FCAI Response to Senate Select Committee on Electric Vehicles inquiry

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KEY MESSAGES

There are divergent forecasts regarding the market penetration of zero and low-emission vehicles in Australia over the coming decade, however the take up in Australia will remain low without the required policy drivers. It is important that policy makers take a holistic approach to new powertrain technologies and associated infrastructure. Early take-up of these new technologies in Australia requires policy certainty, in particular an achievable CO_2 emissions target and financial incentives to influence consumer preferences.

Overview:

- The Federal Chamber of Automotive Industries (FCAI) is technology neutral and supports the introduction of all types of low-emission vehicles as a means to reducing CO_2 emissions across Australia's vehicle fleet.
- Through a realistic and achievable CO_2 emissions reduction target, the FCAI supports a greater take-up of electrified vehicle technology in Australia. Our members are leading the development of new powertrain technologies around the world, which includes battery electric vehicles, hydrogen fuel cell vehicles, plug-in hybrid electrified vehicles and established hybrid electrified vehicles that also utilise an internal combustion engine.
- International developments in electrified vehicle technology and production indicate that these new technologies are unlikely to reach price parity with conventional internal combustion engine vehicles until the mid-to-late 2020s. Accelerating earlier take-up will require government policies, including financial incentives to encourage consumers to switch to electrification technologies, as has proven to be the case in a number of countries where the mix of electric vehicles relative to internal combustion engine vehicles is increasing
- A technology-neutral approach from policy makers around the world will ensure greater investment in new powertrain technologies. As such, governments should avoid 'picking winners' as industries develop and commercialise new technologies.
- The FCAI supports a harmonised national approach to regulating electrified vehicles in Australia. Our membership understands the need for industry to show leadership on this front and in September 2017 the FCAI committed to supplying battery electric vehicles from 2020 that meet a set of international charging standards[1]

Policy Context:

- The development and take-up of new low and zero-emission powertrain technologies is a key factor underpinning the global automotive industry's efforts to lower emissions. The FCAI and its members are working closely with government in the development of its objectives regarding fuel quality, reductions to CO_2 emissions and reductions to pollutant emissions across Australia's new light vehicle fleet.
- Vehicles are designed and developed to meet CO_2 standards and pollutant emission standards with an expectation of appropriate/compatible market fuel quality. Vehicles provided to the Australian market are based on global platforms (with some climatic and other minor variations), with engine technology developed for other markets.
- The automotive industry welcomes the discussion on increasing electric vehicle take-up in Australia. This is one technology that will play a role in reducing the emissions-intensity of Australia's vehicle fleet over the coming decade and beyond, along with other technologies such as hybridisation and hydrogen fuel cells.

[1] FCAI Technical Statement on Electric Vehicle Charging Standards for Public Recharging Infrastructure, 18 September 2017 –*Appendix A*.

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1.0 INTRODUCTION

The Federal Chamber of Automotive Industries (FCAI) welcomes the opportunity to respond to the Senate Select Committee on Electric Vehicles' Inquiry[2]. The FCAI is the peak industry organisation representing the manufacturers and importers of passenger vehicles, light commercial vehicles and motorcycles in Australia.

This submission focusses on the following matters within the inquiry's Terms of Reference:

- Measures to support the acceleration of electric vehicle uptake (matter C); and
- How federal, state and territory governments could work together to support electric vehicle uptake and manufacturing, supply and value chain activities (matter E).

The Australian automotive industry is committed to continuing to make a strong contribution to national efforts to reduce the impact of global climate change and to improve air quality. The FCAI support a range of measures to enable the light transport sector to make a meaningful contribution to these objectives. Central to this is an achievable and market relevant CO_2 emissions reduction target, the introduction of 'Euro 6' vehicle emissions standards to Australia and the need for fuel quality standards.

The FCAI is technology-neutral and supports the introduction of all low emissions vehicles as part of the industry's support for a CO_2 target. As the carbon-intensity of Australian vehicle fleet reduces, new low and zero-emissions technologies such as battery electric vehicles and hydrogen fuel cell vehicles will represent a greater proportion of the total car parc. Battery electric vehicles and hydrogen fuel cell vehicles are complementary technologies, with both utilising an electric motor. Battery electric vehicles store electricity in battery form, whilst hydrogen fuel cell vehicles produce electricity on board and on demand via the fuel cell. Each technology will play a key role in the long-term transition from traditional internal combustion engines.

The global automotive industry is presently transitioning to a range of lower-emissions powertrain technologies to lower overall CO_2 and noxious vehicle emissions. Automotive manufacturers around the world are developing innovative technologies within government emissions reduction policy frameworks. Current and emerging low-emissions powertrain technologies will play an ever-increasing role in this shift. However, in the near-term this transition is highly-dependent on government policies and incentives including realistic CO_2 emissions reduction standards to set an achievable, yet robust fleet-wide emissions reduction target to stimulate investment in lower-emissions technologies for the Australian market.

There are approximately 17 million cars currently on the road in Australia, with the average age of Australia's car parc at just over 10 years old. Given this dynamic, and the geographical considerations of Australian motorists, Australia will likely see an incremental transition to low-emission powertrain technologies in the future. Global analysts forecast that the cost of electrified powertrain vehicles will likely reach a level of price parity with traditional internal combustion engines by the mid-late 2020s[3]. Given the volume and age of the Australian vehicle fleet, coupled with enduring consumer requirements such as towing capacity, traditional internal combustion engine powertrains will continue to play a key role for the coming decades.

[2] Australian Parliament, Senate Select Committee on Electric Vehicles, Terms of Reference, 27 June 2018
[3] Andrew Fulbrook, Executive Director Global Powertrain and Compliance Forecasting, IHS Markit, 'Propulsion is Changing', unpublished presentation, May 2018

Substantial government incentives have stimulated early take-up of zero emission vehicle technology around the world, in particular in California (USA), the Netherlands and Norway. This factor ranks first within a range of factors that are necessary to stimulate zero emission vehicle take-up:

1. Government policy, regulation and incentives;
2. Improvements in battery density and global capacity to meet future demand;
3. Zero emission vehicle infrastructure for recharging and refuelling;
4. Charge times for battery electric vehicles;
5. Purchase prices for consumers relative to conventional internal combustion engine vehicles;
6. The flow-through of research and development in future vehicle production cycles; and
7. Fuel prices.[4]

Until global investment in zero emission vehicle technology and production brings about broad price parity with internal combustion engine powertrains, government incentives will be critical in accelerating zero emission vehicle take-up in Australia. The FCAI supports in-principle the priority reforms contained within the recent joint New Policy Proposal by the NRMA and the Electric Vehicle Council *Recharging the economy – Accelerating electric vehicle adoption*. This proposal recommends that government/s[5]:

1. Prioritise the rollout of charging infrastructure;
2. Utilise government fleet purchasing as a means to stimulate early demand;
3. Introduce short-term measures to reduce the upfront cost of purchasing electric vehicles;
4. Reduce Australia's reliance on imported liquid fuels;
5. Prioritise electric vehicles and establish an inter-governmental working group; and
6. Promote industries associated with electric vehicles.

Where relevant, government incentives to accelerate the take-up of low and zero emission vehicles should be technology-agnostic and support accelerated take-up of other electrified low-emissions powertrain technologies, including established hybrid powertrains and hydrogen fuel cell vehicles.

[4] Ibid.
[5] Electric Vehicle Council and NRMA, *New Policy Proposal: Recharging the economy – Accelerating electric vehicle adoption*, 2018

2.0 THE TRANSITION TOWARDS LOWER-EMISSION VEHICLES IN AUSTRALIA

Main Points:

- A credible, yet realistic CO_2 emissions reduction standard is critical to stimulate investment in lower-emissions technologies for the Australian market.
- The Australian automotive industry is committed to making a strong contribution to national efforts to reduce the impact of global climate change.
- The internal combustion engine will remain the dominant type of engine for vehicles out to 2030 and it is expected the majority of light vehicles introduced into Australia during this period will have gasoline direct injection engines.
- Complementary measures such as incentivising the purchase of low and zero emissions vehicles are necessary to encourage a change in consumer preference and increase the uptake of advanced technology powertrains.

2.1 Background

The Australian automotive industry is committed to making a strong contribution to national efforts to reduce the impact of global climate change and improve air quality. With continuing developments in powertrain technology, the industry is at the forefront of innovation that will help to lower emissions intensity across the vehicle fleet.

Internationally, powertrain choices are generally driven by consumer response to the stringency of emissions regulations, the quality and efficiency of fuel in the market and government CO_2 emissions regulations. The adoption of new technologies across the Australian new light vehicle fleet[6] is largely dependent on consumer preference for current and future usage. For example, present day motorists are experiencing increasing congestion in our major cities. As a result, motorists are experiencing increasing travel times. This results in higher fuel consumption with more CO_2 and pollutant emissions year-on-year without corresponding increases in travel distance.

As at 31 January 2017 there were (approx.) 18.8 million motor vehicles registered in Australia, of which (approx.) 16.8 million were light vehicles[7]. In 2016, more than 1.14 million new passenger cars, SUVs and light commercial vehicles were sold.[8] At this point in time, annual sales of new light vehicles were equivalent to (approx.) 1/16th or 6.75 per cent of the light vehicle in-service fleet.

The predominant powertrain of light vehicles in Australia is a petrol engine. Almost 78 per cent of light vehicles registered in 2017 had petrol engines, while just over 22 per cent had diesel engines (predominately light commercials) and the remaining 2 per cent were “other fuel types” that included LPG, dual fuel and electric vehicles.[9]

2.2 Transport and greenhouse gas emissions in Australia

The Australian Government’s, *Australia’s emissions projections 2017*[10], states (pp.22-23) that transport emissions[11] were 17 per cent of the National Greenhouse Gas Inventory in 2017. Motor

[6] Light vehicles in this submission refers to passenger cars, sport utility vehicles (SUVs) and light commercial vehicles up to 3.5 tonne GVM (LCVs)
[7] Australian Bureau of Statistics, 9309.0 – Motor Vehicle Census, Australia, 31 Jan 2017.
[8] Vfacts National Report, New Vehicle Sales, December 2016.
[9] Australian Bureau of Statistics, 9309.0 – Motor Vehicle Census, Australia, 31 Jan 2017.
[10] Commonwealth of Australian (Department of Environment) 2017, Australia’s emissions projections 2017, p. 12.
[11] Transport emissions includes rail, domestic shipping, domestic air and road transport.

vehicles accounted for 61 per cent of transport emissions in 2017, with cars accounting for 46 per cent and light commercial vehicles accounting for 15 per cent.

Overall fuel efficiency has improved considerably over the last four decades. In 2014 the Bureau of Infrastructure, Transport and Regional Economics (BITRE) released a study on the fuel consumption trends of new passenger vehicles sold from 1979 to 2013.[12] The BITRE found that before 2005, the improvements in vehicle technology that produced improved fuel consumption were somewhat offset by a change in the market to increases in power, weight and four wheel drive vehicles. The BITRE also reviewed the performance of the entire light vehicle fleet and found that since 1980;

> *"…the fuel intensity of entire light vehicle fleet has decreased a total of about 12.8 per cent"*

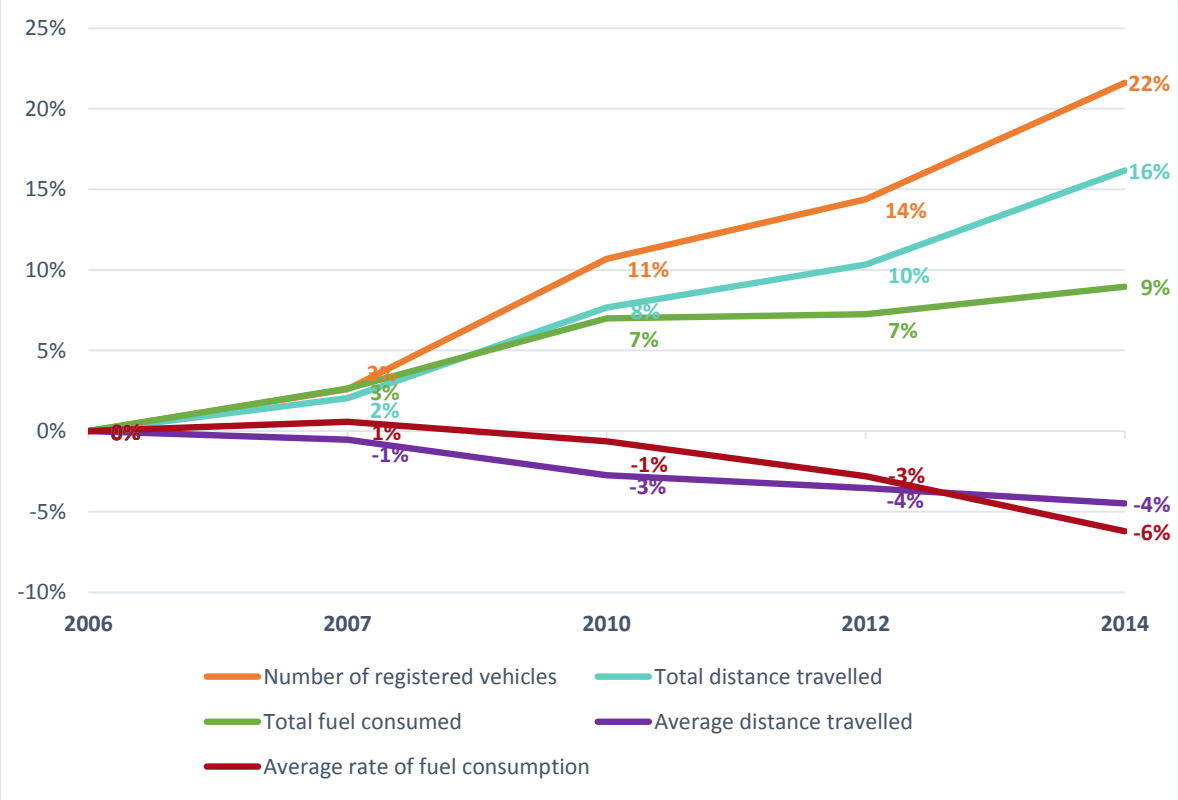
This is supported by the Australian Bureau of Statistics Survey of Motor Vehicle Use.[13] When considering the percentage change in use of light vehicles over the period 2006 to 2014 (Figure 2.1):

- The numbers of registered light vehicles increased by 22 per cent;
- The total distance travelled by light vehicles increased by 16 per cent and the average distance travelled by each light vehicle decreased by four per cent; and
- The total fuel consumed increased by nine per cent while the average fuel consumption of a light vehicle improved by six per cent.

The yearly improvements in fuel consumption of new light vehicles lead directly to a reduction in both CO_2 and pollutant emissions.

However, the Department of Environment found that transport greenhouse gas emissions have steadily increased since 1990 and are projected to continue to increase.[14]

Figure 2.1 – Changes in Light Vehicle Use: 2006-2016



[12] Australian Government, Bureau of Infrastructure and Regional Economics (BITRE), 2014, *New passenger vehicle fuel consumption trends, 1979 to 2013, Information* Sheet 66, BITE, Canberra.
[13] Australian Bureau of Statistics (ABS), 9208.0 – Survey of Motor Vehicle Use, Australia, 12 months ended 31 October 2014, 15 October 2015, ww.abs.gov.au
[14] Commonwealth of Australian (Department of Environment) 2015, Australia's emissions projections 2014-15, pp. 19-20.

2.3 The importance of government policy in deploying lower-emissions technologies.

Whilst not the sole determining factor, Federal Government policy initiatives play a key role in the deployment of new low-emissions technologies in Australia. Through the Australian Design Rules, the Government has introduced successively more stringent pollutant emission standards for vehicles. New light vehicles (passenger cars, SUVs and light commercial vehicles) introduced into Australia need to meet the 'Euro 5' standards (ADR 79/03 introduced from 1 November 2013 and ADR 79/04 introduced from 1 November 2016).[15]

The tightening of vehicle emissions regulation, especially the progressive introduction of Euro 1, 2, 3, 4 and 5 standards, has helped to improve air quality in Australian cities in recent decades. A 2013 study by the CSIRO for the Victorian Environment Protection Authority (EPA) found that by 2030 total motor vehicle exhaust emissions will have significantly reduced and that improved technology is entering the vehicle fleet at a faster rate than growth of vehicle use.[16]

As lower-emission internal combustion engine technology advances, Australia's regulatory framework will need to adapt to new global standards for lower CO_2 and noxious emission. Australia has effectively agreed to adopt the next generation of 'Euro 6' standards by agreeing to "apply"[17] United Nations Regulation 83 (UN R83). This regulatory framework will enable automotive importers to introduce lower-emission internal combustion engine technology, depending on the available market fuel (including diesel engine vehicles) in Australia at that time.

The FCAI has prepared a holistic strategy for the reduction of vehicle emissions across the Australian vehicle fleet. This includes the introduction of compatible fuel standards, a CO_2 emissions reduction target and the introduction of Euro 6 standards. This strategy is summarised in the graphic in Appendix B.

2.4 Future light vehicle powertrains

The internal combustion engine will remain the predominate powertrain for Australian light vehicles out to 2030. Research conducted for the FCAI by IHS Advisory Services,[18] and presented to the Government, in 2016 concluded that;

> *"The internal combustion engine (ICE) will be the dominant source of power in passenger cars through to 2030. Hybrids will expand significantly (but they still have ICE's in them). Pure EV's will be niche."*

The BP Energy Outlook 2018 edition[19] supports this view and estimates that the global car fleet will double from 1.2 billion cars in 2020 to just under 2 billion in 2040. While the number of electric cars will increase from three million in 2020 to around 150 million in 2035, it will only be eight per cent of the global fleet.

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[15] Vehicle Emissions Standards, www.infrastructure.gov.au [accessed 5 January 2017]

[16] EPA Victoria, Future air quality in Victoria-Final Report, Publication 1535 July 2013

[17] Once a UN Regulation has been "applied" Australia has an obligation (under the "Mutual Recognition" provisions of the 1958 Agreement) to accept UN Approvals issued by any other Contracting Party (CP). The basic principle is that when a CP agrees to "apply" a UN Regulation, the Regulation is regarded as being consistent with that country's national legislation. Therefore a vehicle that conforms to an "applied" Regulation must be allowed free access to that country's market, without the imposition of additional mandatory requirements.
The benefit of Australia "applying" a UN Regulation is that Australia will have access to vehicles that comply with later (than specified in the ADR "Alternative Standards" clause) versions of UN Regulations without the need for additional certification approval. That is, vehicles meeting later safety or environmental standards will be certified without additional administrative workload for either the Government or industry.

[18] Paul Haelterman, IHS Advisory Services, Global Automotive Regulatory Requirements: Regulatory Environment and Technology Roadmaps, February 2016

[19] BP Energy Outlook 2018 edition, https://www.bp.com/en/global/corporate/energy-economics [downloaded 25 July 2018]

BP considers the key drivers for the uptake of electric vehicles (including plug-in hybrid electric vehicles and battery electric vehicles) are[20]:

- Fuel economy standards.
- The pace at which battery costs continue to fall;
- The size and durability of subsidies and other government policies supporting electric vehicle ownership.
- Improvements in fuel efficiency of internal combustion engine vehicles; and
- Consumer preferences.

[20] BP Energy Outlook 2017 edition, www.bp.com/energyoutlook

3.0 RESPONSES TO THE INQUIRY TERMS OF REFERENCE

Main Points:

- The cost of zero and low emission powertrain technologies, including battery electric vehicles, will likely reach a level of price parity with traditional internal combustion engines by the mid-late 2020s.
- Price parity will result from falling battery technology prices as global production reaches critical mass – particularly in China.
- Government incentives will be critical to accelerate the take up of low-emissions vehicle technology before the mid-to-late 2020s.
- Direct financial incentives (such as subsidies for zero emission vehicle purchases) play a critical role in accelerating electric vehicle uptake by lessening the price differential with traditional internal combustion engine vehicles.
- The Federal Luxury Car Tax and five per cent import duty[21] on vehicles, including zero emission vehicles, acts as a brake on new environmental and safety technologies entering the Australian market.

3.1: Measures to support the acceleration of electric vehicle uptake (matter C)

Government incentives are generally necessary to incentivise the adaptation of new technologies at a rate beyond organic market growth. Until global investment in zero emission vehicle production brings about price parity with internal combustion engine powertrains, government incentives will be critical in accelerating zero emission vehicle take-up in Australia.

Global analysts forecast that the cost of zero/low emission powertrain technologies, including electric vehicles and hydrogen fuel cell vehicles, will likely reach a level of price parity with traditional internal combustion engine vehicles by the mid-late 2020s. Prior to this point, the cost of battery technology results in a considerable price differential between zero emission vehicles and internal combustion engines. Bloomberg forecast parity in the United States medium car segment in 2025, noting that:

> *"Automakers planning to sell electric cars between now and 2020 will struggle to make a profit, as electric vehicles will cost up to a quarter more to manufacture than equivalent combustion vehicles."*[22]

Bloomberg also noted that prior to price parity, automakers will struggle to meet the demands of policy makers who seek a rapid early take-up in EVs:

> *"This puts automakers in a difficult position since regulatory pressures require a quick ramp-up in EV sales starting around 2020. Falling battery costs will push EVs to price parity and beyond only between 2025 and 2029, depending on the segment.*[23]

The global critical mass of zero emission vehicle production required to reach price parity with internal combustion engine vehicles will largely result from increasing production and purchases in mass markets, especially China. McKinsey and Company reported that China accounted for 43 per cent of global electric vehicle production in 2016, with the country's fleet now the largest in the world.[24] New electric vehicle registrations increased by approximately 70 per cent in China between

[21] Imported from countries with which Australia does not have a Free Trade Agreement (FTA) in place. The import duty applying to FTA countries is 0%.
[22] Bloomberg New Energy Finance, 'Electric Cars to Reach Price Parity by 2025', 23 June 2017, https://about.bnef.com/blog/electric-cars-reach-price-parity-2025/, accessed 26 July 2018
[23] Ibid.
[24] P. Hertzke, N Müller & S. Schenk, 'China's electric-vehicle market plugs in', McKinsey Quarterly, July 2017, https://www.mckinsey.com/featured-insights/china/chinas-electric-vehicle-market-plugs-in, sourced 26 July 2018

2015 and 2016, which was largely off the back of monetary subsidies that accounted for approximately 23 per cent of the total price for a representative midsize electric vehicle. [25]

International comparisons demonstrate that in the absence of direct government support, the take-up of zero emission vehicles in Australia will remain low and will rely upon technologies reaching economies of scale globally before the local market is likely to respond.

3.1.1: Package of incentives required:

The FCAI supports in-principle the priority reforms contained within the recent joint New Policy Proposal by the NRMA and the Electric Vehicle Council *Recharging the economy – Accelerating electric vehicle adoption*. This proposal recommends that government/s[26]:

1. Prioritise the rollout of charging infrastructure;
2. Utilise government fleet purchasing as a means to stimulate early demand;
3. Introduce short-term measures to reduce the upfront cost of purchasing electric vehicles;
4. Reduce Australia's reliance on imported liquid fuels;
5. Prioritise electric vehicles and establish an inter-governmental working group; and
6. Promote industries associated with electric vehicles.

Where relevant, government incentives to accelerate the take-up of low and zero emissions vehicles should be technology-agnostic and support accelerated take-up of other electrified low-emissions powertrain technologies, including established hybrid powertrains and hydrogen fuel cell vehicles.

3.1.2: The role of incentives in lessening the price differential with internal combustion engine vehicles:

In their joint June 2018 *Australian Electric Vehicle Market Study*, the Australian Renewable Energy Agency (ARENA) and the Clean Energy Finance Corporation (CEFC) noted that the slow take-up of electric vehicle technology in Australia lags behind the country's traditional early adoption of new technologies. The ARENA/CEFC study identified that a government incentives framework will be required to lower prices, support more models in the market and create a charging network[27].

Norway presently leads the world in electric vehicles as a percentage of the total vehicle fleet. As of 2016, the electric vehicle market share of new vehicles in Norway was approximately 30 per cent, with the internationally-significant update stimulated by a range of **financial incentives**, including:

- Exemption from Value Added Tax (similar to GST), which has a standard rate of 25 per cent[28];
- Exemption from road tolls;
- Low annual road tax; and
- Low annual electricity costs.

In addition, Norway also provided a range of **non-financial incentives**, including:

- A network of public charging stations;
- Access to dedicated bus lanes on roads;
- Free municipal parking; and

[25] P. Hertzke, N Müller & S. Schenk, 'Dynamics in the global electric-vehicle market', McKinsey Quarterly, July 2017, https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/dynamics-in-the-global-electric-vehicle-market, accessed 26 July 2018.

[26] Electric Vehicle Council and NRMA, *New Policy Proposal: Recharging the economy – Accelerating electric vehicle adoption*, 2018

[27] Australian Renewable Energy Agency (ARENA) / Clean Energy Finance Corporation (CEFC), Australian Electric Vehicle Market Study, Media Release, 21 June 2018

[28] Norway has standard VAT rate of 25 per cent, and a reduced rate of 15 per cent applies to food products. A further reduced rate of 10 per cent applies to public transportation services, hotel lodging, broad- casting charges, cinema shows, and some cultural and sporting services. Source 'KPMG Norway Country Profile', https://home.kpmg.com/xx/en/home/insights/2016/07/european-tax-norway-country-profile.html, accessed 10 August 2018.

- Free charging of electric vehicles.

The ARENA/CEFC Market Study highlighted a 2017 study by the Norwegian Electric Vehicle Association, which found that financial incentives had the strongest impact on decisions to purchase plug-in electric vehicles in Norway. The survey found that respondents rated all five financial incentives higher than the four non-financial incentives, with exemption from Value Added Tax the number one ranked incentive. The ARENA/CEFC Market Study noted that:

> *"This case study showed clearly that financial incentives, and particularly reductions in up-front purchase costs, are the incentives that impact most strongly on PEV purchase decisions, and that non-financial incentives play a supporting rather than a leading role."*[29]

The FCAI supports the removal of the Luxury Car Tax and the five per cent import duty[30] on all imported vehicles, including electric vehicles. The recent joint New Policy Proposal by the NRMA and the Electric Vehicle Council recommends abolishing the Luxury Car Tax, noting:

> *"With domestic vehicle manufacturing now ceased, there is an opportunity to lower the price of electric vehicles by removing the Luxury Car Tax or putting in place an exemption for new electric vehicle purchases."*[31]

The FCAI calls for the abolition of the Luxury Car Tax and import duty on all vehicles. In the context of advancing vehicle CO_2 emissions and improved safety technologies, both taxes acts as a brake on new environmental and safety technologies entering the Australian market. Abolishing these taxes removes a current financial impediment to the greater take up of low-emissions technologies across the global powertrain mix.

3.1.3: The role of broader government policy settings:

In addition to the role of direct policy measures such as financial and non-financial incentives, government policy makers will need to factor the rise of higher take-up of zero emission vehicles in forming policy in other areas. One particular area is the impact of home-charging and public direct current charging infrastructure for battery electric vehicles. There are two challenges to address on this front:

- *Macro-level:* the additional demand on electricity across the entire national grid; and
- *Micro-level:* the localised demand at times of peak charging load, and its impact on the local electricity grid (i.e. at a sub-station and local distribution level).

Policy makers and energy regulators will need to plan for this increase in demand. Furthermore, for zero emission vehicle take-up (at the expense of internal combustion engine vehicles) to have a marked impact on overall economy-wide emissions, energy to power battery electric vehicles will need to be sourced from cleaner sources of generation such as renewable energy.

In contrast, hydrogen fuel cell vehicles are not reliant on electricity supply to source power, and as such do not place a burden on electricity grids. It is possible for the roll out of hydrogen refuelling infrastructure to be integrated into existing petrol stations, which would ensure consistency in the user experience for motorists in comparison to traditional internal combustion engine vehicles.

[29] Australian Renewable Energy Agency (ARENA) / Clean Energy Finance Corporation (CEFC), Australian Electric Vehicle Market Study, Prepared by Energeia, May 2018, 21 June 2018, p. 2.
[30] Imported from countries with which Australia does not have a Free Trade Agreement (FTA) in place. The import duty applying to FTA countries is 0%.
[31] Electric Vehicle Council and NRMA, *New Policy Proposal: Recharging the economy – Accelerating electric vehicle adoption*, 2018, p. 13.

3.2 How Federal, State and Territory Governments could work together to support electric vehicle uptake in Australia (matter E)

Differing levels of government each play a potential role in assisting the acceleration of zero emission vehicle take-up. Federal, State and local/municipal levels of government each have the ability to provide financial and non-financial incentives for zero emission vehicle ownership. Examples of incentives available to government are included in the following table.

Table 3.1 – Range of possible government incentives for zero emissions vehicles, including battery electric and hydrogen fuel cell technologies

Federal Government	
Financial incentives:	Direct incentives
	Import duty relief
	Luxury Car Tax relief
	Goods and Services Tax (GST) discount
	Income tax rebates
	Innovation funding for low emission technologies
Non-financial incentives:	Primary industry exemptions
	Building standards to include EV recharging and other infrastructure such as hydrogen fuel cell refuelling
	Government fleet purchasing
State Government	
Finanical incentives:	Registration cost discount (across all states)
	Stamp duty discount (across all states)
Non-financial incentives:	Home electric vehicle recharging
	Building standards to include battery electric vehicle recharging and other infrastructure such as hydrogen fuel cell refuelling
	Transit lane access
	Exempt from tolls
	Government fleet purchasing
Local Government	
Non-financial incentives:	Transit lane access
	Free charging for battery electric vehicles and refuelling for hydrogen fuel cell vehicles
	Building standards to include battery electric vehicle recharging and other infrastructure such as hydrogen fuel cell refuelling
	Government fleet purchasing
	Free parking within central business districts (CBD)

The FCAI recognised the need for automakers to demonstrate leadership in developing industry-wide standards to assist in the growth of the zero emission vehicle market. Meeting growing demand requires investment in essential infrastructure, especially in private and public charging

facilities. A lack of this infrastructure is a barrier to further market growth, which is compounded by the absence of mandated charging standards applied consistently across the global zero emission vehicle market.

Recognising the need for rapid deployment of battery electric vehicle charging infrastructure, the FCAI membership has made a public commitment to supplying vehicles from 2020 that meet a set of international charging standards. Certainty in these standards within Australia will enable vehicle manufacturers and EV charging infrastructure providers to make investment in future electric vehicle-related product plans with reduced risk, and encourage government to develop programs to incentivise uptake of electric vehicles.[32]

The FCAI's policy statement on public electric charging infrastructure is included in Appendix A.

[32] FCAI Technical Statement on Electric Vehicle Charging Standards for Public Recharging Infrastructure, 18 September 2017 –*Appendix A*.

4.0 CONCLUSION

- A credible, yet realistic CO_2 vehicle emissions reduction standard is critical to stimulate investment in lower-emissions technologies for the Australian market. Through a realistic and achievable emissions reduction target, the FCAI supports a greater take-up of electrified vehicle technology in Australia.
- A technology-neutral approach from policy makers will ensure greater investment in new powertrain technologies. As such, governments should avoid 'picking winners' as industries develop and commercialise new technologies.
- The internal combustion engine will remain the dominant type of powertrain for vehicles out to 2030 and it is expected the majority of light vehicles introduced into Australia during this period will have gasoline direct injection engines.
- International developments in electrified vehicle technology and production indicate that these new technologies are unlikely to reach price parity with conventional internal combustion engine vehicles until the mid-to-late 2020s.
- Government incentives will be critical to accelerate the take up of low and zero emissions vehicle technology before the mid-to-late 2020s. International experience demonstrates that financial incentives, which narrow the price gap to internal combustion engine vehicles, are the primary determinant of more widespread adoption of zero emission vehicles by consumers.
- The FCAI supports in-principle the priority reforms contained within the recent joint New Policy Proposal by the NRMA and the Electric Vehicle Council *Recharging the economy – Accelerating electric vehicle adoption*, which includes measures to reduce the up-front cost of zero emission vehicles.
- The FCAI supports the removal of the Luxury Car Tax and the five per cent import duty on all imported vehicles, including zero emission vehicles. Abolishing these taxes removes a current financial impediment to the greater take up of low-emissions technologies across the global powertrain mix.
- The FCAI supports a harmonised national approach to regulating electrified vehicles in Australia, in particular the need for standardisation across national charging infrastructure.

APPENDIX A: FCAI STATEMENT ON ELECTRIC VEHICLE CHARGING

FCAI TECHNICAL STATEMENT ON EV CHARGING STANDARDS FOR PUBLIC RECHARGING INFRASTRUCTURE

18th September, 2017

FCAI / NEWS / CODES OF PRACTICE

BACK

Background

Electric Vehicles (EVs)[1] are set to increase in volume as manufacturers continue to meet increasingly stringent emissions standards. Key barriers to the consumer uptake of EVs are extended charging times and a lack of public charging infrastructure, the latter of which is compounded by the absence of mandated charging standards applied consistently across the global EV market.

Certainty in charging standards within Australia would enable vehicle manufacturers and EV charging infrastructure providers to make investment in future EV-related product plans with reduced risk, and encourage government to develop programs to incentivise uptake of EVs.

To encourage the uptake of EVs and the rollout of public recharging infrastructure, Australia's vehicle industry has decided to make a commitment to harmonise national EV charging standards.

FCAI Member Commitment

With this in mind, FCAI member companies have agreed to provide vehicles and Electric Vehicle Supply Equipment (EVSE) capable of operating with infrastructure which adopts the following standards for EV charging on all new models introduced from 1st January 2020.

General IEC 61851-1	Electric Vehicle Conductive Charging System, General Requirements
AC Charging AS IEC 62196-2	Plugs, socket-outlets, vehicle connectors and vehicle inlets Configuration Type 2
DC Charging IEC 62196-3	Configuration AA CHAdeMO or Configuration FF CCS Type 2

FCAI members may, at their option, introduce changes to existing models which will enable these vehicles to take advantage of the infrastructure complying with these requirements.

Public Charging Infrastructure

In agreeing to this vehicle configuration, FCAI recommends that public charging infrastructure adopts:

AC Charging: IEC 62196-2 Configuration Type 2 socket, and

DC Charging: Both IEC 62196-3 Configuration AA (CHAdeMO) and IEC 62196-3 Configuration FF (CCS-2) with tethered cable.

[1] EVs refer to all light road vehicles (ADR categories MA, MB, MC and NA), including battery electric vehicles (BEV) and plug-in hybrid electric vehicles (PHEV), that derive all or part of their energy from a rechargeable energy storage system (RESS)

CODES OF PRACTICE ARCHIVE

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APPENDIX B HOLISTIC ACTIONS REQUIRED TO REDUCE EMISSIONS ACROSS AUSTRALIA'S VEHICLE FLEET