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National
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Response to National EV Strategy

October 2022

Battery Storage and Grid Integration Program (BSGIP)
ANU Institute for Climate, Energy and Disaster Solutions

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Introduction

Australia's transition to electric vehicles (EVs) presents many opportunities for innovation and economic development. These opportunities require government leadership to ensure orderly change. We applaud the Department of Climate Change, Energy, the Environment and Water for undertaking this important consultation towards a national EV strategy.

This submission calls attention to some of Australia's existing strengths that should be leveraged for the public benefit in the transition to EVs. These include:

- Deployment of distributed energy resources (DER)
- Development of grid integration technologies
- Strong standards and regulatory environment

Australia is a world leader in deploying distributed energy technologies like solar and batteries, and developing innovative grid integration solutions like dynamic operating envelopes. Our existing technical strengths and strong standards are directly relevant to EV charging and present an opportunity to grow new industries in manufacturing and product design, building for Australian conditions.

At the same time, we must learn from the past in order to avoid creating new problems. There is now a strong evidence base for the need to prepare electricity grids for EVs, so that EVs can be an asset and support the grid rather than creating new peak load problems. A clear finding from our work on vehicle grid integration is that a good outcome will require the right standards, processes, and value mechanisms to be in place, and that this important issue should not be left solely to market mechanisms. In particular, support is needed to develop solutions that prioritise renters, apartment dwellers and other groups who are repeatedly and increasingly left behind in times of technological change.

We also wish to highlight Australia's rich car culture as a source of strength and opportunity. The engagement of automotive trades and enthusiasts in the EV transition will shore up the skills required and ensure the touted lower maintenance costs of EVs becomes a reality. Rather than seeing existing internal combustion engine vehicles as an impending waste stream, we should see them as future EVs. This also creates an opportunity to encourage local manufacturing. Australian-made vehicles and ancillary hardware can recognise our culture and be built for reparability and customisation. It is critical that we don't leave our existing vehicle support industry behind. Rapid reskilling should be a core part of this transition.

Finally, policymakers and everyday Australians require information that is trusted and based on local circumstances. We encourage the government to continue to fund research into many aspects of the EV transition to ensure that policy is evidence-based and integrates best-practice international experience.

Response to consultation paper

Question 1. Do you agree with the objectives and do you think they will achieve our proposed goals? Are there other objectives we should consider?

We agree with the objectives set out in the consultation document. Two additional focus areas could enhance the Department's objectives:

- An additional focus on Australian manufacturing and reparability would enable vehicles to have longer productive lives in often challenging Australian conditions.
- Innovation should be a core objective. This could include initiatives like reducing the scale of the problem (e.g. by encouraging public transport), or addressing key barriers such as EV charging in multi-unit dwellings.

Question 2. What are the implications if other countries accelerate EV uptake faster than Australia?

Australia's current lack of fuel efficiency standards leads to Australian vehicles having notably worse fuel efficiency than those in other countries. If Australia remains a global laggard on fuel standards and EV adoption we risk also becoming a dumping ground for inferior, inefficient vehicle models, and remaining low priority for EV exporters. This position also reduces Australia's ability to influence global development.

Accelerating EV uptake will be particularly important for technologies such as vehicle to grid, where Australia's low population density and weak electricity grid means that this technology could be particularly impactful.

Question 3. What are suitable indicators to measure if we are on track to achieve our goals and objectives?

Indicators must be clear, measurable, and audited. This could include fleet-wide measures like fleet EV makeup, fuel efficiency, carbon intensity or more specific local measures such as local manufacturing activity.

Regular measurement and publication of private EV penetration broken down by income category can help evaluate the effectiveness of policies intended to drive uptake in low-income households.

Question 4. Are there other measures by governments and industry that could increase affordability and accessibility of EVs to help drive demand?

In the EV transition it is important not to forget the role of innovation and skills development. This could include initiatives that help the existing fleet management industry transition to electric vehicles. Government support will be particularly critical in non-metro areas.

Direct financial support for EVs (e.g. removal of fringe benefits tax) is currently focused solely on support for fleets. Matching support should also be given to privately-owned vehicles in order to quickly transition all potential markets and avoid distortions between different market segments.

Question 5. Over what timeframe should we be incentivising low emission vehicles as we transition to zero emission vehicles?

The government should use direct incentives for any vehicle type with care. Direct subsidies should not have a role in the medium to longer term EV policy framework. Non-zero emissions vehicles should not receive subsidies.

Any direct subsidies, including tax exemptions, have high opportunity costs in terms of alternative uses of scarce public funding resources, and tend to have regressive distributional impacts. Subsidies and tax exemptions should therefore be limited with a view to phasing them out, and there is a case for not providing any fringe benefits tax exemptions. Support arrangements should be harmonized across all states and territories.

We advise removing or otherwise limiting support for plug-in hybrid EVs (PHEVs). PHEVs still emit substantial CO₂, with recent research suggesting substantially higher tailpipe emissions than standardised testing would indicate. Analysis based on vehicles nameplate emissions such as Sheng et. al suggests that PHEV vehicles offer emissions reductions compared to ICE vehicles. However real-world studies such as Plötz et. al found that PHEVs emitted four times higher emissions than their test cycles would suggest because PHEVs are rarely charged. Incentivising such vehicles risks slowing electrification (due to ongoing use of fossil fuel infrastructure) and wasting government funds that could be better used in areas with stronger potential for emissions reductions.

Question 6. What information could help increase demand and is Government or industry best placed to inform Australians about EVs?

Government and industry need to work together to provide timely, targeted, and relevant information on EVs. Industry is good at informing Australians on relevant products and service. Government should focus on messages that enhance public good and accelerate decarbonisation. This could include initiatives that mode shift to lower emissions intensity options (such as from driving to riding or public transport) or reducing the size of purchased vehicles.

The government could also co-ordinate with existing trusted bodies such as NRMA, RACV, etc. These bodies are already providing significant information about EVs.

Questions 7-10: Fuel efficiency standards

The Government should introduce fuel efficiency or emissions standards as a priority.

On the available evidence, fleet-wide fuel efficiency (or carbon dioxide emissions) standards will be effective in increasing supply of EVs in Australia, which at this point is the constraining factor to EV uptake.

Efficiency standards will very likely also lead to increased choice of EVs including in:

- lower price segments, crucial to broader EV uptake
- greater competition between car manufacturers, which will likely result in lower prices, and
- greater efforts by car companies to market EVs.

Fuel efficiency standards are of the highest priority for passenger and light commercial vehicles.

Fuel efficiency standards should commence at the earliest possible date. Timeliness of the effect on vehicle supply can be assured by government making a firm announcement that such a standard will come into effect at some date, ahead of determination of details. Design elements including penalties, monitoring and enforcement can be determined with a view to fuel efficiency standard systems operating in other countries.

The ambition for fuel efficiency standards should be set so that effective fleet wide emissions levels of new cars decrease rapidly. The targeted rate of change should be significantly higher than in most other developed countries, in line with the fact that the Australian average fuel efficiency is significantly lower (emissions higher) than in most other developed country markets. Australia has the opportunity to catch up quickly.

Fuel efficiency standards are in many respects a superior policy option to subsidies for EV purchases, because they do not involve a fiscal cost and in general will not increase the prices of vehicles of a particular type and quality. Rather, they work by incentivizing manufacturers to make available more EVs at attractive price points and to shift the supply of conventional vehicles toward more fuel efficient types.

Question 11. What policies and/or industry actions could complement vehicle fuel efficiency standards to help increase supply of EVs to Australia and electrify the Australian fleet?

The Battery Storage and Grid Integration Program's [EVs and the grid](#) report provides evidence-based examples of initiatives that can enhance vehicle electrification. Examples include:

- Encouraging local manufacture of EVs and related hardware
- Encouraging uptake into fleets with accelerated replacement cycles to foster a second hand market

Question 12. Do we need different measures to ensure all segments of the road transport sector are able to reduce emissions and, if so, what government and industry measures might well support the uptake of electric bikes, micro-mobility and motorbikes?

There is currently very low uptake of electric motorcycles in Australia. However electric micromobility (such as e-bikes and e-scooters) has seen much greater uptake. It is less clear how micromobility interacts with other transport modes. Motorbikes and micromobility offers a chance to reduce car dependence, but more research is required to understand how these should be implemented for the greatest impact.

An important prerequisite for greater uptake of electric bikes and micro-mobility is improvement of relevant infrastructure such as bike lanes, bike/scooter parking, and enhanced safety, including through greater separation of pedestrians and wheeled mobility. Such measures are usually in the realm of local governments. Federal government can support these through grants and guidelines.

Question 13. How could we best increase the number of affordable second hand EVs?

As described above there are four initiatives that could be considered to increase the number of affordable EVs in the Australian market:

- Facilitating easier import of second hand EVs will encourage import of low cost used vehicles
- Encouraging fleet uptake with accelerated turnover builds a second hand market as well as reducing risks for vehicle importers.
- Low-cost conversion kits for existing popular internal combustion engine vehicles could both increase supply of low cost EVs and reduce the waste burden of obsolete internal combustion engine vehicles.
- Participation of low-income households can be encouraged through policies and incentives that direct fleet-turnover towards them.

Question 14. Should the Government consider ways to increase the supply of second hand EVs independently imported to the Australian market? Could the safety and consumer risks of this approach be mitigated?

Second hand imported vehicles are cost-competitive with new imports. Harmonising Australian and international standards where possible can increase the supply and diversity of these vehicles. Particularly this should be considered for left hand drive markets.

Question 15. What actions can governments and industry take to strengthen our competitiveness and innovate across the full lifecycle of the EV value chain?

The Australian Renewable Energy Agency (ARENA) has played a large role in increasing innovation in the energy (and more recently transport) markets. However, to date ARENA initiatives have focussed on vehicle electrification and charging. ARENA could increase their impact by expanding scope to include initiatives that draw transport science and energy together more closely. For example, electrification could alter traffic flows significantly, leading to changes in how transport networks are built, operated, and planned.

Question 16. How can we expand our existing domestic heavy vehicle manufacturing and assembly capability?

Heavy vehicles are currently a gap in Australia's electrification. As noted by the EV council in their report [Electric trucks: Keeping shelves stocked in a net zero world](#), electrification and import of technology is hampered by lack of emissions standards and harmonisation of Australian and international vehicle standards.

Australia has a unique ability to leverage our long distances, harsh conditions, and car culture in this transition. Initiatives can encourage manufacture of robust and repairable vehicles suitable for our conditions. These vehicles can then be exported to other countries, particularly those with similar conditions.

Question 17. Is it viable to extend Australian domestic manufacturing and assembly capability to other vehicle classes?

Vehicles are just part of the supply chain. While local manufacture of EVs is beneficial, consideration should also be given to ancillary hardware such as chargers. Especially bidirectional chargers that comply with Australian grid codes. BSGIP's recent [Realising Electrical Vehicle to Grid](#) (REVS) project showed that Australia's unique grid codes are a barrier to import of bidirectional chargers.

Similarly, Australia has a strong vehicle modification culture. This can be leveraged to convert existing internal combustion engine vehicles to electric with low-cost conversion kits for common older vehicles. If this cost can be reduced to below that of major engine repairs (such as reconditioning), otherwise good vehicle chassis can have a much longer useful life. This reduces waste and emissions involved in vehicle manufacture.

Question 19. What more needs to be done nationally to ensure we deliver a nationally comprehensive framework for EVs?

In implementing these policies, the federal government should ensure it co-ordinates with state and territory governments. This ensures consistency and reduces the risk of conflicting signals from different levels of government.

Similarly, EV policy should not be developed in isolation of energy system integration. Home, public, and fast charging will all have different integration needs and co-ordination can improve the speed and effectiveness of the transition.

Furthermore, as proposed in a recent ARC Linkage proposal with industry and researchers across the ANU and the University of Sydney, the challenge in the development and deployment of an Australia-wide fast-charging infrastructure lies in the integration of this technology into power systems with resilience, safety, and efficiency guarantees. Programs that encourage uptake of fast chargers must ensure that grid integration is considered.

A comprehensive, nationally consistent framework for EVs will also require consistent taxation treatment of EVs. This relates to subsidies for purchases, rebates, stamp duty exemptions and the like; and importantly it relates to road use charges.

Comprehensive road tax reform will be needed, to ensure that EV owners/users contribute to the cost of the road network. GPS technology will allow differentiated charges by location and time. This in turn will allow congestion pricing and charging for externalities such as vehicle noise. Importantly it will also allow differentiated per-kilometre charges in urban and regional/rural/remote areas, both to better reflect costs and to tailor charges to equity considerations. Road tax reform is major tax reform, and consideration for it should begin soonest.

Question 20. How can we best make sure all Australians get access to the opportunities and benefits from the transition?

In developing policy, the Department should ensure that they take Australia's culture into account. For example, our strong car culture may mean the government could encourage vehicles that can be repaired by individuals or small independent workshops. Similarly, conversion kits can unlock faster electrification at overall lower environmental impact.

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