



**The Australian Electric
Vehicle Association est. 1973**

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Dear Senator Storer,

Thank you for the opportunity to contribute to this important discussion about this now disruptive technology, set to revolutionise transport and energy in Australia. Since 1973, the Australian Electric Vehicle Association (AEVA) is a not-for-profit, volunteer-run association dedicated to promoting electric vehicle (EV) technology. Our organisation seeks to educate and inform the public about all EVs including cars, bikes, buses, boats and aeroplanes. Our members represent early adopters, enthusiasts and end-users of EV technology. We take an interest in all forms of electrified transport; land, sea, air and space, as well as public and private vehicles, recreational and licensed. The AEVA exists as a federation of state branches with an elected National Executive. Several of our branches have already submitted contributions to this select committee with specific observations, data and recommendations.

On behalf of the membership of the AEVA, the Executive would like to offer this distillation of measures within the terms of reference, which we believe will accelerate the transition to electrified mobility.

All forms of motorised transport will benefit from electrification – the technology is **cleaner, quieter, safer and more reliable** than the internal combustion engine (ICE). **Poor urban air quality due to motor vehicle exhaust is a major cause of hospitalisation and mortality** due to respiratory illness [1, 2]. Unlike ICE vehicles, **EVs may be powered by locally generated electricity, decreasing our dependence on imported fuels and affording significant savings for the nation and improved terms of trade**. When charged from a grid like the National Electricity Market, **an EV will still produce less CO₂-e emissions per kilometre than petrol or diesel**, despite the high proportion of coal in the mix [3]. Even when emissions from battery manufacture are included, the EV will still emit less CO₂-e over its lifetime [4]. Crucially, **electricity may be generated from renewable sources like solar, wind and hydro, effectively reducing total transport emissions to zero** [5]. Despite what some politicians might say, electricity is cheap and set to get cheaper as more decentralised generation is installed on rooftops and hillsides. **Driving an EV is two to three times cheaper per kilometre than petrol or diesel** in all states of Australia.

Unfortunately the progression to electric propulsion in Australia is far too slow. The reasons for this are well known. Right now **there are very few EVs available to choose from**. This is because electric car manufacturers are reluctant to enter a small and highly competitive vehicle market like Australia without certainty around sales projections. Manufacturers lack the incentive to bring low emission vehicles to the Australian market **due to the absence of emission standards** for passenger vehicles. **Australia still has restrictive legislation around the private importation of new vehicles** which is keeping globally popular EV makes and models from our roads. Those automakers who do choose to bring models into Australia must charge high prices for their vehicles, while **federal taxes and state government duties add substantially to the sticker price**. Registration and licensing **sees no discounts for low emission vehicles**. Further to this, **charging infrastructure is still relatively uncommon** and early adopters have been stung with **inconsistency of standards for EV plugs and sockets**. Drivers of EVs are also **confused about how fringe benefits tax arrangements** impact on their use of private EVs at work, or charging work vehicles at home.

We have prepared a list of recommendations, somewhat in order of urgency, which we believe will alleviate these impediments to EV uptake and encourage industry to build the technology here. Many of these recommendations may be enacted at all levels of government.

- **Introduce strict emissions regulations on all new passenger vehicles, motorcycles and light trucks sold in Australia** – Australia risks becoming the dumping ground for inefficient ICE vehicles if emissions regulations are not brought in. By mandating a limit of 105 g CO₂-e/km manufacturers will be incentivised to offer low- and zero emission vehicles for sale in Australia. This will ensure there is a viable and competitive market for EVs and plug-in hybrids.
- **Encourage EV and EV component manufacturing in Australia** – Australia has a wealth of knowledge and expertise in automobile manufacturing which is at risk of being lost for good. Electric vehicles are technically easier to build and require less intensive facilities than comparable ICE vehicle manufacture. Automation and standardisation of many processes has resulted in increased efficiencies which were not possible in years past. Low interest loans underwritten by the Commonwealth should be afforded to businesses who manufacture electric vehicles here in Australia. There exists a strong case for the manufacture of electric buses and trucks, as electrified heavy haulage offers massive cost savings compared to diesel [6]. Manufacturing of electric seafaring vessels should also be supported and develop the expertise this nation holds in specialised shipbuilding. Support should also be afforded to chemical processors to develop plants making feedstock for battery manufacture. Finally, a significant boost to academic and industrial research institutions like the CSIRO and Australian Universities is essential if we are to enhance our capacity in advanced materials sciences and battery technology. Battery technology should become a field of major national significance for ARC Discovery and Linkage grants.

- **Mandate that federal, state and local government vehicle fleets be comprised of EVs where applicable** – Fleet vehicles in government departments are purchased brand new as bulk-buy arrangements offer cost savings. The fuel and maintenance savings to a department by running EVs are substantial. This is also the fairest and most cost effective means to bring more EVs into the second-hand market without distorting the value of the new car market.
- **Support the roll-out of fast charging infrastructure** – As the number of EVs steadily grows so too does the need for fast charging infrastructure on our roads and highways. The RAC of WA, Queensland state government and NRMA have shown leadership in this regard, but more needs to be done. We call on all levels of government to invest in the infrastructure that supports the nation and fund the construction of charging stations critical to future mobility.
- **Embrace the Type-2 charging standard as Australia’s national charging standard.** This is important for preventing further delays in infrastructure roll-outs. DC fast charging should also shift to the CCS-2 standard [7]. Financial support should be offered to convert vehicles over to this standard, where applicable.
- **A national program for collection and recycling of lithium ion batteries should be established and supported** – Recycled lithium batteries will soon become a valuable resource for new battery cell manufacture, with research suggesting known raw material reserves alone may not satisfy global demand [8].
- **Remove any legislation which prohibits the private importation of right-hand drive EVs** – There are about 200 different makes and models of plug-in vehicles around the world, many of which are made in right-hand-drive. The current legislation still prohibits the private importation of these vehicles. New Zealand currently enjoys substantial EV growth because of this freedom.
- **Retain the current fuel excise on petrol and diesel sold in Australia, while making a transition towards a usage-based cost recovery scheme.** Most Australians are happy to pay for the roads they drive on, proportional to how much they drive. A per-kilometre levy which takes into account vehicle mass could be applied to all vehicles. The existing levy on petrol and diesel should be retained as is. This would work at several levels; it discourages consumers from buying a polluting ICE vehicle, it encourages automakers to offer more EVs for sale in the country, and it supplements the cost of road maintenance proportional to how often they are used.
- **Amend any tax legislation pertaining to workplace vehicle use so that it fairly compensates drivers of EVs** – Current tax arrangements relate only to liquid fuels, service and upkeep of ICE vehicles. Employees who wish to claim electric vehicle expenses are confused by the existing tax provisions, and in some cases the legislation encourages profligate use of salary sacrificed ICE vehicles. Clarifying these rules will make EVs for work use more appealing from an accounting perspective. Likewise, workplaces who offer EV charging should be supported,

particularly since workplace charging reduces evening peak loads on the electricity grid [9].

- **Remove the Luxury Car Tax on all EVs** – Electric vehicles are currently more expensive than equivalent sized ICE vehicles. The LCT adds significantly to the cost of an EV, and would be an easy cost reduction for consumers once repealed. The LCT is protectionist in nature and no longer relevant today.
- **Reduce or waive annual registration fees for EVs** – Vehicle registration represents a small proportion of the annual licensing fees for all vehicles in Australia. State governments should incentivise the switch to electric cars and motorcycles.
- **Remove stamp duty on all new EV sales (including motorcycles and scooters) and discount it for second-hand vehicles** – State governments collect duties on all new and used car sales. This is based on the value of the vehicle and for most EVs can be quite substantial. By removing stamp duty on EV sales consumers will save thousands on EV purchases, making the technology more accessible.
- **Waive the GST on all new EV purchases for a 3 year period** – GST applied to new vehicles represents a massive additional cost on the purchase of a new EV. As a means to rapidly encourage EV sales, this discount would be well received.
- **Encourage the use and uptake of electric bicycles** – electric bicycles are a fantastic, low-cost way to get more people out of cars and alleviate congestion and air quality issues on urban roads. Supporting electric bicycles through purchase rebates, salary packaging, improved cycling infrastructure, and relaxing regulations on model availability (particularly with respect to power-assist levels) will greatly enhance uptake and deliver tangible health benefits to the community.

We call on the federal government to prioritise this matter. Global warming emissions from the transport sector are rising and electrification is the quickest way to reverse the trend. Transport energy security is a very serious issue and any disruption to our current supply chains spells economic ruin within a week. Australia must be a world leader on zero emissions electricity generation and take advantage of the abundant resources we are blessed with. Electric vehicles are the only transport solution which assures energy security, financial independence and a safe climate for future generations to enjoy. Please consider the AEVA's submissions, and if you have any further queries, contact us.

Sincerely,



Mr Greg Partridge, President AEVA



Dr Chris Jones, Secretary AEVA

References:

- [1] Z. Chen, M.T. Salam, S.P. Eckel, C.V. Breton, F.D. Gilliland, Chronic effects of air pollution on respiratory health in Southern California children: findings from the Southern California Children's Health Study, *Journal of Thoracic Disease* 7(1) (2015) 46-58.
- [2] D.L. Buckeridge, R. Glazier, B.L. Harvey, M. Escobar, C. Amrhein, J. Frank, Effect of motor vehicle emissions on respiratory health in an urban area, *Environmental Health Perspectives* 110(3) (2002) 293-200.
- [3] J.B. Dunn, L. Gaines, J.C. Kelly, C. James, K.G. Gallagher, The significance of Li-ion batteries in electric vehicle life-cycle energy and emissions and recycling's role in its reduction, *Energy and Environmental Science* 8 (2015) 158–168.
- [4] R. Nealer, D. Reichmuth, D. Anair, Cleaner cars from cradle to grave - How electric cars beat gasoline cars on lifetime global warming emissions, *Union of Concerned Scientists* 2015.
- [5] The state of electric vehicles in Australia, *Climateworks Australia*, 2017, pp. 1-19.
- [6] A.E. Potter, W. Dong, Autos, trucks, and advanced mobility - Tesla truck withstands scrutiny (w/ caveats) based on v3.0 of EV payback model, *PiperJaffray*, 2018.
- [7] Combined Charging System 1.0 specification - CCS 1.0, *CharIN*, 2017.
- [8] J. Diekmann, C. Hanisch, L. Froböse, G. Schällicke, T. Loellhoeffel, A.-S. Fölster, A. Kwade, Ecological recycling of lithium-ion batteries from electric vehicles with focus on mechanical processes, *Journal of The Electrochemical Society* 164(1) (2017) A6184-A6191.
- [9] S. Speidel, T. Bräunl, Driving and charging patterns of electric vehicles for energy usage, *Renewable and Sustainable Energy Reviews* 40 (2014) 97–110.