



Updated Submission to National Electric Vehicle Strategy Consultation

Productivity Commission submission

The Productivity Commission acknowledges the Traditional Owners of Country throughout Australia and their continuing connection to land, waters and community. We pay our respects to their Cultures, Country and Elders past and present.

The Productivity Commission

The Productivity Commission is the Australian Government's independent research and advisory body on a range of economic, social and environmental issues affecting the welfare of Australians. Its role, expressed most simply, is to help governments make better policies, in the long term interest of the Australian community.

The Commission's independence is underpinned by an Act of Parliament. Its processes and outputs are open to public scrutiny and are driven by concern for the wellbeing of the community as a whole.

Further information on the Productivity Commission can be obtained from the Commission's website (www.pc.gov.au).

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Updated Submission to National Electric Vehicle Strategy Consultation

The Productivity Commission welcomes the opportunity to make this submission to the National Electric Vehicle Strategy consultation process. The consultation paper provides wide-ranging coverage of the various policy issues presented by Australia's transition to electric vehicles (EVs). The Commission will focus its comments on some of the issues raised in the paper.

The Commission anticipates that EVs will make an important contribution to Australian emissions reductions, by leveraging the decarbonisation of our electricity grid to reduce Australia's consumption of liquid fossil fuels. EV uptake might also reinforce the decarbonisation of the electricity grid by providing for a growing stock of second-hand EV batteries that could be reused for grid firming. However, making the most of this transition will require thoughtful policy settings, and unnecessarily expensive policy options should be avoided.

Careful timing is the key to maximising the benefits of EVs

As noted in the consultation paper, EVs are likely to be mainstreamed from 2035 as many of the world's major car makers switch to majority share (or even 100 per cent) EV production. This transition to EV-majority production will be driven by EV-only new car sale mandates in many of the world's major car markets. As a net transport technology importer, it seems likely that any broad-based global transition towards EV production will naturally translate to broad-based Australian EV uptake along a similar timeline.

One of the central issues considered by the consultation paper is whether Australia should seek to accelerate its transition to EVs in advance of 2035, when broad-based uptake of EVs will likely occur. There are a number of factors that might temper our desire to do so.

The achievement of Australia's 2030 and 2050 emissions reduction targets does not require that all emissions sources be reduced simultaneously. Maximising the effectiveness and efficiency of Australian climate policy will require ordering the pursuit of abatement options in line with Australia's marginal cost of abatement curve — starting with low (or even negative) cost abatement options before pursuing higher cost options in later years. Leaving higher cost abatement options to the latter years of Australia's decarbonisation journey will give time for technological developments to lower the long end of the emissions abatement cost curve, reducing the cost of currently high-cost abatement options before they need to be pursued. One of the advantages of this approach is that governments can maximise the amount of abatement achieved for any given budgetary outlay.

Interim Report 4 of the Productivity Inquiry, *A competitive, dynamic, and sustainable future*, published in October 2022, provided preliminary estimates of the indirect carbon prices imposed by Australia's current suite of emission reduction policies, which revealed that policies aimed at increasing demand for EVs were amongst the most expensive abatement policies considered by the Inquiry. These estimates have since been updated to include the Commonwealth FBT exemption for electric vehicles leased through salary sacrifice arrangements, following the December 2022 passage of the *Treasury Laws Amendment (Electric Car Discount) Bill 2022*, and revised to reflect a number of parameter adjustments including a longer assumed EV life. Demand-side EV policies remain the most expensive abatement policies considered by the Inquiry (table 1).

The high cost of Australia's current suite of demand-side EV subsidies ultimately reflects the underlying generosity of these subsidies relative to each tonne of carbon dioxide equivalent (CO₂-e) abatement potentially available from EV uptake. Factoring in different assumptions about the extent to which a dollar of subsidy stimulates the uptake of EV's ('additionality'), the degree of bring-forward of those additional purchases, and the emissions intensity of the power source for EVs, only increases the indirect CO₂-e abatement cost of these policies. The indirect CO₂-e abatement price estimates of these policies remain high even when assuming they are charged with 100 per cent renewable electricity grid (see bracketed prices in table 1).

Table 1 – Indirect carbon prices in Australia, selected policies

Level of Government	Policy	\$ per tonne of CO ₂ -e ^a
Commonwealth	FBT exemption for EVs	\$987–20 084 (\$905 – 13 580) ^c
	Renewable energy target — Small-scale technology certificates	\$57–209 ^d
	Renewable energy target — Large-scale generation certificates	\$60–220 ^d
	Emissions Reduction Fund (ACCUs)	
	— Average fixed-delivery price ^e	\$12–59 ^g
	— Spot price ^f	\$29–144 ^g
	Discounted excise for E10 ^h	\$128–274 ⁱ
	Discounted excise for B20 ^h	\$135–152 ⁱ
New South Wales	Energy savings certificates ^j	\$41 (range: \$32–59)
	\$3000 EV subsidy and stamp duty exemption	\$271–4914 ^b (\$222 – 3323) ^c
Victoria	Victorian energy efficiency certificates ^k	\$69
	\$3000 EV subsidy and registration discount	\$287–4807 ^b (\$217 - 3250) ^c
Queensland	\$3000 EV rebate, stamp duty discount, registration fee discount	\$282–4933 ^b (\$222 - 3335) ^c
Northern Territory	EV stamp duty discount and registration discount	\$91–2089 ^b (\$77 - 1412) ^c
Tasmania	EV stamp duty exemption	\$134–2137 ^b (\$96 - 1445) ^c
South Australia	\$3000 EV subsidy and registration exemption for three years	\$209–3647 ^b (\$164 - 2466) ^c
Western Australia	\$3500 EV subsidy	\$214–3739 ^b (\$169 - 2528) ^c

a. Estimates have been rounded to the nearest dollar. **b.** For simplicity, this estimate reflects fiscal costs per tonne of abatement, not broader economic cost per tonne of abatement. The latter would also incorporate the impact of reduced taxation on the economy. Key assumptions include a 15 year car life, an assumed transport distance of 12,600 kilometres per annum, an internal combustion engine vehicle carbon intensity of 146.5 grams of CO₂-e per kilometre (the 2021 average for new passenger vehicles and light SUVs in

Australia), an EV electricity use of 151 Wh/km, an electricity grid that decarbonises in line with that of Appendix A of Interim Report 4 of the Productivity Review, an additionality range of 75 to 5 per cent, and a degree of bring-forward that ranges from 2022 to the final year of the individual policy. In the case of the bundle of State and Territory policies, the minimum bring-forward is presented by the final year of the highest value subsidy. ACT policy estimates have been excluded given that the full details of a recently announced move to an emissions-based approach to setting registration fees are yet to be released. **c.** Bracketed prices reflect incorporation of 100 per cent renewable energy assumption, provided for sensitivity analysis. Given the opportunity cost of using renewable energy for EV charging, the unbracketed prices are more representative. **d.** The range presented reflects three different emissions intensity factors as well as additionality ranging from 50–100 per cent (see appendix A of Interim Report 4) **e.** The most relevant ACCU price for the Emissions Reduction Fund — the biggest buyer of ACCUs — is the average fixed delivery contract price, which is \$11.70. **f.** The spot ACCU price might be more relevant for offset sellers and private buyers, and was equal to \$28.75 on 5 September 2022. **g.** The upper bound estimate accounts for additionality concerns relating to common emissions reduction methods. Macintosh, Butler and Evans (2022) suggest that up to 80 per cent of credits issued under three of the ERF's most popular methods (which account for about 75 per cent of total credits issued) do not represent genuine emissions cuts that would not have happened otherwise. **h.** The discounted rate of excise only applies to domestically produced ethanol and biodiesel. **i.** Lower bound estimate considers only scope 1 greenhouse gas emissions. Upper bound estimate considers lifecycle emissions and is consistent with PC (2011a). The excise rates used are those that were in place prior to the reduction that took place on 30 March 2022. **j.** The certificate price used is the penalty rate, which should represent an upper bound, though the spot price sometimes exceeds the penalty rate. A range is calculated using the emissions intensity of Australian coal generation as a lower bound, the average emissions intensity of electricity generation in NSW in 2019–20 as a central estimate and the emissions intensity of gas generation as an upper bound. **k.** The price listed is the spot price, which is likely higher than the price involved in long-term contracts.

Supply, not demand, is the primary barrier to EV uptake in Australia

The principal constraint to greater EV uptake in Australia is currently on the supply-side (eg. limited global production and the allocation of that limited supply to car markets other than Australia). Reports of extended waiting times for EVs are commonplace in Australia. With supply the principal constraint to greater EV uptake in Australia, policy efforts to increase the demand for EVs, such as tax concessions and rebates for EV purchases or leases, run the risk of subsidising people who are already in the queue, simply adding more people to the queue, or in the case of tax concessions that are selectively available to some groups, pushing those selected groups to the front of the queue — with little impact on the overall number of EVs on Australian roads relative to what would have otherwise been the case.

Even if demand-side measures stimulated pre-2035 EV uptake, it is not clear that there would be a strong public policy rationale for doing so. Even the low end of the indirect carbon price range for demand-side EV policies (reflecting a high 75 per cent additionality assumption, and the minimum bring-forward of EV purchases from 2035), is notably higher than other available emissions abatement options. Moreover, given that EV technology is likely to enjoy rapid advances between now and 2035, demand-side measures risk encouraging Australian households to purchase EVs that might be superseded by substantially improved EV technology released soon thereafter. The broad-based electrification of the Australian transport fleet might best wait until EV technology further matures, and EV costs fall. In the meantime, policy interventions might be better focused on abatement policies that offer bigger reductions in emissions for each dollar of public support.

Finally, demand-side measures can present equity concerns where policy instruments are disproportionately relevant to higher income households. This is particularly relevant for measures channelled through the tax system. To the extent that government subsidies do not elicit strong demand responses, they risk acting as cash transfers to higher-income households.

Supply-side measures should be prioritised over demand-side measures

Given that supply-side issues are the binding constraint on EV uptake in Australia, policy effort would be better focused on addressing those supply-side constraints. As noted by the consultation paper, an increase in Australian fuel efficiency standards could encourage major car makers to allocate a greater share of their limited EV production to the Australian market. It might also help to

increase the average fuel efficiency of remaining internal combustion engine vehicles sold into the Australian market.

Liberalising the importation of second hand EVs into Australia could also help, providing an additional channel for EVs to become available to Australian households and businesses.

The private sector should lead EV charger provision

In the same way that petrol stations are provided by the private sector in Australia, EV charging infrastructure will also be provided by the private sector. Existing petrol stations have started to transition to EV charging, some cafes and retailers have also begun to provide EV chargers as a way of attracting customers, and paid carparking sites might also do the same. At-home charging will also make a sizeable contribution to the recharging task. Car brands themselves will also make a contribution. Tesla provides its own network of EV chargers, and EV producers such as Nio and Geely provide battery swap out stations that change EV batteries once they are empty, rather than requiring owners to recharge the existing battery. Government may have a role in providing EV chargers in niche cases such as particularly remote areas where use is likely to be insufficient to justify private investment. However, such cases are likely to be the exception rather than the rule.

The transition to EVs presents an opportunity for more efficient road pricing

As noted in the consultation paper, the transition to EVs has raised questions about the future path of fuel excise revenues to the Australian Government. While the Commission does not regard the fuel excise system as a well-targeted form of road user charging, fuel excise is a material revenue source, and its loss will need to be matched by either reduced spending or additional taxation elsewhere in the system. The move towards an efficient road pricing framework could help offset falling excise revenues while also supporting the efficient use of Australia's road network. Current technology allows for new forms of road charging that are better linked to the costs of road use, as discussed in the Commission's *Shifting the Dial: Supporting Paper 9 (Funding and investments for better roads)*.