morphology of active and public services will need to be different to that which has been implemented elsewhere.

For public and/or active transport to make a material difference, thought must be given to:

- the normalisation of increased regional workspaces/hubs that people can access rather than enforcing the need to travel to metro centres; and/or
- the reliability, safety and frequency of active and public transport services door-to-door.

**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?**

Given that electrification is the preferred way forward in decarbonising the light vehicle sector, the federal government should look to implement policies that make EVs accessible to all segments of the Australian community along with supporting the roll-out of the associated infrastructure needed for the widespread uptake of EVs.

The government should also look at funding pilots with industry to test the feasibility of autonomous vehicles. Clear regulations and infrastructure upgrades for autonomous vehicles would likely have the effect of enabling more car and journey sharing and would also help with the transition to EVs. Car and journey sharing would also help solve many of the problems faced by people who are unable to access public transport. However, to date there has not been much work done in this space and the required social capital to enable people to trust autonomous vehicles is yet to be developed.

A major part of decarbonisation is dependent on changing people's expectations and behaviours around energy. A huge lever to change behaviour is cost. As such, the government should review the regulated price tariffs to support EV vehicles 'soaking' up excess solar energy during the day, which has flow on benefits for the entire energy system.

Similarly, driving greater awareness of how emissions are impacted by consumer behaviours is important in driving conscious switches to when/where/how we travel, and in the case of EVs where/when/how we charge.

## **Movement of goods: decarbonising freight and supply chains**

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

AGL considers one of the key actions that the Australian Government should be focused on in developing a net zero pathway for freight is encouraging a shift from road to rail. To encourage this shift, there needs to be focused attention on improving the reliability and resilience of the rail network and leveraging existing infrastructure as much as possible.

One key here, which is mentioned in the Consultation Paper, are policies that address the productivity and efficiency barriers as we seek to decarbonise freight. There are exciting opportunities to leverage existing sites that can be repurposed as energy hubs. These energy hubs generally have existing infrastructure in place to assist with decarbonising freight and supporting other aspects of our energy transition.

An example of this is AGL's Hunter Energy Hub that has two points of access to heavy rail with unloading facilities that are fit for repurposing from their current use of receiving coal deliveries. AGL's vision is to see these facilities repurposed to support the Hunter Valley supply chain's diversification to containerised freight as coal movements and exports decline. Our ambition is that this existing rail infrastructure will also support the growth of green manufacturing and new circular-economy industries at the former Liddell power station site, and eventually at the Bayswater Power Station site upon its closure in the 2030s.

## Road – light vehicles

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

Accelerating the uptake of EVs will be an integral technology pathway for decarbonising Australia's transport sector and economy more generally. As we previously observed in our submissions to the [2018 Select Committee on Electric Vehicles](#) and the [2021 Senate Economics Legislative Committee's Inquiry](#), the widespread uptake of EVs, when coupled with the decarbonisation of the electricity grid and increasing penetration of local solar photovoltaic technologies, presents a substantial opportunity to deliver emissions reductions consistent with Australia's long-term commitments under the Paris Agreement.

Given this, AGL generally agrees with the proposed net zero pathway for light road vehicles, and its focus on electrification being the way forward.

With respect to bi-directional charging and vehicle-to-grid (V2G) capabilities, we acknowledge that there is still some significant work to be done in this space, especially with respect to cost. However, AGL considers that the government should aim to have the widespread roll out of bi-directional charging and V2G occur as soon as possible. As such, we suggest that it should be listed in the 2030-2040 period on the net zero pathway.

One way to help make V2G and vehicle-to-home (V2H) orchestration more widespread is through clearer guidelines/regulations. For example, how do we reduce the structural barriers for energy retailers, auto original equipment manufacturers, and EV charging providers to enable V2G and V2H? We note that there is work being done in this space as part of the National Consumer Energy Resources Roadmap (CER Roadmap), including looking at removing the barriers to V2G.

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

Australia has an opportunity to stimulate the widespread uptake of EVs for the benefit of consumers and the environment. From a consumer perspective, barriers to EVs have generally centred around choice, affordability and charging network limitations.

AGL welcomes the introduction of a National Electric Vehicle Strategy and its focus on establishing a national framework for the uptake of EVs as part of Australia's decarbonisation ambitions. We support the objectives and outcomes set out in the strategy including increasing supply of affordable and accessible EVs, establishing the resources, systems and infrastructure to enable rapid EV uptake, and encouraging increases in EV demand. AGL also supports the introduction of the New Vehicle Efficiency Standard that will incentivise car companies to supply new cars that use less fuel per kilometre.

Drawing on some of the recommendations we made in our submission to the [National Electric Vehicle Strategy](#), we would encourage the federal government to consider:

- Incentives for taxi and ridesharing services to move towards building out their fleets with EVs, as well as having access to appropriate charging infrastructure. Rideshare and taxi services are increasing in demand and there is opportunity to capture the market and match its speed to accelerate penetration of EVs in Australia. Incentives could look to how they could support charging infrastructure that looks to reduce charging cycles for these types of services.
- How they can support states and territories in making a consistent approach that enables equitable rights for all Australians who want to install EV charging equipment, whether they own or rent their home, and whether it is a shared or detached dwelling. The lack of viable public charging alternatives will likely continue to drive major demand for charging stations at home, whether in new or existing buildings, such as strata properties. AGL commends the work done to date under the National Construction Code that now requires new apartments built in Australia from October 2023 to be constructed with the capability to charge electric vehicles. However, jurisdictional governments continue to regulate the installation of EV charging infrastructure in shared dwellings in different ways. There is scope for the federal government to consolidate efforts in supporting customers in accessing charging infrastructure in existing dwellings, to ensure both tenants, residents and owners corporations who are willing to invest in EV infrastructure have the right regulatory policy settings to enable investment.
- How they can support businesses with large fleets that are looking to electrify. Currently funding largely focuses on the availability of public charging, however supporting business looking to transition large fleets will reach high vehicle numbers on Australian roads (e.g. fleets of 300+). Beyond GST exemptions there are no real support mechanisms in place, especially to assist with the initial high capital expense of charging infrastructure.

AGL also welcomes the recent release of the CER Roadmap, with specific measures, timelines, and a national Implementation Plan to deliver equity in the transition and a coordinated vision for household solar and batteries, EVs, and other forms of CER. As part of the CER Roadmap, government will look to develop nationally consistent standards in key areas, including to enable V2G technologies, along with a commitment to a national regulatory framework for CER standards.

We also welcome the Ministers commitment at the July Energy and Climate Change Ministerial Council (ECMC) meeting to a national statement of intent for regional and remote EV charging infrastructure. The roll out of charging infrastructure in regional and remote areas will be guided by a national EV public charging map which will be live by late 2024. This is a crucial step in the rollout of charging infrastructure to enable long distance EV commuting or travel between hubs.

At the ECMC, Ministers recognised the importance of community buy-in to the goals of the CER Roadmap and the need to support consumer energy literacy so that consumers can maximise the benefits of CER. As is highlighted in the CER Roadmap, future work is required to unlock coordinated CER at scale and the potential significant system benefits offered by CER that could offset the need for grid-scale investment. To fully capture the potential benefits, CER needs to be orchestrated and appropriately integrated into the NEM



in a way that supports power system reliability and security. Customers need to understand and see the benefits and have trust in the energy sector to achieve this.

AGL considers that retailers, who interact directly with customers, are well placed to educate, demonstrate the benefits of and help manage electrification, CER integration and orchestration for customers through activities such as education campaigns, trials, pilot projects, and innovative product offerings.

One such innovative product offering is AGL's Electric Car Subscription, which provides choice and flexibility with customers able to swap, upgrade or cancel at any time, while also including registration, insurance, tyres, repairs, roadside assistance, optional installation of an EV charger and carbon neutral credits as part of the subscription.

AGL also conducts multiple EV projects and trials and has developed a market-leading understanding of the implications of EV uptake. A key project for AGL has been our AGL's Electric Vehicle Orchestration Trial that commenced in November 2020 with funding from ARENA as part of ARENA's Advancing Renewables Program. The trial on EV charging patterns showed that the assumption that EV owners would plug in every day and max out their charging was not necessarily correct as the data from the trial showed customers responded well to price signals and opted out of charging during peak times. This led to AGL launching its AGL Night Saver Energy Plan to provide customers a discounted offer at a time that has been shown by our trials to suit them and sees customers pay a lower than off-peak rate between midnight and 6am.

AGL notes the concerns about integrating EVs into the energy system and acknowledges that there is still a large volume of work that needs to be done in this space, which hopefully the CER Roadmap will assist with. This will also require some innovation in tariff reform to encourage behaviours like V2G charging and two-way price signalling to incentivise load shifting at different times of the day. However, there are promising signs that energy retailers will be able to manage some of these issues through product design that is based on tariffs that are simple, actionable, and fair.

## Road – heavy vehicles

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

AGL agrees with the proposed net zero pathway for heavy road vehicles.

### 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.

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

While AGL does not have a particular view on this, in ranking these technologies we would encourage the government to look at which ones will deliver the largest practical reductions in emissions at the earliest opportunity yet do so in a way that is value for money for consumers, businesses, and taxpayers.

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

While AGL sees EVs as key for road transport, we recognise that LCLF will play an important role in decarbonising fuel reliant sectors that can't readily electrify, such as aviation, heavy vehicles, maritime, construction, mining, and agriculture.

For heavy vehicles, LCLF enables existing diesel technology to continue to be used while significantly reducing its emissions profile. This allows businesses to operate existing trucks/equipment for longer, helping to ease the capital intensity of transitioning to lower carbon vehicle technologies.

Australia can also domestically produce feedstock and manufacture these fuels locally, reducing fuel transport cost and emissions, and improving fuel security.

**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?**

Some further actions that could be taken include:

- Governments and industry supporting the transport industry to access predictable and rateable pricing for energy and/or LCLF. The reliability of heavy vehicles is very dependent on maximum utility which means that refuelling flexibility is critical. However, charging trucks at times of high prices can blow out costs easily, impacting many of these businesses.
- Look to coordinate targets amongst state and territory governments to electrify their bus fleets. The uptake of EVs in public transport fleets would provide benefits not only to the transport sector but also to the electricity sector as transport system asset owners are empowered to participate in the electricity distribution market. Furthermore, cohesiveness across the jurisdictions in Australia would support the development and demand for locally manufactured battery electric buses and help to achieve net-zero emissions by 2050
- Investigate incentives or support for bus operators (large and small) to upgrade their depots at scale and consider partnerships with private capital to introduce different funding models for fleet charging. Large bus fleet owners, including governments, should also develop programs focused on good management of vehicle batteries. This includes targeting the maintenance of battery life, increasing residual value, encouraging second life usage, and circular economy principles with regards to recycling and re-use.

## Rail

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

AGL agrees with the proposed net zero pathway for rail, particularly the key role government will play in supporting technology improvements and pilots to help establish the future net zero pathways for rail. Support will also be required in the roll-out of enabling infrastructure, given the expected high costs of full electrification of rail networks, particularly in regions, and spanning vast distances.

There also needs to be a focus on the movement of goods onto rail, that is missing from the pathway, given the inherent lower emissions nature of rail over other modes. This is a higher priority than the decarbonisation of rail itself in the short term, given the relative low emissions profile of a diesel train.

Further, AGL supports interim measures that drive decarbonisation, such as hybrid trains, as a stepping stone on the way to full electrification.

**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.**

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



While AGL does not have a particular view on this, in ranking these technologies we would encourage the government to look at which ones will deliver the largest practical reductions in emissions at the earliest opportunity yet do so in a way that is value for money for consumers, businesses, and taxpayers.

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

LCLF will enable the rail industry to reduce its emissions from diesel trains in the short-term, allowing time for the technology for battery electric and hydrogen fuel cell to mature and the associated supporting infrastructure to be rolled out.

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

Government needs to make improving efficiency and reliability of the rail network a priority. Upgrades to the rail network will be essential to increasing the overall percentage of passengers and freight delivered by rail, which in turn will reduce overall transport emissions.

There is an opportunity for lower cost wins through strategic investment in network upgrades and augmentation to link existing rail networks with growth projects such as Inland Rail, and to also consider and invest in interlinkages between rail networks and ports.

In AGL's view, the focus must be on what will successfully reduce total emissions, rather than only looking at how to reduce emissions for each transport mode, particularly where modes are in competition.

## Maritime

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

Based on AGL's limited experience with maritime, the proposed net zero pathway appears appropriate. We also agree that government should progress the development of the certification and accounting frameworks to verify LCLF prior to 2030.

**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?**

AGL has no additional comments on this question

## Aviation

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

AGL agrees that sustainable aviation fuels (SAF) are a key component for the net zero pathway for aviation between now and 2050. We also agree that government should progress the development of the certification and accounting frameworks to verify LCLF prior to 2030.

**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.**

**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?**

**20.2. How would these actions address the identified challenges and opportunities to reduce aviation emissions?**

AGL supports the Commonwealth's investments in projects through the Sustainable Aviation Fuel Funding Initiative and the Hydrogen Headstart program. Investment in SAF technologies and production facilities in Australia is urgently needed given SAF is a drop-in replacement for jet fuel.

As feedstocks for bio-SAF become less able to satisfy the global demand for SAF, investment in eSAF (produced from hydrogen) will be required to ensure sufficient volumes are produced for the global aviation industry. This will drive a need for additional investment in carbon capture technologies like DAC (direct air capture) to minimise the carbon emissions created by the eSAF production process.

There also needs to be clarity around what will be required for the certification of eSAF. It is important that any certification program has sufficient flexibility to enable the development of new LCLFs - particularly synthetic fuels which require a range of different inputs - while having a clear pathway to zero emissions. Any emissions reduction threshold should be set to deliver a clear emission reduction compared to conventional fossil fuels, with that threshold gradually becoming more ambitious over time. An emissions reduction threshold should also be harmonious with international standards. This will become increasingly important to remain competitive in the global context as nations introduce stricter sustainability standards and introduce carbon border adjustment mechanisms. These need to be complemented by transparent and fair carbon accounting standards.

## **Transport infrastructure**

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

AGL agrees with the proposed net zero pathway for transport infrastructure, noting that access to sufficient firmed renewable electricity and green hydrogen will be vital to the production of low and zero carbon materials at scale, in addition to an enduring green certification scheme and supporting policy to incentivise and build trust in low and zero carbon products.

**22. What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to reduce transport infrastructure emissions and ensure that transport infrastructure is ready for and enables low-emission transport modes?**

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

As AGL noted in its submission to A Future Made in Australia: Unlocking Australia's green metal opportunity:

- Manufacturing green metals is energy intensive. Building a green metals industry is therefore highly dependent on building and scaling renewable electricity and the green hydrogen industry. We discuss building and scaling renewable electricity in further detail below in question 9. We also note and support work underway to incentivise and scale green hydrogen production, including the Commonwealth's Government's Hydrogen Headstart program. Green hydrogen has potential to

decarbonise sectors where electrification is difficult, such as steelmaking, and is a critical element to realising the green metal export opportunity.

- AGL applauds the Australian Government development of a National Circular Economy Framework in the context of Australia's net zero transition, incorporating manufacturing and trade-based objectives and urges the government to focus on incentivising end-of-life recovery in the green metals industry to improve circularity and sustainability of critical raw materials such as aluminium.
- AGL sees potential for integrated end-to-end manufacturing facilities, or multi-stage facilities, to be established where cost savings are achieved through establishing an end-to-end supply chain at a single factory. Improved rail network connectivity and scrap metal handling capability for trains and ports must be developed in targeted regions for these multi-stage facilities to succeed. In the absence of investment in supporting infrastructure, these growth industries will remain reliant on higher emissions transport (e.g., trucks) to move product to where it is needed.
- Establishing a clear long-term vision for the green metals industry, through long-term policy settings and guidelines, and enduring demand signals, will be critical to providing a stable environment for investment in the industry. Interaction with existing incentives and schemes such as the Powering the Regions fund and Safeguard Mechanism will need to be considered to ensure additionality of action taken and most efficient allocation of funding.
- Transparency around emissions and sustainability criteria will be key to building trust in green metal products and LCLF and ensuring that emissions reductions are real. AGL supports the Australian Government's intention to utilise the Guarantee of Origin (GO) Scheme as a basis for tracking and verifying the emissions and sustainability profile of green metals and LCLF. AGL has been very supportive of the development of the GO Scheme, with certification of renewable electricity through Renewable Electricity Guarantee of Origin certificates (REGOs) a key element not only of driving decarbonisation in the electricity sector, but also supporting decarbonisation of other products and services that use electricity as an energy input<sup>1</sup>. Certification through this scheme will provide the necessary signals and transparency to market participants to make informed choices. It will also provide assurance that purchases of green products is leading to real sustainable outcomes.
- Consideration should also be given to the work that the Australian Government is undertaking with the Australian Sustainable Finance Institute (ASFI) to develop a sustainable finance taxonomy. This piece of work will be important in supporting the flow of capital into sustainable activities and ensuring market integrity, transparency, and fairness. This piece of work may also highlight Australia's comparative advantage in an ESG context, having high standards in terms of environmental, social and governance.

## Transport energy use

### **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.**

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<sup>1</sup> See [AGL's submission](#) to the Guarantee of Origin (GO) consultation paper, February 2023

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**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?**

As AGL outlined in its submission to the [Australian Government's Electricity and Energy Sector Plan discussion paper](#), the AEMO Draft ISP projections show, electrification is a critical enabler for the industrial, transport and other domestic sectors to reach net zero emission objectives.

Electrification and the sustained uptake of CER will continue to shape energy needs along with the decarbonisation of transport and industrial sectors, which could potentially significantly increase system demand. Given that electrification is the most likely decarbonisation pathway for residential consumers, considering how impacts on system load can be mitigated through better demand management (i.e., by improving energy efficiency and productivity) and orchestration will be critical.

The Capacity Investment Scheme (CIS) is an important policy lever to help accelerate the required renewable electricity to support green hydrogen production, the production of green metals and LCLFs, however there are still several non-market barriers that sit outside the scope of the CIS design, which need to be addressed concurrently. These include planning approvals, connection processes, and supply chain constraints including workforce availability affecting the construction of new projects and social license issues, as identified in the Draft ISP<sup>2</sup>.

While the Australian Government's Rewiring the Nation plan will have positive impacts on some of these issues, particularly in expanding transmission capacity, significant barriers to project development remain.

In AGL's view, to keep Australia's energy transition on track, we need to prioritise and expedite approvals for those projects that are most readily achievable while considering the important issues of delivering on our environment and social licence. This would mean an immediate focus on those projects that utilise existing infrastructure, such as transmission connection.

While AGL acknowledges the importance of having robust planning and environmental approval processes in place, the need for the energy transition to make significant gains in the next six years means that efficiencies in the planning process and a streamlined connection process are key to keeping the transition on track.

AGL acknowledges the work that the federal and state governments are already doing in this space and would encourage further focus on these areas going forward. We welcome governments leaning into a whole of government approach to the energy transition and engaging across the various portfolios, particularly planning, transport and energy.

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

While we see electric vehicles as key for road transport, we recognise that LCLF will play an important role in decarbonising fuel reliant sectors that can't readily electrify in the short to medium term. This is particularly true for heavy vehicles, rail, maritime and aviation.

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<sup>2</sup> See: AEMO, [Draft 2024 Integrated System Plan](#), section 8.3

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## **Travelling in partnership**

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

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

Decarbonising the transport sector will require significant investments in technology and supporting infrastructure. To achieve the necessary rate and scale of transition, a coordinated approach among federal, state, and local governments, market bodies, industry, and consumers will be key.

Industry will also be key to providing expertise to governments on the availability and maturity of technologies along with helping them understand the impacts of the adoption of particular changes on the transport sector and beyond.