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Committee Secretary  
Department of the Senate  
PO Box 6100  
Parliament House  
Canberra ACT 2600

Email: [electricvehicles.sen@aph.gov.au](mailto:electricvehicles.sen@aph.gov.au)

To Committee Secretary

**Senate Select Committee on Electric Vehicles  
to  
inquire into the use and manufacture of electric vehicles in Australia**

**1. Introduction**

1.1 The Motor Trades Association Queensland (MTA Queensland or the Association) responds to the Senate Select Committee on Electric Vehicles *inquiry into the use and manufacture of electric vehicles in Australia*. The MTA Queensland's comments are submitted on behalf of its constituent divisions and are confined to issues which relate to the interests of Queensland's automotive value chain which inter alia includes: franchised new car dealers, independent mechanical and motor body repairers, recyclers and other discrete automotive technology and service providers.

1.2 The terms of reference encompass:

- a. *the potential economic, environmental and social benefits of widespread electric vehicle uptake in Australia;*
- b. *opportunities for electric vehicle manufacturing and electric vehicle supply and value chain services in Australia, and related economic benefits;*
- c. *measures to support the acceleration of electric vehicle uptake;*
- d. *measures to attract electric vehicle manufacturing and electric vehicle supply and value chain manufacturing to Australia;*
- e. *how federal, state and territory Governments could work together to support electric vehicle uptake and manufacturing, supply, and value chain activities; and*
- f. *any other related matters.*

**2. Overview**

2.1 The electric powered vehicle revolution represents a unique opportunity for Australia to secure a next generation of economic advancement and deliver a broad range of benefits from restructuring and reforming logistics, technological and environmental infrastructures. There will be significant disruptions that will need to be managed by all governments to develop enabling statutory frameworks to facilitate and regulate the implementation and operation of electric powered vehicles.

**Motor Trades Association Queensland**

**Address** Freeway Office Park, Building 8, 2728 Logan Road, Eight Mile Plains Qld 4113 [Postal PO Box 4530, Eight Mile Plains Qld 4113]

**Telephone** +61 7 3237 8777 | **Toll Free** 1800 177 951 | **Email** [info@mtaq.com.au](mailto:info@mtaq.com.au) | **Website** [www.mtaq.com.au](http://www.mtaq.com.au)

2.2 Australia so far has experienced the initial phase of the most significant and transformative transportation change and energy application in its history. To date, electric vehicle technology has been confined mainly to the introduction of hybrid electric vehicles with dual and conventional propulsion.

2.3 The major phase of the transport revolution will be driven by the broad uptake of 'plug in electric' (PIE vehicles). These vehicles have the potential to restructure Australia's economy and reform the basis of national logistics and reconfigure the economic geography of metropolitan and regional centres. In addition, there is likely to be a profound impact on the business models of the private sector in response to the disruptions by PIE vehicle uptake and the decline of conventionally powered motor vehicles and commercial transportation.

2.4 Australia's economic geography shall play a significant role in the pattern and rate at which electric vehicle technology will be integrated in the nation's private and commercial transportation systems. It is likely that metropolitan centres will have a more rapid uptake of PIE vehicle technology and the adoption of autonomous vehicles.

2.5 Initially metropolitan and urban centres will be favoured, because the cost of dismantling conventionally powered vehicle infrastructure e.g. internal combustion engine (ICE) facilities and fuel retail stations and replacing these with PIE vehicle facilities - that is auto electrical repair stations and recharging stations - can be more effectively recovered from larger population centres. Australia's vast distances and decentralised demography means that conventional vehicles are likely to continue to play a major transportation role in rural and regional economies for a considerable time after PIE vehicles displace ICE vehicles in metropolitan centres.

2.6 Australia's urban and regional geography involves extended transport logistics and the new generation of batteries for electric vehicles enabling on average 500 kilometres of travel between recharging, soon to be upgraded to 1,000 km between recharging will eliminate the concerns the motoring public has about the suitability of electric vehicles for Australia's long distances. This innovation can be expected to remove a major obstacle to the uptake of electric vehicles.

2.7 The challenge for Governments will be to develop frameworks that both enable the adoption of the most advanced formats of vehicle technology while at the same time ensuring these frameworks have the competence to support ICE vehicles in those regions where the economic, commercial and social cost of the transition do not justify a change from conventionally powered transportation.

2.8 To date, the take-up of electric vehicles in Australia has been limited to approximately 4,000 units representing 0.1 per cent of total vehicle ownership which comprises fleet owners 64 per cent; private owners 34 per cent and 2 per cent Government operated vehicles. The demand for electric vehicles by Australia's consumers will accelerate. It is estimated that by 2025 there will be 230,000 electric vehicles on the nation's roads and this is expected to exceed one million by 2030. Worldwide, the number of electric vehicles sold has been growing at rate of 40 per cent annually in recent years (2011 – 2017).

2.9 The automotive value chain is on the cusp of a major transformation driven by innovation and the availability of new technologies capable of vastly improving the transportation services needed by the nation's growing demographic and socio-economic trends. To some extent this era is being unveiled now with the statutory preparation for the broader transition to electric and autonomous vehicles e.g. smart infrastructure such as road user pricing and traffic motoring networks. This is a mere glimpse of the benefits available. Ultimately, all stakeholders need to embrace the revolution that is the transformation to electric and autonomous vehicles and comprehend how transport services will be delivered in the future.

2.10 Below are the MTA Queensland's viewpoints in relation to the terms of reference.

### 3 Viewpoints

#### ***a. the potential economic, environmental and social benefits of widespread electric vehicle uptake in Australia;***

3.1 The potential economic benefits flowing from the introduction of electric cars are likely to be incremental over the near-term transition from ICE. Business models in most cases will require profound changes to adapt to the progressive change in vehicle propulsion technology. There is likely to be extensive structural change needed within the automotive value chain that will have repercussions for the transport sector and the national economy. These include:

- Fiscal impacts resulting from the decline from fuel taxes and petroleum excise duty in direct proportion to the uptake of electric vehicles requiring offsets with new measures such as user pay charges on road use
- Equity that vehicle owners currently hold in their existing motor vehicle assets is likely to decline exponentially as the resale value of ICE vehicles declines and displaced by PIEs
- Decline in automotive value chain profitability due to the uptake of electric vehicles e.g.:
  - Dealerships will need to rationalise as the basis for vehicle financing will need to transition to electric vehicle assets; vehicle servicing intervals will extend; spare parts and oil sales weaken; and used cars lose value in an over supplied market
  - Service stations and repair centres will rationalise as consumer requirements for fuel and repairs is substituted by recharge stations and auto electrical demand
  - Independent repairers without on-line vehicle data access will likely have difficulties in competing with Original Equipment Manufacturers (OEM) preferred dealerships
  - Used car ICE vehicle dealerships are likely to become redundant as consumer preference for electric vehicles increase. With the purchase of more electric vehicles as part of company and Government fleets and fleet cars being turned over on average every 3-5 years, the quantity of preowned electric vehicles is likely to increase exponentially and this second market will displace used ICE vehicle sales
  - Consumers will experience loss of value on their ICE vehicles when either trading up to an electric vehicle or for private sale
  - Recyclers of ICE spare parts will have limited sales opportunities but have enormous opportunities for innovation for the recycling of some 18.8 million registered ICE vehicles

3.2 In the medium to longer terms there are substantial opportunities for the evolution of new business models to take advantage of the changes such as those predicted by global trends:

- 13.4 million electric vehicles by 2022
- 90 per cent of vehicles in 2020 will feature connectivity
- The micro-mobility market is expected to explode, with over 125 models expected to be launched
- 26.2 million car sharing members using just 0.5 million vehicles in the US alone
- Over 50 cities world wide will have zero emission taxis
- 48 million connected cars by 2020

3.3 In contrast with the potential near term economic benefits, significant environmental savings will emerge with the transition to electric vehicles. The pollutant emissions of electric vehicles are significantly lower than that of ICE vehicles resulting in reductions in greenhouse gases, concentrations of fine particles, other air pollution, and noise. In the case of PIE vehicles, a zero operating emissions regime is achievable. Road and public transport battery/electric vehicles will help reduce CO<sup>2</sup> emissions and their lower operating costs can be expected to reduce the costs of road transport.

3.4 Whilst the transition to electric vehicles will introduce substantial environment benefits, there are future environmental concerns relating to the disposal of lithium batteries and almost 20 million redundant ICE vehicles. For each of these problematic issues, there is the potential for innovative solutions providing new business opportunities. In the instance of lithium battery waste, according to the Commonwealth Scientific and Industrial Research Organisation (CSIRO) this could exceed 100,000 tonnes in less than 20 years. Considered as hazardous waste, CSIRO is pushing for Australia to become a leader in recycling the batteries. The CSIRO report indicated that Australia could lead the world in the re-use and recycling of lithium-ion batteries. If recycled, 95 per cent of components can be turned into new batteries or used in other industries. Australian could recover \$813 million to \$3 billion by recycling the batteries.

3.5 It may be appropriate for legislative frameworks at all levels of Government require the OEMs selling battery equipped vehicles to take environmental responsibility for the recycling of those batteries at the end of the vehicles life.

3.6 The widespread electric vehicle take-up will have substantial social benefits including:

- reducing air pollution thus lessening the likelihood of related diseases and death and increasing average life expectancy;
- increased mobility through a range of shared autonomous commuter vehicles; shared electric bicycles; scooters and motorcycles. In the United States of America research indicates that some 26 million people will share 500,000 electric vehicles under shared mobility options.

***b. opportunities for electric vehicle manufacturing and electric vehicle supply and value chain services in Australia, and related economic benefits;***

3.7 The major OEM electric vehicle manufacturing sector will be heavily contested requiring large amounts of capital as well as considerable technology resources. In addition, the OEMs and the automotive value chain will need to undertake paradigm changes and implement new business models. Traditional cost and revenue centres such as program servicing and spare parts retailing as well as the trading of used vehicles in the traditional ICE used business model are unlikely to generate the highly lucrative revenue streams in the electric vehicle era. Electric technologies indicate that servicing cycles are likely to be extended to three to four-year periods and spare parts demand is likely to be low.

3.8 Further, the lifespan of electric vehicles maybe longer than ICE vehicles, and with autonomous vehicles ushering in an era of commuter vehicle sharing or pooling the demand pattern for vehicle ownership may undergo a paradigm change with a smaller number of vehicles meeting the transport needs of future communities.

3.9 This does not preclude Australia in participating in the global automotive value supply chain. Australia always has been an effective supplier of components. The economics of vehicle manufacture tends to indicate the most important component is the battery pack. The geographic sourcing of these items can be expected in large part to determine the architecture of the future electric vehicle manufacturing. Tesla has demonstrated the economic power that battery manufacturing confers on an OEM electric vehicle producer.

3.10 Australia has the necessary resources in graphite, lithium and ferrous radicals as well as other potential materials and the research and development and the technical capabilities to develop a world class battery industry. This endeavour would require the unequivocal support of all levels of Government as the competition for this future industry will be intense. There will be the economic imperatives for OEMs to manufacture batteries 'in-house'. Also, there will be national interest imperatives, as national sovereignty and national economic issues that will initiate Government support for the establishment of domestic manufacturing industries and the negotiation of secure supplies of raw materials to support these developments.

3.11 All levels of Government in Australia need to appreciate the cost and commitment to securing a battery industry that is capable of operating in the automotive global supply change would be high. Commensurately the economic and social benefits will be considerable and long lasting.

3.12 The MTA Queensland has invested in the establishment of an innovation hub – the MTAiQ for the automotive industry and is the first of its type in Australia. It is located in a specially designed space within the MTA- Queensland precinct. Its purpose is to cultivate a community of entrepreneurial minds that can collectively collaborate to develop concepts into commercial outcomes for the automotive sector. This hub brings together mentors, investors, coaches, commercial partners, and industry experts to collaborate on digital disruptive and emerging technologies. It assists existing and new start-up automotive businesses to develop models to capitalise on those opportunities created by new technology.

3.13 A 'start-up' under the aegis of the MTAiQ - *ACE Electric Vehicles* with an operational base in Maryborough, Queensland, has agreements on a new patented manufacturing process for electric vehicles. The aim is to release its first electric vehicle by the third quarter of this year with two more scheduled to be marketed in 2019. Currently, there are two models, a utility vehicle, dubbed the Yewt, and a commercial transportation vehicle in a cargo van configuration. Prices will be below \$35,000 for each of the vehicles. Initially, the vehicles' carbon fibre components are being built in China but assembled in Australia. The business model is based on manufacturing being relocated to Australia once demand exceeds 10,000 units per annum. A downside to the uptake of the Yewt, is that initially, it has to compete with the 'tradie's ICE ute' which may retail for as little as \$20,000 per unit.

3.14 Presently, it seems there are two major electric vehicle manufacturers - Bustech, South Australia and Avass, Victoria which focus on the commercial and public transport manufacturing sector. These have the potential to lead in the uptake of electric vehicles to service Australia's transport sector.

3.15 Business is investing in the emerging energy storage sector. The Queensland Government has contributed funding for a feasibility study for a proposed \$2 billion lithium-ion battery factory to be situated in Townsville. This facility is intended to have the capability of delivering batteries for residential, automotive and renewable energy storages. In addition, the southern hemisphere's first high tech manufacturing facility producing low cost lithium-ion batteries optimised for warmer climatic conditions is being established in Darwin.

3.16 The MTA Queensland is a consortia member with Local Motors (Sage Automation – South Australia) engaged in a project with local councils to trial two autonomous Olli (electric) shuttle buses for local operations by the end of the year.

3.17 It is noted that Sanjeev Gupta's GFG has under consideration the manufacture of a niche electric vehicle in Australia within three years located either in South Australia or Queensland. The business plan calls for an annual production run of about 30,000 units.

3.18 From the perspective of the MTA Queensland, considerable electric automotive related innovative and technological research and development are being undertaken with the potential to progress to commercial manufacturing over time. The MTAiQ has a 3D printing enterprise as a tenant and the intention is that Advanced 3D printing may have the capacity to support opportunities in customisable and upgradeable, rapid vehicle development and recyclable materials.

***c. measures to support the acceleration of electric vehicle uptake***

3.19 It is the MTA Queensland's view that it is essential that Government provide the statutory framework and policies to support the acceleration of electric vehicle uptake by the private sector and commercial transport providers. Business and consumers must have confidence in the economy to either invest or purchase.

3.20 In terms of electric vehicles, currently, the market lacks broad brand and model choice and competitive price ranges compared with ICE vehicles. It seems there are 16 electric vehicle models on sale in Australia – 13 of which are over \$60,000. This will inevitably change. Bloomberg Energy Finance estimates that electric and conventional vehicles will achieve price parity by 2025.

3.21 A first-hand report of one traveller who drove a Tesla S around Australia (20,396 kms) without problems, informed that the paucity of reliable and uniform electric charging infrastructure is a significant impediment to the take-up of electric vehicles. Where there is a Tesla charging facility (identified via a Tesla App) and if maintained, charging time is quick -half hour. In many other instances, slow charges of 10 AMPS were the norm which required overnight charging or to opt for generated power used to supply industrial power at service stations. Essential for the trip were power cords and variety of adapter plugs for different sockets. In a nutshell to relieve 'recharge anxiety' the priority should be the provision of uniform, reliable and maintained charging infrastructure. The vehicles range was in the vicinity of 370 kilometres. At no time were there power concerns. It was reported also that the economic cost of recharging was a number of orders of magnitude lower when compared to a conventional ICE vehicle's fuel equivalent cost.

3.22 OEMs are forecasting the phasing out the production of combustion engines and this is being institutionalised by statutory bans in many jurisdictions: for example, Volvo has indicated from 2019 it will build only hybrid and electric vehicles; General Motors has announced that it has 20 new electric models under design; Jaguar and Land Rover has announced all new model lines from 2020 will be electric; and Volkswagen, the world's biggest car maker, is targeting three million electric vehicle sales per year by 2025.

3.23 Additional measures to support the acceleration of electric vehicle uptake include:

- Government corporations and business cyclical transition of their ICE vehicle fleets to electric vehicle fleets;
- fast chargers installed in convenient safe locations where there are existing amenities such as shops, restaurants, hotels, motels and parking and service stations. The Queensland Government in collaboration with local councils and other partners has rolled out the electric super highway from Cairns to the Gold Coast to encourage the uptake of electric vehicles
- reduction in battery costs by minimising compliance costs
- increased electric vehicle driving range between charges. It is noted that some OEMs are promoting models with a range above 500 km. It is anticipated that the next generation of electric vehicles will incorporate batteries with a range of 1,000 kilometres
- Continuation of contestable innovation funding programs
- the Electric Vehicle Council champion the uptake of electric vehicles and undertake a concerted social media advertising campaign promoting the environmental benefits and cost savings accruing from electric vehicles

***d. measures to attract electric vehicle manufacturing and electric vehicle supply and value chain manufacturing to Australia;***

3.24 see above.

***e. how federal, state and territory Governments could work together to support electric vehicle uptake and manufacturing, supply, and value chain activities***

3.25 The MTA Queensland considers that it is imperative that Australia's jurisdictions work together to provide a harmonised statutory framework for electric and autonomous vehicles. This view is based on our participation in Commonwealth Government agency consultations pertaining to the transition from ICE vehicles to electric vehicles and responses to various Regulation Impact Statements. Government has undertaken a significant body of work on the future policies and regulations to support the implementation of electric and autonomous transport vehicles.

3.26 Initiatives on which Federal, state and territory Governments should work together include:

- fiscal reform to replace petroleum excise duties and state fuel revenue taxation and preparation for electric vehicle state registration fees and third-party insurance premiums
- prioritising electric vehicles for fleet replacements
- harmonisation of charges and regulatory requirements
- harmonisation of road rules
- harmonisation of specifications for recharging plugs in the same way that fuel nozzles are standards.

#### **4 Conclusion**

4.1 We would be please to provide further comment on any matters in our submission that may require further clarification or amplification.

#### **5 Background**

5.1 The MTA Queensland is the peak organisation in the State representing the specific interests of businesses in the retail, repair and service sector of Queensland's automotive industry located in the State. There are some 15,500 automotive value chain businesses employing approximately 88,500 persons generating in excess of \$20 billion annually. It is an industrial association of employers incorporated pursuant to the *Fair Work Act* 2009. The Association represents and promotes issues of relevance to the automotive industries to all levels of Government and within Queensland's economic structure.

5.2 The Association is the leading automotive training provider in Queensland offering nationally recognised training, covering technical, retail and the aftermarket phases of the motor trades industry through the MTA Institute - a registered training organisation. It is the largest automotive apprentice trainer in Queensland employing trainers geographically dispersed from Cairns to the Gold Coast and Toowoomba and Emerald. The MTA Institute last financial year accredited courses to in excess of 1,600 apprentices and trainees.

Thank you for your deliberation.

Yours sincerely



Dr Brett Dale DBA  
Group Chief Executive Officer  
MTA Queensland