



Australian Government
Infrastructure Australia

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Senator Tim Storer
Chair, Select Committee on Electric Vehicles
c/o Committee Secretary
Department of the Senate
PO Box 6100
Parliament House
Canberra ACT 2600

By email: electricvehicles.sen@aph.gov.au

Dear Chair,

Infrastructure Australia submission on Electric Vehicles

Infrastructure Australia welcomes the opportunity to contribute to the Select Committee on Electric Vehicles. As the nation's independent infrastructure advisor, we have a mandate to prioritise and progress nationally significant infrastructure. We also provide independent research and advice across all infrastructure sectors to governments as well as investors and owners of infrastructure.

Our comments in this submission relate to the following points:

- The inevitability of heightened electric vehicle adoption
- Electric vehicles' impacts on the transport and electricity sectors
- The potential for costs and benefits for the economy and the community
- The need for coordination between governments, industry and consumers to minimise the costs of the transition and maximise the benefits.

The electricity and transport sectors are undergoing a period of significant transformation

Across the electricity and transport sectors, traditional business models are being disrupted by new technologies, new markets and new ways of engaging with customers. The emergence of new technologies, including electrification, connectivity and automation, as well as new models of transport services, including shared, on-demand and subscription, offer a once-in-a-generation wave of disruption to the transport sector. These changes, coupled with a rapidly growing population and a fiscally constrained environment, bring challenges and opportunities.

Electric vehicles are inevitable and are likely to be a central thread linking the energy and transport sectors together. Managed well, the electrification of our private vehicles has the potential to bring benefits for motorists, the Australian economy and the community. However, without preparation, the transition could come at significant cost.

Infrastructure Australia is currently preparing a paper considering how to best manage the growing relationship between the transport and energy sectors. Our paper will provide a framework for Australia to maximise the benefits of the cross-sectoral convergence while avoiding the potential pitfalls of this transition. Australia's governments, industry and users should engage in a debate about how best to manage the growth of new



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transport technologies, including electric vehicles, in order to catalyse policy development and regulation that works in the best long-term interests of users and taxpayers.

Most pertinent to this Select Committee, our forthcoming paper will cover:

- Opportunities to maximise the benefits of electric vehicle uptake, while minimising the costs to users
- The risks and opportunities electric vehicles pose to the energy sector
- The potential economic, environmental, and social benefits of electric vehicle uptake
- On what scale, if any, electric vehicles should be incentivised.

Commercial investment in electric vehicles is growing

Australia has been slow in adopting electric vehicles. Sales of electric vehicles accounted for just 0.2 per cent of vehicle sales in 2017, which amounted to 2,284 electric vehicles. Consumers face a lack of vehicle choice, limited after-market support, sparse charging infrastructure and high upfront sticker prices. However, increased model availability, the deployment of private charging networks and continued improvements in battery technology will support a probable strong increase in adoption rates over the coming five to ten years.

Other nations have far more developed electric vehicle markets. In 2017, the number of electric vehicles worldwide crossed the threshold of one million electric vehicles. Globally, between 2016 and 2017 electric vehicles registered a 54 per cent increase, largely supported through an increase in model choice, reduced costs and consumer incentives.

Large manufacturers are shifting their investment from internal combustion engine (ICE) vehicles to electric vehicles. Many companies, such as Volvo and Jaguar Land Rover, are even pledging to end the production of ICE vehicles in the near future. Some international governments have gone as far as implementing bans on ICE vehicle sales from as early as 2025.

As vehicle manufacturers and their largest markets transition from ICE vehicles to electric vehicles and hybrids, Australia's reliance on vehicle imports will mean Australian consumers will have little choice but to follow suit. Without action to prepare for and make the most of this transition, we risk being left behind.

Users should be at the centre of all decisions

Reducing transport and electricity costs should act as a touchstone for securing the best outcomes for the community, and provide the foundation for a range of reforms. Regardless of the complexity of the challenges, decision makers' first and last question should be: what is in the best long-term interests of Australian households?

Both the transport and electricity sectors need clear, straightforward planning policies that acknowledge the inevitability of the electrification of the transport sector. In making decisions about efficiency, affordability, security and resilience, the primary consideration should be the long-term interests of the average user. This allows a wide range of stakeholders across both the transport and energy sectors to engage with the national reform effort.

Reform is required to minimise the costs of transition for users

Electric vehicles can increase Australia's productivity and economic strength while improving our air quality, reducing emissions, reducing traffic noise, promoting better public health outcomes, lessening our reliance on



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imported fossil fuels and allowing cheaper travel. With careful planning, policy coordination and potentially incentives, the benefits of electric vehicles can be realised sooner.

Customers and taxpayers are likely to foot the bill for delayed planning and uncoordinated electric vehicle adoption. Electric vehicles offer the opportunity to reduce transport costs that currently account for roughly 14 per cent of household expenditure. If governments do not properly plan, there will come a time when the Australian economy's competitiveness and productivity will be challenged.

A New South Wales Parliamentary Research Service report estimates that electric vehicles offer fuel savings, per 10,000 kilometres, of \$1,102 or \$472 in circumstances where there are high electricity costs. With less moving parts, maintaining an electric vehicle is also cheaper. By not having access to the most efficient vehicles, cost of living pressures will be exacerbated.

Governments need holistic and balanced policy approaches that mitigate and manage the risks of a transition to greater electric vehicle uptake. We need to consider what a beneficial electric vehicle future will look like, and what needs to be done to ensure that the transition from now until then is smooth, orderly and in the best interests of motorists, electricity consumers and taxpayers.

Electric vehicles carry significant risks and opportunities for the energy sector

The electrification of our motor vehicle fleet will forge links between the energy and transport sectors that did not previously exist. The risks posed to the energy sector by electric vehicles are manageable but more cooperation and discussion needs to occur between energy market bodies, utilities, and government departments and agencies.

An electrified fleet of vehicles could place additional demands on the grid and increase consumer costs. As the size of the electric fleet grows, so could the potential requirements for electricity generation and distribution, including peak demand.

The network infrastructure provided for current peak events, accounts for a significant proportion of existing household electricity costs. For instance, around one quarter of electricity bills in New South Wales are used to meet just 40 hours of high demand each year. Making sure electric vehicles do not contribute to peak demand is crucial to keeping costs down.

Electric vehicle owners are not provided with incentives to charge their vehicles at times when electricity supply is abundant and cheap during the day, or when demand is low in the middle of the night. This will require a mechanism to demonstrate to vehicle owners the most beneficial times to charge.

Presently, there is limited interaction between the transport and energy sectors that works to the benefit of users or networks more broadly. For example, electric vehicle users may charge their car batteries using home solar systems, but limited consideration has been given to the practical use of this stored energy fed back to the grid during times of high demand. There is also potential scope for demand in peak periods to be supplemented by distributed electricity storage. Enabling these responses will require appropriate pricing tariffs, smart meters and a coordinated industry and government response.

If we empower electric vehicle users using these mechanisms, we can reduce electricity costs and increase reliability.



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Balancing the right regulatory settings

Governments all over the world are attempting to find the right regulatory settings for electric vehicles. Australia's policies should be informed by best practice in comparable international jurisdictions. A well-informed approach led by a proactive government will be better equipped to avoid the expensive impacts of a poorly managed or sudden adoption of electric vehicles.

International jurisdictions have shown financial incentives to support electric vehicles are the most effective however, these come at an immediate upfront cost to taxpayers. Increasingly, the availability of charging infrastructure, particularly in settings like Australia where long journeys are common, can be effective in supporting adoption. The costs expended on incentivising electric vehicles should be aligned to the benefits of early adoption to users and the economy. Infrastructure Australia's ongoing work will aim to bring to the fore the quantifiable benefits of electric vehicle adoption.

A coordinated strategy incorporating energy and transport portfolio responses across national, state and territory, and local governments is necessary to manage the deployment of electric vehicles at the right scale and time. This should consider the necessary changes to policy and regulatory settings that maximise the benefits and minimise the costs of any transition. The development of a strategy should prioritise action over the next five to ten years during the period of rapid electric vehicle adoption as well as the necessary settings to support national competitiveness during the period to 2040 when electric vehicles will become dominant.

Next steps

Infrastructure Australia's work is ongoing, and it is unlikely that our paper will be available for submission within this committee's timeframe. We would be happy to provide further evidence to the Select Committee in response any questions arising as a result of this submission. Please contact Sophie Holman, Senior Advisor – Government Relations and Public Affairs

Yours sincerely

Peter Colacino
Executive Director, Policy and Research