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Vehicle Emissions Working Group
The Department of Infrastructure and Regional Development
Australian Government
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1 August 2017

Dear Working Group,

Proposed Model Fuel Efficiency Standard for Light Vehicles, July 2017

AGL Energy (**AGL**) welcomes the opportunity to respond to the Australian Government's Proposed Model Fuel Efficiency Standard for Light Vehicles (**Proposed Model**), July 2017.

AGL is one of Australia's largest integrated energy companies and the largest ASX-listed owner, operator and developer of renewable generation. AGL is also a significant retailer of energy, providing energy solutions to over 3.7 million customer accounts throughout eastern Australia. In addition, AGL is continually innovating our suite of distributed energy services and solutions for customers of all sizes (residential, business and networks). These 'beyond the meter' energy solutions involve new and emerging technologies, including electric vehicles (**EVs**).

We believe innovative technologies will play a crucial role in improving the efficient use of infrastructure, reducing greenhouse gas emissions, and delivering value for Australian homes and businesses. EVs have the potential to deliver on these objectives based on their use of cost-efficient and clean electricity and will play an important part in Australia's transportation and energy future. Accordingly, AGL wants to improve access to EVs in the Australian market, by removing the obstacles to ownership and enhancing the ownership experience.

AGL supports the Proposed Model, which is based on achieving a new light vehicle average equivalent to Target A (105 gCO₂/km on the current test cycle) in 2025.

All sectors of the Australian economy have an important role to play in meeting Australia's emission reduction targets and its long-term commitments under the Paris Agreement.

We refer to AGL's Greenhouse Gas Policy¹, which sets out AGL's commitment to developing a shared understanding of the best ways for Australia to reduce its greenhouse gas emissions. AGL has committed to a range of measures that will drive the decarbonisation of the energy sector, including the closure of all of our existing coal-fired power stations by 2050 and continued investment in new renewable and near-zero emissions technologies.

¹ AGL, *Greenhouse Gas Policy*, Available at https://www.agl.com.au/~media/AGL/About%20AGL/Documents/Media%20Center/Corporate%20Governance%20Policies%20Charte%20r/1704015_GHG_Policy_Final.pdf.



However, any costs of decarbonisation should be shared equitably across the Australian economy. Any failure to address emissions from the transport sector will increase the burden for other sectors, including the energy sector which has already committed to a significant transition program.

AGL believes that the 'strong' standard contained in the Proposed Model is the most appropriate way forward. Our considered view reflects the following matters, which we elaborate further in the attachment to this submission:

1. The economic imperative of decarbonisation and the need for sectoral equity;
2. The projected net economic benefit of "strong" action as prescribed in the Proposed Model;
3. International experience underscores the outperformance of light vehicle efficiency regulation against economic forecasts; and
4. The anticipated broader economic benefits of increased EV uptake.

Should you have any questions in relation to this submission, please contact Kristian Handberg on 0402 955 013.

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'Stephanie Bashir'.

Stephanie Bashir

Senior Director, Public Policy

ATTACHMENT

1. The economic imperative of decarbonisation and the need for sectoral equity

All sectors of the Australian economy have an important role to play in meeting Australia's emission reduction targets and its long-term commitments under the Paris Agreement.

AGL accepts the Intergovernmental Panel on Climate Change (**IPCC**) conclusion that the risks associated with climate change are reduced substantially if warming is limited to less than 2 degrees Celsius above pre-industrial levels. Achieving this outcome would require complete decarbonisation of the world economy by 2100 and emission reductions of up to 70 percent by 2050.

As our Greenhouse Gas Policy elaborates, it is important that governments set both binding and aspirational medium and long-term emission reduction targets. AGL supports the use of both regulatory and market-based policy mechanisms to deliver the required emission reductions. Importantly, a range of policies are likely to be needed.

Whilst Australia has a range of current climate policies in place, which address the electricity sector, there is currently a complete absence of policy to address emissions from the transport sector. Transport emissions have shown the greatest growth in percentage terms since the 1990 baseline, underlining the urgent need for policy reform. A break-down of sectoral emissions are set out in Table 1 below.

Table 1. National Greenhouse Gas Inventory, 'unadjusted' emissions by sector, year to Dec 2016, sectoral change since 1990²

Sector	Emissions (Mt)	% of Australian total	% change since 1990
Electricity	191.5	35.6%	48.4%
Non-electricity stationary energy	92.5	17.2%	44.0%
Transport	95.4	17.7%	55.4%
Fugitive emissions	44.1	8.2%	19.8%
Industrial processes	32.8	6.1%	27.0%
Agriculture	70.0	13.0%	-12.5%
Waste	11.4	2.1%	-42.0%

AGL believes that the costs of decarbonisation should be shared equitably across the Australian economy. Any failure to address emissions from the transport sector will increase the burden for other sectors, including the energy sector which has already committed to a significant transition program.

² Australian Government Department of Environment and Energy, *Quarterly Update of Australia's National Greenhouse Gas Inventory: December 2016, May 2017.*



Achieving significant cuts in emissions will require substantial new investment in renewable energy capacity and the gradual cessation of operations by existing thermal generators. AGL is committed to working with both its people and broader impacted communities with a view to developing new industries and opportunities.

AGL has undertaken modelling to assess the impacts of emission reduction targets on the electricity sector³. To do this, it is necessary to determine whether the economy-wide emissions reduction targets should be applied to all sectors equally. Given that all sectors will need to reduce emissions under the '2 degree' scenario, AGL has assumed that all sectors will be required to reduce emissions in line with any economy-wide target. Based on this assumption and a 10,100 Mt overarching '2 degree' carbon budget for Australia for the period 2013 to 2050, sectoral emissions need to be reduced by approximately 7 percent per annum between 2020 and 2050.

Even if the Government adopts the "strong" standard provided in its Proposed Model, other sectors will still need to make up a shortfall to achieve Australia's projected carbon budget, consistent with the temperature stabilisation goal agreed to under the Paris Agreement.

The Australian Government's modelling undertaken for the draft Regulatory Impact Statement⁴ (**draft RIS**) forecasts that light vehicle emissions will be around 60 Mt in 2020. Assuming that light vehicle emissions would need to be reduced in accordance with the 2 degree temperature stabilisation goal, this would translate to a 14 Mt target by 2040. The draft RIS forecasts that light vehicle emissions will be around 47 Mt under the "strong" standard proposed, indicating that other sectors will still have to make up a significant shortfall. Should the Government adopt a lesser standard, the burden on other sectors will increase accordingly.

2. The projected net economic benefit of "strong" action as prescribed in the Proposed Model

We consider that the Proposed Model is the most effective means of addressing emissions from motor vehicles, whilst protecting and enhancing Australia's economic prosperity.

The current configuration of Australia's light vehicle market evidences a market failure, in that new car buyers excessively discount operating cost savings in favour of upfront costs. Recognition of this issue has provided the basis for regulation in other jurisdictions⁵. Locally, the existence of this market failure has been most recently illustrated in media coverage of the Proposed Model, which has focused solely on the potential impact on vehicle purchase prices while ignoring the operating cost savings that would be delivered⁶.

In our view, the Proposed Model demonstrates the potential to rectify this market failure, providing strong economic net benefits whilst also addressing vehicle emissions. As the Australian Government's own modelling contained in the draft RIS highlights, the net economic benefit of a fuel efficiency standard for light vehicles is greatest under the "strong" standard proposed. Based on this same modelling, implementing the "lenient" standard would leave the Australian economy \$8 billion worse off by 2040, an opportunity cost that will be borne by Australian motorists.

³ AGL Sustainability Report 2016, *Carbon Constrained Future – AGL's approach to climate change mitigation*, AGL Sustainability Report 2016, Available at http://agl2016.sustainability-report.com.au/files/carbon_constrained_future.pdf

⁴ Australian Government Department of Infrastructure and Regional Development, *Improving the efficiency of new light vehicles Draft Regulatory Impact Statement*, December 2016, Available at https://infrastructure.gov.au/roads/environment/forum/files/Vehicle_Fuel_Efficiency_RIS.pdf

⁵ See, for example, Oak Ridge National Laboratory for the U.S. Environmental Protection Agency, *How Consumers Value Fuel Economy: A Literature Review*, March 2010.

⁶ *Proposed new 'carbon tax' on cars would raise prices by more than \$5000*, Daily Telegraph, 12 July 2017.

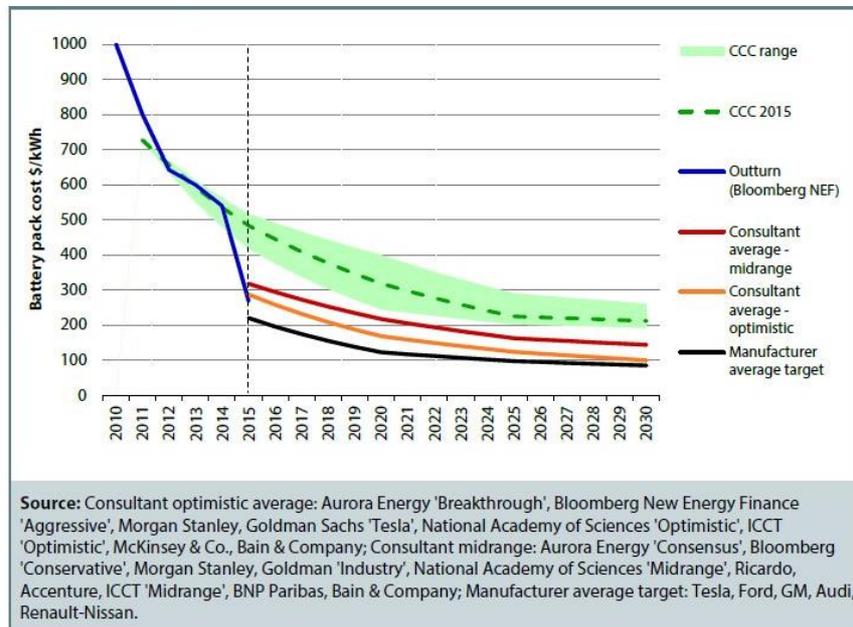
3. International experience underscores the outperformance of light vehicle efficiency regulation against economic forecasts

We consider that the negative impact of the Proposed Model on vehicle prices has been overestimated in the draft RIS. International experience from the US and UK underscores that EVs have outperformed initial economic projections on the cost efficiency of these evolving technologies.

In 2016, the California Air Resources Board (**CARB**) undertook a comprehensive mid-term review of their Advanced Clean Cars program that was originally adopted in 2012. They found that the greenhouse gas emission standards currently in place for model years 2022-25 are readily feasible at below the costs estimated back in 2012⁷. They also found that zero emission vehicle technology is advancing at a much faster pace than anticipated, and the regulations had resulted in more zero emission vehicles in states throughout the U.S. that had adopted California's rules.

In June 2017, the Committee on Climate Change in its report to the UK Parliament noted that EV battery costs have fallen significantly faster than anticipated (see Figure 1 below). They concluded that EVs will become cost competitive earlier than what was previously thought.

Figure 1. Electric Vehicle battery cost estimates⁸



⁷ CARB releases major report on the future of ultra-clean and zero-emission vehicles, California Air Resources Board news release, 18 January 2017, Available at <https://www.arb.ca.gov/newsrel/newsrelease.php?id=890>

⁸ Committee on Climate Change 2017 Report to UK Parliament, *Meeting Carbon Budgets: Closing the policy gap*, June 2017, Available at <https://www.theccc.org.uk/wp-content/uploads/2017/06/2017-Report-to-Parliament-Meeting-Carbon-Budgets-Closing-the-policy-gap.pdf>

4. The broader economic benefits of increased EV uptake

We also consider that the increased uptake of EVs will deliver economic benefits beyond what has been captured in the draft RIS, in the following ways:

- The proposed model will increase vehicle choice to Australian motorists;
- Unlike oil, money spent on electricity stays in the local economy;
- In the electricity system context, EVs are a flexible resource that have the potential to deliver benefits that will increase with scale;
- The societal benefits from advanced mobility systems will increase with measures that promote EV technology adoption; and
- A faster shift towards vehicle electrification will increase the benefits from decarbonisation of our electricity system.

International experience supports the view that the Proposed Model would increase vehicle choice to Australian motorists. The Californian Air Resources Board (**CARB**) surveyed past and current Zero Emission Vehicle (**ZEV**) and Plug-in Hybrid Electric Vehicle (**PHEV**) model availability in their midterm review of the Californian Advanced Clean Cars program⁹. CARB's survey revealed that, at the time of their launch, 21 out of a total of 38 (= 55 percent) ZEV/PHEV models were available only in jurisdictions with light vehicle greenhouse gas emission standards and ZEV regulations in place. Noting the current absence of some of the highest selling EVs globally from the Australian market, a similar outcome can be reliably expected from implementation of the "strong" standard in the Proposed Model, in combination with the proposed "additional credits" scheme.

The Proposed Model presents the best opportunities for job creation in Australia. Whilst Australia is currently on a trajectory towards complete oil import dependency¹⁰, the entire electricity supply-chain in Australia is domestic¹¹. In 2015-16, 11,150 people were directly employed in renewable energy activities in Australia¹². The local economy of regions such as the Latrobe Valley in Victoria and the Hunter Valley in NSW is inextricably linked to the electricity sector. Supporting the shift toward vehicle electrification will increase demand for electricity, greatly enhancing employment opportunities for Australians.

Vehicle electrification will also deliver other benefits for the electricity sector in Australia. EV charging has the potential to help protect and enhance the reliability and affordability of Australia's electricity. A car with a 20 kWh battery stores as much electricity as the average Australian home consumes in a day¹³. Considered as a pooled resource, the growing number of EV batteries could provide valuable grid services, from demand response and voltage regulation to distribution-level services, without compromising driving

⁹ California Air Resources Board (CARB), *California's Advanced Clean Cars Midterm Review – Appendix B: Consumer Acceptance of Zero Emission Vehicles and Plug-in Hybrid Electric Vehicles*, 18 January 2017, Available at https://www.arb.ca.gov/msprog/acc/mtr/appendix_b.pdf

¹⁰ ABC News, *Defence White Paper 2016: Dependency on fuel imports 'a risk' amid South China Sea tensions*, 24 February 2016, Available at <http://www.abc.net.au/news/2016-02-24/fuel-imports-a-risk-amid-south-china-sea-tensions-nrma-advisor/7149648>

¹¹ Australian Energy Regulator, *State of the Energy Market*, May 2017, Available at <https://www.aer.gov.au/system/files/AER%20State%20of%20the%20energy%20market%202017%20-%20A4.pdf>

¹² Australian Bureau of Statistics, *Employment in Renewable Energy Activities, Australia, 2015-16*, 17 March, 2017, Available at <http://www.abs.gov.au/ausstats/abs@.nsf/mf/4631.0>

¹³ Australian Bureau of Statistics, *Household Energy Consumption Survey, Australia: Summary of Results, 2012*, 24 September 2013, Available at <http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/4670.0main+features100052012>



experience or capability¹⁴. BMW recently demonstrated this capability in partnership with a Californian electricity utility¹⁵. AGL's New Energy business is developing new products and services with a view to competing in this emerging market, where the economics improve as EV adoption scales.

The wider societal benefits resulting from advanced mobility systems will be brought forward through the adoption of the "strong" standard contained in the Proposed Model that supports vehicle electrification. Autonomous vehicle technologies are advancing at a rapid rate. By acting as an enabler for improved asset utilisation, they favour lower operating cost vehicle powertrains. Australian cities, characterised by high household incomes and suburban sprawl, are forecast to adopt autonomous vehicles ahead of global averages¹⁶. Measures which promote EV adoption will have a synergistic effect for the adoption of autonomous vehicles, improving road safety and reducing transport costs for households. AGL recognises this relationship through its involvement in the Australian Driverless Vehicle Initiative¹⁷, and is working with a variety of stakeholders to advance connected electric autonomous vehicle adoption.

By promoting vehicle electrification through the Proposed Model, transport will benefit from emission reduction in the electricity generation sector. AGL has made a strong commitment to reduce greenhouse gas emissions, elaborated in our Greenhouse Gas Policy. Bringing forward the adoption of EVs will leverage this commitment and in doing so deliver greenhouse gas reductions that increase with the decarbonisation of our electricity sector.

¹⁴ Rocky Mountain Institute *Electric Vehicles as Distributed Energy Resources*, June 2016, Available at https://www.rmi.org/wp-content/uploads/2017/04/RMI_Electric_Vehicles_as_DERs_Final_V2.pdf

¹⁵ BMW & PG&E, *BMW i ChargeForward: PG&E's Electric Vehicle Smart Charging Pilot*, June 2017, Available at <http://www.pgecurrents.com/wp-content/uploads/2017/06/PGE-BMW-iChargeForward-Final-Report.pdf>

¹⁶ Bloomberg New Energy Finance and McKinsey & Company, *An Integrated Perspective on the Future of Mobility*, October 2016, Available at https://www.bbhub.io/bnef/sites/4/2016/10/BNEF_McKinsey_The-Future-of-Mobility_11-10-16.pdf

¹⁷ Australian Driverless Vehicle Initiative, *About the Australian Driverless Vehicle Initiative*, Available at <http://advi.org.au/australia/>