

SUBMISSION to the SELECT COMMITTEE on ELECTRIC VEHICLES

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Introduction about myself and Tesla Owners Club Western Australia

I have been working on filling the gaps in charging points in WA for three years, after my first Tesla arrived in February 2015, and am responsible for over 75 of the Charging points and Tesla destination chargers in this state.

I negotiated the AESY programme to build a 100kms 3 phase grid on every main road in Western Australia. Synergy supplied seventy 3phase 32amp 22kw sockets, and we formed a team composed of three TOCWA (Tesla Owners Club WA) and three AEVA (Australian Electric Vehicle Association) members to ring locations who might be prepared to install these sockets and make them available to EV Owners.

We have nearly completed this programme, assisted by Horizon Power in the Kimberley, and they now form part of the Round Australia Route on Route 1. However these sockets only provide 50 to 100kms of range per hour, and require the EV owner to carry an EVSE (electric vehicle supply equipment) to connect the 3phase supply to the cars.

I, and other owners, have driven to Broome, Adelaide, Esperance, Hyden etc using these charging points, and two Teslas has already driven round Australia.

I am also the Secretary of the Tesla Owners Club WA and meet most new owners and assist them with charging cables and adaptors, and explain the charging points available in the State. About half the owners in WA belong to the Tesla Owners Club WA, and we arrange Drive and Meets and Loan of charging cables and adaptors for long trips.

Addressing the terms of reference

(a) the potential economic, environmental and social benefits of widespread electric vehicle uptake in Australia;

It is accepted that that noxious emissions from tail pipe exhausts kill more people per year in Australia than road accidents. This should be a sufficient reason by itself to accelerate the transition to EVs.

Tesla in particular is leading the way with autonomous driving which is much safer than human driving, even in the current beta stage, since the human has to drive with the autonomous system by holding the wheel and letting it slip through his fingers. Even if driving in manual mode, the car will warn the human of a dangerous situation and can take over if the human does not react in time.

CO2 emissions, as opposed to noxious emissions, are also already reduced despite the emission of CO2 in generating the electricity. As the grid becomes cleaner this balance will swing further in favour of EVs.

Eventually car ownership may be reduced as all cars become autonomous and can be summoned from the street for just the trip required. The autonomous cars will drive safely on the roads in closely packed traffic, and so the requirement for new roads will be reduced.

We have sufficient sun, wind, hydro, coal, gas, uranium, lithium to generate our own electricity, but have to import most of our petrol and diesel. The transition to Electric cars will help our balance of payments considerably.

Further the stockpile of Fuel necessary to keep ICE (Internal Combustion Engine) transport going in times of crisis, will be reduced.

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

Australia and West Australia in particular mine all the materials required to make batteries. In fact half the world's supply of Lithium is mined in WA. Refineries are now being built, but the next stage is to build the batteries. Tesla met with the State government in WA last month, since they anticipate requiring another 5 gigafactories in addition to their first one in Nevada. Peter Newman of Curtin university explained this well on the Science show <http://www.abc.net.au/radionational/programs/scienceshow/lithium-boom-for-western-australia/9950634> . All motor manufacturers are now offering EV cars, and all will require batteries.

(c) measures to support the acceleration of electric vehicle uptake;

The most important single measure to support the uptake of EVs, is to ensure the infrastructure is in place for DC fast charging the vehicles. The initial investment in infrastructure need not be large, since private enterprise will take over once the critical mass has been reached as it is happening in Europe with both BP and Shell installing fast DC chargers in their servos.

This will eliminate range anxiety and remove the one disadvantage EVs currently have.

In WA we are discussing with the State Authorities 40 DC chargers which will cover all Main Roads in WA in a 200kms grid. If the State authorities can arrange the locations and site works and electricity connection, it would only require about \$1,000,000 to buy the 40 DC charging stations.

The RACWA Electric highway DC charging stations provide up to 250kms of range per hour, since they bypass the on-board charger/rectifiers and so can deliver 50kW to the cars.

There are DC charging stations which can deliver more power (eg 120kW from Tesla Super Chargers) but these are more expensive. However, some key locations will probably need the more powerful units.

TOCWA and AEVA therefore propose that about forty 50Kw DC chargers with CCS2 and CHAdeMO tethered leads are installed in a 200kms grid on all Main Roads in WA, except the towns already covered by the RAC Electric highway in the South West down to Augusta.

We submitted the following preferred locations for this network of DC charging stations.

ALBANY ROUTE HIGHWAY	ESPERANCE ROUTE	NULLARBOR ROUTE	KIMBERLEY ROUTE	GREAT NORTHERN
Fremantle/Armadale	Kulin	Cunderdin/Merredin	Jurien Bay	Dalwalinu
Williams/Kojonup	Wagin	Southern Cross	Geraldton	Mount Magnet
Albany	Hyden	Coolgardie/Kalgoorlie	Kalbarri	Meekathara
Walpole	Jerramungup	Norseman	Billabong RH	Kumarina
	Ravensthorpe	Balladonia RH	Carnarvon	Newman
	Esperance	Caiguna RH	Coral Bay	Marble Bar
		Madura RH	Nanutarra RH	
		Border Village/Eucla	Karratha	

RH

South Hedland
Sandfire RH
Eco Beach
Resort
Broome
Derby
Fitzroy Crossing
Halls Creek
Warmun RH
Kununurra

190

150

180

200

250

**Average kms
between
locations**

Other measures which will help, until price parity with Internal Combustion Engine cars (ICEs) is reached, is to offer free parking and travel in bus lanes (like in some European cities).

An education campaign should be commissioned to explain that EVs can go anywhere, can charge wherever there is a kettle if necessary, are most usually charged at home from offpeak or solar PV, and have very low maintenance and much cheaper refuelling costs.

An anomaly which should be corrected is that the Luxury Car Tax threshold for fuel efficient cars is \$75,526, which is higher than the \$66,331 for other cars, but all cars can only be depreciated from the Luxury Tax limit of \$57,581 .

- (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

The Federal government should agree with the States which will support Battery Manufacture and which will support EV manufacture, and then assist them to start these industries.

Thank you for this opportunity to make a submission, and we look forward to positive recommendations from the Committee so that Australia can take advantage of this new industry.

David C Lloyd

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Secretary Tesla Owners Club Western Australia
Member of AESY team distributing 3phase sockets in WA.
Member of Australian Electric Vehicle Association.