



27 July 2018

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

Ask for: Bill Millard
Phone: 9932 1096
Our Ref: A2910897

Dear Sir/Madam

Parliament of Australia's Senate Select Committee on Electric Vehicles

I am writing in response to the Senate Select Committee on Electric Vehicles. Council appreciates the opportunity to contribute to this inquiry.

On 12 June 2018, Council endorsed a plan to install electric vehicle charging stations (EVCS) in the municipality with the aim of trialling the technology and promoting it to the public. Charging stations will be installed at Council offices to support EV trials and Council will work closely with the private sector to encourage the provision of EVCS. This trial recognises the many economic, environmental and social benefits of electric vehicle uptake.

We look forward to enhancing collaboration between governments of all levels to proactively support the uptake of electric vehicles.

If you would like to discuss this submission further please contact Bill Millard, Director Strategic Development on 9932 1096 or email bmillard@hobsonsbay.vic.gov.au.

Yours sincerely,

Aaron van Egmond
Chief Executive Officer



Hobsons Bay City Council Submission to the Senate Select Committee on Electric Vehicles

Hobsons Bay is situated on Port Phillip Bay, between approximately six and 20 kilometres south west of Melbourne's central business district. It covers an area of approximately 66 square kilometres featuring residential areas, large expanses of environmentally significant open space and a range of major industrial complexes, which contribute significantly to the economy of Victoria. It is home to approximately 93,392 residents.

On 12 June 2018, Council endorsed a trial of electric vehicle charging stations in each of the three wards of the municipality, at Council offices to support EV trials, and to collaborate on initiatives with the private sector to support EVCS projects. This trial recognises the many economic, environmental and social benefits of electric vehicle uptake and also the need for proactive support by all levels of governments to realise these benefits.

This initiative represents a key step to the implementation of Council's Integrated Transport Plan 2017-30 which places emphasis on taking advantage of new and emerging technologies, including electric vehicles. Council's Community and Corporate Greenhouse Strategies pledge to achieve a zero net emission target by 2030 and 2020 respectively. Electric vehicles and reduced car-based travel have the potential to make important contributions towards these targets.

A response to each items included in the terms of reference of the Senate Select Committee on Electric Vehicles inquiry into electric vehicles is provided below.

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

The economic, environmental and social benefits of widespread electric vehicle uptake are many and are becoming more widely known. A number of recently published reports have provided detailed modelling outlining these benefits. *Recharging the economy; the economic impact of accelerating electric vehicle adoption*¹ authored by Electric Vehicle Council, PricewaterhouseCoopers, NRMA and the St Baker Energy Innovation Fund (the economic impact report) is one such report. This report highlighted an economic impact assessment of an electric vehicle (EV) growth scenario for Australia similar to that recently experienced by Norway which assumes an increased rate of EV uptake, i.e. in Australia by 2030, 57 per cent of new car sales (or 576,000 units) will be a battery electric vehicle, up from a baseline of 2,500 in 2017. This assessment represents what could be considered 'widespread electric vehicle uptake' and Council and its community stand to gain from these benefits in the following ways.

Economic

It was anticipated that this level of uptake would provide direct economic benefits nationally of increasing GDP by \$2.9 billion, increasing net employment by 13,400 and \$3.2 billion net investment in charging infrastructure. From a Hobsons Bay perspective, we could foresee direct economic benefits from this increased uptake. Council's share of this increased GDP and employment may be realised through revitalised vehicle and component manufacturing facilities, such as those offered by Toyota in Altona North. Due

¹ <http://electricvehiclecouncil.com.au/wp-content/uploads/2015/05/Recharging-the-economy.pdf>



to our strategically located industrial and employment precinct which is close to the Port Melbourne and intermodal ports, warehousing facilities could be used for new vehicles and charging infrastructure. We also see a role for EV tourism whereby visitors are drawn by convenient charging infrastructure. This is currently being pursued as part of Council's trial of EVCS.

For individuals, EVs are cheaper to run than conventional vehicles due to minimal servicing costs as a consequence of the smaller number of moving parts and cheaper fuel costs as vehicles can be charged overnight at home accessing cheaper electricity rates. The aforementioned report claims that consumers would be saving \$1,700 a year in ownership costs. At a national level the reduction in fuel imports would improve Australia's terms of trade due to less reliance on imported oil and fuel. This will be a challenge for our community with Hobsons Bay being home to some of the key petrochemical industries for Victoria and being a key employer.

Environmental

The environmental benefits of widespread electric vehicles uptake is of vital importance to reducing Australia's greenhouse gas emissions and in meeting our obligations under The Paris Agreement within the United Nations Framework Convention on Climate Change. Electric vehicles emit zero emissions at the tailpipe compared to fossil fuel based internal combustion engine vehicles (ICEVs) and if charged with renewable energy sources do not emit any emissions at all apart from those in the manufacturing process. The economic impact report discussed above, modelled the reduction in carbon dioxide equivalent (CO₂e) emissions by 2030 if EV uptake was widespread and found emissions would be reduced by eighteen megatons, the equivalent of taking eight million petrol vehicles off the road. As renewable energy will represent an increasing proportion of the electricity mix and battery capacity improves, EV emissions are estimated to further fall. The report also argues that lowering emissions in the transport sector will be a relatively low cost way of helping to meet Australia's Paris Agreement obligations.

Social

Vehicle travel can generate a number of negative impacts to those living in the vicinity of busy roads. This can range from loss of amenity due to noise to more serious health issues and reduced life expectancy associated with air pollution linked to ultrafine particulate emissions particularly associated with diesel vehicles. Hobsons Bay residents are impacted by the negative effects of vehicle travel due to their proximity to major transport corridors and freight routes including, the West Gate Freeway. With the completion of the West Gate Tunnel, the associated widening of the West Gate Freeway and the redirection of trucks, an increase in traffic is projected. This will increase the exposure of residents to noise and air pollution along local roads, and the adjacent schools and shops in the area. There is evidence that noise issues can also have a significant impact on the mental and physical health of residents whose homes are in close proximity to busy roads. Electric vehicles due to their electric motors emit less air pollutants than ICEVs and are also much quieter, providing some amelioration of the negative impacts of conventional vehicles.



Other benefits

Electric vehicles can be viewed as another element within the electricity generation system. At the national level the Australian energy market operator (AEMO) insights paper: electric vehicles, found that the 20 year impact of electric vehicles on energy consumption is projected to be small, adding almost four per cent to 2035–36 projections for electricity use in Australia². This would not significantly add to the total energy consumption as the increasing installation of solar power and energy efficiencies are already leading to reductions. EVs could however play a role as a form of mobile energy storage that could help support the energy system as their on-board batteries can also feed energy back into the grid. EVs could be programmed to recharge the battery at cheaper off-peak times, typically at night, to avoid peak demand times, and use this energy during the day either for driving the car or supplying electricity to the building or grid.

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

There are a number of opportunities for electric vehicle manufacturing and electric vehicle supply and value chain services in Australia and these are expected to increase as the uptake becomes more widespread. Whilst the shift to EVs will bring decreased demand for ICEVs and services associated with them, it is anticipated that the shift will be relatively gradual and will bring with it many opportunities. The economic impact report identified that widespread uptake of EVs will increase GDP by three billion dollars and increase net employment by 13,400 backing up this claim.

The shift away from light ICEV vehicle manufacturing in Australia caused disruption in Hobsons Bay due to the closure of Toyota. Manufacturing contributes over 24 billion dollars of economic output for Melbourne's West which is worth over six billion dollars to the local economy in Hobsons Bay. This represents 54 per cent of total economic output within the municipality (Remplan August 2015). However, this sector is resilient and there remains capacity and expertise in the areas of vehicle design, heavy vehicle manufacturing, conversions, component manufacturing and servicing. Supporting and leveraging the existing advanced manufacturing and engineering companies will help take advantage of growth opportunities in EV technologies, such as the ability to develop and construct equipment and components.

There is also the opportunity for highly skilled workers, particularly those employed in transition industries such as automotive and ship building to transfer these skills into the production of high tech, advanced EV equipment and components. There are many other businesses that have appropriate expertise that would allow expansion and diversification

² https://www.aemo.com.au/-/media/Files/Electricity/NEM/Planning_and_Forecasting/NEFR/2016/AEMO-insights_EV_24-Aug.pdf



into EV technologies, however they require assistance, at least initially, to make this transition. The Australian and Victorian Governments are encouraged to provide direct assistance to guide and mentor businesses through an expansion and/or diversification process. This could include assistance with business planning and market analysis, streamlining regulatory processes and facilitating conversations between stakeholders in relevant sectors to promote sharing of first-hand experiences.

Compared to ICEVs, EVs are less complicated to manufacture due to fewer moving parts thus requiring a less complex assembly line. In addition, new manufacturing processes and vehicle design technologies such as the Gordon Murray Design iStream³ process means that levels of automation are higher. Combined, these two factors make low-volume production more cost effective, reducing the impact of high labour costs, and increasing the likelihood that EVs could be manufactured locally. Australia's educated workforce can support such innovative new systems and bring about a competitive advantage.

Batteries are a high cost component in an EV and so are an attractive part of the supply chain to focus investment and support. Australia is in the unique position of having sizeable deposits of lithium as well as all the other metals required for the production of batteries like cobalt, copper, manganese, nickel, vanadium and tin. Supporting the local processing of such metals and investment in battery manufacturing, could bring about massive benefits, even if ultimately EVs themselves are not manufactured here. A local battery industry could also promote an associated recycling industry which would ensure that batteries are suitably managed at the end of their useful life, as well as providing feedstock to battery production as part of a circular economy.

c. measures to support the acceleration of electric vehicle uptake

Overseas, electric vehicles sales are much stronger than in Australia and are rapidly expanding. According to Macquarie Bank⁴, in 2017 in the key markets of China, the United States of America, Europe, Japan and Canada, electric vehicles accounted for two per cent of new sales, up from one per cent in 2016. In terms of numbers, this represents one million vehicles, up from 740,000 in 2016, representing an increase of 51 per cent. Higher sales can be partly explained by a larger model range which in itself is driven by local production, government incentives, and vehicle manufacturer strategies which target larger markets.

Based on international experience, measures Government could implement are:

- **modifying vehicle emissions standards** - the current Australian vehicle emissions standards are based on Euro five and in 2017 this means that the average emissions of new car sales in Australia was 181.7g/km. This compares very poorly with the more stringent Euro six standard adopted in the EU since

³ <http://www.gordonmurraydesign.com/en/istream.html>

⁴ <https://www.businessinsider.com.au/the-rapid-growth-in-global-electric-vehicle-sales-in-4-charts-2018-1>



2015 and where average emissions of new cars is now just 118.5g/km. As a minimum the introduction of the Euro six standard would act as a catalyst for cleaner vehicles although the high sulphur content in Australian fuels would also need to be addressed as these cannot be used in many fuel efficient engines.

- **support for rollout of EV charging infrastructure** - the lack of publicly available charging infrastructure is a barrier to the uptake of EVs. The issue of range anxiety, whereby an EV driver is anxious that they will not be able to complete their journey, can be addressed through support to increase the availability of publicly available charging infrastructure. At the present time due to the low number of EVs on the road, a commercial charging network is unlikely to be viable and so financial support and leadership by Government is vital. State and local governments are well placed to be early partners but in the longer term it is likely a charging network with multiple layers of speed and cost and in suitable locations. These can include highways, 'fuel' stations, shopping centres, community facilities and places of employment that will emerge and be largely managed by the private sector. Range anxiety is probably overestimated however as most drivers will recharge their EVs at home, saving time and money. This highlights that providing education and increasing familiarity with the technology is just as important as public infrastructure.
- **establishing a national target for EV uptake and investing in EVs as part of the government vehicle fleet** - overseas, some countries are strongly encouraging a shift away from fossil fuel-based cars due to air quality and emission concerns. Seven countries have already committed to banning such vehicles by 2040 including The Netherlands, Norway (by 2025), India, China, France, Germany and the UK. In Australia, the ACT has committed to at least 50 per cent (and 100 per cent by 2020-21) of all newly leased ACT Government fleet passenger vehicles being zero emissions vehicles in 2019-20, where fit for purpose. Such targets provide leadership to business and the community, provide assurance to manufacturers that a local market exists, and in the longer term provides second hand vehicles so that EV technology is available to a wider demographic.
- **providing financial incentives to EV owners** - there are very few financial incentives for purchasing EVs in Australia, unlike many other countries, and this is suppressing the market. While EVs are cheaper to run over the life of the vehicle, the upfront costs most visible to buyers is anticipated to be higher than ICEVs equivalents until at least the mid-2020s. While some incentives exist they are small and could be improved. In Victoria, VicRoads currently provides a \$105.70 discount to the registration costs of a hybrid vehicle, something that could be built upon and increased. At a national level the Luxury Car Tax (LCT) threshold for the 2017-18 year for fuel efficient vehicles is \$75,526. While higher than for other vehicles, many fuel efficient vehicles still attract the tax providing little incentive. Regulation removing or increasing the LCT threshold for fuel efficient vehicles whilst simultaneously reducing the threshold for other non fuel-efficient vehicles and redirecting the tax could provide a cost neutral approach to incentivising fuel



efficient vehicles. Many other countries such as the UK provide grants to reduce the purchase price of EVs, covering up to 35 per cent up to a maximum of £4,500. Incentives need not always be so direct with Norway exempting electric vehicles from road tolls, parking costs and providing free charging at public charging stations and access to special lanes to optimise journey times. As a result, the cost of purchasing an EV for private use in Norway is lower than a comparable conventional car and the indirect incentives such as special lane access is estimated to provide approximately \$3,400 benefit (NOK16,000) per year.

- **providing grant programs for private sector investment** – experience overseas has shown that providing grants to the private sector towards electric vehicles and charging infrastructure can accelerate uptake and expose larger numbers of potential buyers to the technology if it is contained in private vehicle fleets. Grant programs indicate support for the technology while lowering the upfront cost.
- **requiring charging infrastructure through planning and development** – planning legislation could be used to increase the supply of EVCS in private car parks and ensure that they are able to support an increased uptake of EVs in the future. This has already occurred in a number of jurisdictions overseas such as California. The ACT has proposed to amend their Parking and Vehicle Access General Code to require all new multi-unit and mixed- use developments to install vehicle charging infrastructure as outlined in their Transition to Zero Emission Vehicles: Action Plan 2018-21⁵.
- **support a shift in consumer preferences as a result of increased consumer education and the availability of new EV models** – this is expected to occur naturally as incentives are introduced and promoted, however targeted education at certain segments of the market will undoubtedly assist accelerated EV uptake.

Government incentives and tax breaks as outlined above are required to promote the technology in Australia and drive higher uptake in the short term to realise social and environmental benefits. Over the medium term the economic benefits will likely become more apparent and mean that EVs will become a logical choice for individuals and the private sector. This is because technological advances are likely to improve the cost parity of EVs compared to ICEVs, reduce recharge times and extend driving range.

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

In emerging EV markets overseas where there is considerable local demand, electric vehicle manufacturing and associated businesses are already investing as evidenced by recent announcements by BMW and Tesla that they will build factories in China⁶. Local demand in Australia, appropriately encouraged and incentivised is likely to be one of the most important factors in whether local EV manufacturing occurs. Local demand in

⁵ https://www.environment.act.gov.au/__data/assets/pdf_file/0012/1188498/2018-21-ACTs-transition-to-zero-emissions-vehicles-Action-Plan-ACCESS.pdf

⁶ <https://www.pv-magazine.com/2018/07/12/bmw-tesla-open-factories-in-china-driving-ev-market-in-spite-of-trade-dispute/>



Australia is especially important as we are unlikely to be able to build a significant export market, especially now that China has emerged as the biggest global manufacturer of conventional vehicles with its significant competitive advantages.

Focusing on niche EV manufacturing, heavy vehicles and conversion of vehicles well suited to the Australian market's unique needs and characteristics should be supported as a way forward. Electric and hybrid buses are already being manufactured in Australia by suppliers such as Avass, BYD, Precision Buses and Volgren with the technology gaining momentum with operators due to the high cost savings and relatively short payback period. As mentioned in (b) above, Australia's competitiveness advantage in the field of EV manufacturing is likely to be our unique position to develop an integrated and circular battery manufacturing supply chain from mine to vehicle. The availability of cheap and secure renewable energy to power manufacturing will also be required, especially as many EVs are marketed on their environmental credentials and manufacturing reliant on fossil fuels is the antithesis of this.

The Victorian Government's \$20 million New Energy Jobs Fund (NEJF) support jobs in the area of renewable energy generation and greenhouse gas reduction including efforts to support the manufacture and assembly of EVs. The NEJF eligibility requirements include the support of manufacturing EV technology components and systems along with projects that enable industry to optimise, adapt or integrate commercially available EV technologies. This Fund has already seen employee's transition into new positions in Hobsons Bay and at a national scale could be used to provide support to transitioning to EV based jobs more generally.

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

As mentioned in earlier points, coordination between all levels of Government, including local government is vital. Appropriate levels of incentives and support for electric vehicles will increase the uptake and provide the necessary demand for vehicles and the associated manufacturing capacity and supply chain. Once this occurs it is likely that the private sector will respond with investment, indicating that a suite of incentives aimed at vehicles and charging infrastructure that is coordinated, well-considered and comprehensive is likely the best approach by Government.

The aspect where coordination is especially important is with regard to charging infrastructure and decisions about the type, location and provider as well as ensuring there is a common technical standard. This will ensure that EV drivers are able to travel interstate with confidence, that there will be operable charging infrastructure when needed, of the appropriate type available at a reasonable price. Coordination of the roll out of charging infrastructure will be especially important and a suitable approach, at least in the initial stages, may be to mirror how roads, car parks and motorways are currently managed, funded and maintained with a suitable split between Federal, State and Local Governments. It would be expected however that the private sector would play a much larger role and eventually manage operation of these assets, especially as the market develops and the commercial returns become worthwhile. As with road infrastructure there would be opportunities for support from higher tiers of Government for important projects and where there is market failure.



f. any other related matters

The Senate Select Committee Terms of Reference focus on Federal and State Government. Local government can play a vital role in assisting and promoting the expanded uptake of electric vehicles and like many others has many reasons to do so. Arguably, many local governments have been proactive in supporting the uptake of EVs in the absence of leadership by Federal and State Governments and as such already have local awareness of the needs of their constituents and are better able to engage with local communities and business.