Submission to the Australian Government Department of Climate Change, Energy, the Environment and Water in response to the: National Electric Vehicle Strategy consultation paper

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We structure the present submission by responding directly to the questions posed in the (consultation) paper. The first three questions are:

1. *Do you agree with the objectives and do you think they will achieve our proposed goals? Are there other objectives we should consider?*
2. *What are the implications if other countries accelerate EV uptake faster than Australia?*
3. *What are suitable indicators to measure if we are on track to achieve our goals and objectives?*

Basic economic principles tell us that the host of policies that we choose to implement in Australia should result in market participants internalising the social cost of their actions in relation to climate change. In this setting, one difficulty that arises is that, individually, our actions are insignificant, even though collectively we change the climate. This difficulty is nowhere more evident than in the case of global vehicle emissions. Even at the Australian level, since 1.1% (2019 data) of global vehicle sales are in Australia, our actions will not have a major impact on climate change. Our policies are instead guided by the principle that we wish to be active participants in the global transition to net zero, not only because it is the right thing to do, but also because our economy may stand to benefit in a variety of ways many of which are listed in section 1.2 of the paper.

The potential benefits of the transition that are most closely related to the EVs are the following: health benefits of lower emissions; increased supply of suitable minerals for batteries; a new manufacturing base for batteries and other vehicle components that vertically integrates the EV supply chain.

Example. *An example of successful vertical integration and our capacity to supply, not only raw but,* refined materials *for batteries can be found in*

Gladstone, Queensland. In 2020, Alpha HPA commenced a project to produce high purity alumina (aluminium oxide) for batteries. The new process uses standard alumina that has been refined in Gladstone, Central Queensland since the 1960s when deposits of bauxite (the raw material for alumina) were discovered in Weipa, Far North Queensland. Moreover, this alumina uses Bauxite that is mined in Weipa, North Queensland.

A second, no less important, basic economic principle is that, in transforming our economy, we should strive to do so in the most economically efficient way. The economically efficient way to achieve global net-zero emissions by 2050 is via a uniform carbon price (UCP).[1] A UCP would provide an essential signal to guide economic agents to act in the collective interest. It would also reduce the need for sector and region-specific subsidies, taxes and regulations that distort agent behaviour and raise the cost of transition. In the absence of deeper international coordination, a global UCP is unattainable in the near future. Nonetheless, the over-arching goal of Australian government policy should still be to coordinate across divisions, be they departmental, sectoral or regional, and strive to implement policies that are congruent with a *national UCP*.

In relation to Q1: In a nutshell: the main goal/objective should be to ensure EV-related policies put us on a path towards a national UCP.

In relation to Q2: Battery technology is unlike other green technologies (such as solar panels and wind turbines) in that

- will evolve substantially over the coming decades if it is to support not only EVs, but also houses, industry and the grid itself.
- Australia has an existing comparative advantage in both the raw (and the refined) materials for batteries.

This presents a significant opportunity, and although Australia would not be a first-mover, innovation that leads to vertical integration in the future has the potential to, not only generate new jobs, but also secure existing jobs in the same supply chain (as highlighted in the alumina example above.

[1] `https://www.nature.com/articles/526315a`
`https://www.frbsf.org/economic-research/wp-content/uploads/sites/4/gollier_reguant_climate_chapter.pdf`

In relation to Q3: a national UCP would provide the most appropriate normative benchmark relative to which we should seek to measure and judge our policies. Identifying suitable indicators to benchmark current and future policies to a national UCP would be easier once an estimate of the optimal national UCP is established. Agreement on an optimal national UCP based on research is a necessary first step.

Against this backdrop, I now briefly address the three proposed objectives on page 6 (and sections 3.1, 3.2 and 3.3) of the consultation paper.

Demand objective: encourage rapid increase in demand for EVs. If policies are to encourage a rapid increase demand, then they also need to encourage an equally rapid increase in supply. Otherwise, this objective carries the risk of increasing prices of EVs relative to ICEs: precisely the price signal we wish to avoid sending to future buyers. Since only a little over one percent of vehicles produced globally are sold to Australia, a rapid increase in Australian demand *alone* is unlikely to have a significant and lasting impact on manufacturers' prices of EVs.[2] Of course, we are not alone in seeking rapid increases in demand, so, in the absence of international coordination, such policies will collectively lead to large price increases and outsized profits for manufacturers. Over time at the global level, this will encourage new and existing manufacturers of EVs to expand production. The increase in supply should finally lead to a fall in prices and allow us to achieve the goal of increasing demand. What is not clear is whether this global process would be rapid.

In light of this, a more direct approach would be to encourage new and existing manufacturers to increase their rate of production and innovation. Since Australia has the potential to play a major role in the supply chain for batteries, policy should focus attention here.

Supply objective: increase supply of affordable and accessible EVs to meet demand across all segments. I broadly agree with this objective. I recommend that this is achieved by

(a) opening up the market to independent importers of new and used cars:

[2]In contrast, if Australian dealers are free to set local prices, then local prices are likely to be sensitive to any rapid increases in demand.

this would encourage new market entrants and competition to benefit of lower EV prices.

(b) bringing Australian fuel efficiency standards into line with other major markets so as to avoid distortions.

The main potential adverse effect of such a policy is the following. If car prices (ICE and EV) fall relative to energy-efficient modes of collective transport, then this might lead to an increase in car usage and an inefficient increase in energy. The resulting upward pressure on electricity prices might then slow the process of electrification more broadly.

Infrastructure objective: Establish the systems and infrastructure to enable the rapid uptake of EVs. This is the policy with the clearest benefits. It will reduce the cost and increase the benefits of EV ownership.