Parliamentary
Budget Office

Policy costing

Reduce electric vehicle costs, build a national fast charging network, introduce mandatory electric vehicle targets to reach 100 per cent in 2030, and related measures	
Party:	Australian Greens

Summary of proposal:

This package of proposals would encourage the uptake of electric vehicles. The proposal consists of five components.

- Component 1: The introduction of subsidies and tax breaks for the purchase of new light passenger battery electric vehicles, plug-in hybrid electric vehicles and fuel cell vehicles, in the form of:
  - a a vehicle registration fee exemption (excluding the compulsory third party insurance premium) for up to three years (with grandfathering arrangements so that as long as participants apply before the policy end date, they could receive the full three years of the exemption) and a stamp duty exemption with grants to the states and territories as compensation
  - b an import tariff exemption (where tariffs have not already been removed)
  - c a goods and services tax (GST) exemption on the sale of eligible vehicles, with a grant to the states and territories as compensation.
- Component 2: A new fossil fuel car tax on all new light passenger vehicles, except battery electric vehicles, plug-in hybrid electric vehicles and fuel cell vehicles, equal to 17 per cent of the GST-inclusive sale price above the luxury car tax (LCT) threshold.
  - – The LCT threshold is $66,331 in 2018-19 and is indexed annually in line with the consumer price index. The fossil fuel car tax threshold would remain pegged to the LCT threshold.
- Component 3: A modification to the LCT fuel efficient vehicle definition from the current seven litres of fuel per 100 kilometres to four litres per 100 kilometres, and a reversal of the 2019-20 Budget measure *Luxury Car Tax – increased refunds for eligible primary producers and tourism operators.*
- Component 4: $151 million in capped funding evenly spread over four years from 1 July 2019 for charging infrastructure, with departmental expenses included in the cap.
- Component 5: To achieve the aims of the proposal, there would be a target of full-electric passenger vehicles sold in Australia of 2 per cent in 2020, 5 per cent in 2021, 10 per cent in 2022, and then a linear target to 100 per cent in 2030 would be implemented. Vehicle manufacturers would face penalties if they do not reach the sales target each year. There would also be a mandated light vehicle emissions standard of 105 grams of carbon dioxide per kilometre by 2022 on the fleet-wide average of vehicles sold for each manufacturer.

The proposal has a start date of 1 July 2019 and an end date of 30 June 2023 for all components, except for the reversal of the 2019-20 Budget measure *Luxury Car Tax – increased refunds for eligible primary producers and tourism operators*, and the targets for vehicle sales and emissions standards which are ongoing.

Costing overview

This proposal would be expected to decrease the fiscal balance by $4,721 million and the underlying cash balance by $4,471 million over the 2019-20 Budget forward estimates period. On a fiscal balance basis, this impact reflects a decrease in revenue of $3,510 million and an increase in expenses of $1,211 million.

The proposal would be expected to have an ongoing impact that extends beyond the 2019-20 Budget forward estimates period. A breakdown of the financial implications over the period to 2029-30 is provided at Attachment A.

There is a difference between the fiscal and underlying cash balance profiles due to a timing difference between when each revenue component is recognised and when the associated receipt is received. All GST revenue is recognised in the year the tax is levied on the consumer. The payment of GST to the states and territories is recognised as an expense when the GST is actually paid by the Commonwealth Government.

Departmental expenses for the Australian Taxation Office (ATO) would be expected to increase by $10 million in the first year of the proposal. This includes $2 million to implement a new reporting and collection system for the fossil fuel car tax and $8 million to implement systems to both remove GST from relevant vehicles and pay compensation to the states and territories for the subsidies under the proposal. There would be additional departmental expenses of $5.6 million over the 2019-20 Budget forward estimates period ($5 million in the first year of the proposal) across various departments as part of the capped funding for charging infrastructure.

The costing estimates for this proposal are particularly sensitive to the assumed magnitude and timing of the take-up rate of new electric vehicles over the life of the proposal. The take-up of electric vehicles and the price of electric and non-electric vehicles are dependent upon a number of factors which are highly uncertain, including improved technology in electric vehicles, expected future infrastructure to support electric vehicle use, and the comparative price of electric vehicles and non-electric vehicles. As there is limited information available to determine the impact of these factors, the estimates have a high level of uncertainty. The costing assumes that there will be sufficient electric vehicles on the market to meet demand for new electric vehicles each year. The behavioural responses that have been factored into the costing assume that the legislation supporting the proposal would be enacted prior to the start date of the proposal. The costing further relies on the assumption that the states and territories would agree to the proposal, and compensation amounts for the states and territories would be agreed in advance. Different arrangements for the operation of the compensation package would change the costing.

Table 1: Financial implications ($m)[a][b]

	2019–20	2020–21	2021–22	2022–23	**Total to 2022–23**
Fiscal balance	82.3	-397.7	-1,267.8	-3,137.8	**-4,721.0**
Underlying cash balance	62.3	-357.7	-1,197.8	-2,987.8	**-4,471.0**

(a) A positive number represents an increase in the relevant budget balance; a negative number represents a decrease.

(b) Figures may not sum to totals due to rounding.

Key assumptions

The Parliamentary Budget Office (PBO) has made the following assumptions in costing this proposal.

General

- In the baseline scenario, electric vehicle purchases as a proportion of all new passenger vehicle purchases in Australia would increase from approximately 1.5 per cent in 2019-20 to approximately 6 per cent by 2022-23. This assumption is based on the *Australian Electric Vehicle Market Study* by Energeia. This is the assumed increase in electric vehicle purchases in the absence of any change in policy arrangements – there is currently no electric vehicle sales target factored into the budget baseline.
- The Commonwealth Government would agree with the states and territories in advance the amount of compensation payable to the states and territories each year for the exemptions from stamp duty, registration fees and the GST. This compensation would be based on the expected sales of eligible electric vehicles.
- Any bring-forward in non-electric vehicle purchases, to avoid the introduction of the fossil fuel car tax or change to the LCT, would not materially affect the costing. This is because there would be limited time between the passage of the enabling legislation and the start date of the proposal for people to bring purchases forward.
- It is unlikely that there would be a behavioural response to push back purchases of vehicles at the end of the proposal to avoid the new fossil fuel car tax and the change to the LCT, as these changes would affect high-priced vehicles which are less price sensitive, and the modelling already assumes that there will be a shift to electric vehicles for the duration of the proposal.

Stamp duty and registration fee exemptions (Component 1a)

- The share of vehicles purchased in each state or territory as a proportion of all Australian vehicle purchases would not materially change over the life of the proposal.
- All eligible participants would use the registration fee exemption for the full three years it is available.

Tariff exemption (Component 1b)

- The country of origin for imported electric vehicles would not materially change over the life of the proposal.
- The reduction in tariffs would not have a material effect on the sale price or related GST payable on electric vehicles as the tariff amount per vehicle is relatively small compared to the overall electric vehicle price. Therefore the price per vehicle would not change.
- This component would interact with the electric vehicle targets.

GST exemption (Component 1c)

- There would be no change to the Intergovernmental Agreement on Federal Financial Relations and all reductions in GST receipts (net of administrative expenses) would result in a corresponding reduction in GST payments to the states and territories.
  - As specified in the costing request, the states and territories would receive grant compensation for the impact of the proposal on GST receipts.

- This component would interact with the electric vehicle targets.

Fossil fuel car tax and change to LCT definition of fuel efficiency (Components 2 and 3)

- The proportion of vehicles that are assessed as fuel efficient for LCT purposes would be expected to increase over time.
- The behavioural response relating to the LCT change would be small as buyers of luxury vehicles are not as price sensitive as buyers of cheaper vehicles. Some consumers would either purchase a cheaper non-electric vehicle or switch to an electric vehicle to avoid the tax increase.
- These behavioural responses would not be expected to have a material impact on consumer prices and GST collections

Passenger electric vehicle targets (Component 5)

- The target for passenger electric vehicle sales (2 per cent by 2020, 5 per cent by 2021, 10 per cent by 2022, and 100 per cent by 2030) would be met and the target would not alter demand for new vehicles.
- All passenger electric vehicle sales targets would be met by 1 January of the relevant year.
- There would be sufficient new electric vehicles each year to meet the market demand.
- Vehicle manufacturers would be able to implement the emissions standard by 2022 and this would not affect the vehicles they have on the market.
- People who take up electric vehicles would switch from a non-electric vehicle.

Methodology

Stamp duty and registration fee exemptions (Component 1a)

The lost revenue to states and territories due to the exemption from stamp duty and registration fees was calculated by estimating the number and value of electric vehicles that would be sold each year in each state and territory based on historical sales in each state or territory, and expected future growth in the uptake of electric vehicles. The value of stamp duty and registration fees forgone by each state and territory was then calculated using these estimates. The total value of the compensation to the states and territories that the Commonwealth Government would need to pay was based on these estimates.

Tariff exemption (Component 1b)

The number and value of electric vehicles expected from each relevant country of origin under current policy was estimated for each year. The relevant tariff rate for each country of origin was then applied to these estimates to derive forgone revenue under the proposal.

GST exemption (Component 1c)

The number of electric vehicles sold and the amount of GST on each vehicle was estimated for each year using the average value of electric vehicles. These estimates were then used to calculate the estimated value of forgone revenue and the associated reduction in GST payments to the states and territories, as well as the amount of compensation to the states and territories that would be required.

As the LCT is paid on the GST-inclusive value of vehicles, LCT revenue would be expected to decline as a result of the removal of the GST. The change to the LCT as a result of removing the GST on electric vehicles was estimated by calculating the expected LCT on affected vehicles with and without the GST included in the price, and taking the difference between the values.

Fossil fuel car tax (Component 2)

Estimates of the fossil fuel car tax revenue were calculated by estimating the number and price of non-electric vehicles sold each year and calculating the tax from the fossil fuel car tax. An adjustment was included to reflect the assumed behavioural change from consumers either buying cheaper non-electric vehicles or switching to electric vehicles to avoid the tax.

Change to LCT definition of fuel efficiency and reversal of 2019-20 Budget measure (Component 3)

The tightening of the LCT fuel efficiency definition was estimated by re-calculating total LCT revenue using the proposed fuel efficiency definition. An adjustment was included to reflect the assumed behavioural change. The total increase in LCT revenue was then calculated by subtracting the current LCT estimates from the estimated LCT revenue using the proposed definition.

The reversal of the 2019-20 Budget measure was calculated by estimating the value of refunds that would be likely to be paid out under the measure and then adding that value back to the LCT amount in the costing.

Charging infrastructure (Component 4)

As specified, $151 million in capped funding was spread over four years from 1 July 2019 for charging infrastructure. Departmental expenses for this component are included in the cap and calculated based on similar changes.

Passenger electric vehicle targets (Component 5)

The target in this proposal would result in increased take-up of electric vehicles. This would lead to a reduction in expected fuel excise revenue. The target would also interact with exempting passenger electric vehicles from GST and tariffs in Component 1. The assumed additional take-up of passenger electric vehicles as a result of this proposal, as a proportion of all passenger vehicles in Australia, was used to work out the reduction in fuel excise that would occur from people switching to electric vehicles and subsequently not paying excise on fuel.

All components

Revenue and administered expenses for Component 1, Component 2 and Component 3 and Component 5 have been rounded to the nearest $10 million. The administered and departmental expenses for Component 4 have been rounded to the nearest $100,000.

Data sources

The ATO provided data on electric and non-electric vehicle sales.

Energeia, 2018. *Australian Electric Vehicle Market Study*, Sydney: Energeia.

Commonwealth of Australia, 2019. *2019-20 Budget*, Canberra: Commonwealth of Australia.

Commonwealth of Australia, 2019. *2019 Pre-election Economic and Fiscal Outlook*, Canberra: Commonwealth of Australia.

Climate Works Australia, 2018. *The State of Electric Vehicles in Australia*, Melbourne: Climate Works Australia.

Department of the Environment and Energy, 2017. *Australia's Emissions Projections 2017,* Commonwealth of Australia: Canberra.

International Energy Agency, 2017. *Global EV Outlook 2017,* France: International Energy Agency.

Attachment A – Reduce electric vehicle costs, build a national fast charging network, introduce mandatory electric vehicle targets to reach 100 per cent in 2030, and related measures – financial implications

Table A1: Reduce electric vehicle costs, build a national fast charging network, introduce mandatory electric vehicle targets to reach 100 per cent in 2030, and related measures – Fiscal balance ($m)[(a)(b)]

	2019–20	2020–21	2021–22	2022–23	2023–24	2024–25	2025–26	2026–27	2027–28	2028–29	2029–30	Total to 2022–23	Total to 2029–30
Revenue													
Tariffs (Component 1b)	-50.0	-130.0	-280.0	-610.0	-	-	-	-	-	-	-	**-1,080.0**	**-1,080.0**
Goods and services tax (Component 1c)	-150.0	-400.0	-840.0	-1,810.0	-	-	-	-	-	-	-	**-3,190.0**	**-3,190.0**
Fossil fuel car tax (Component 2)	330.0	330.0	340.0	350.0	-	-	-	-	-	-	-	**1,350.0**	**1,350.0**
Luxury car tax (Component 3)[(c)]	50.0	10.0	-80.0	-220.0	..	..	..	..	..	..	..	**-240.0**	**-220.0**
Passenger electric vehicle target (Component 5)	-10.0	-40.0	-90.0	-210.0	-390.0	-650.0	-1,000.0	-1,430.0	-1,950.0	-2,580.0	-3,340.0	**-350.0**	**-11,690.0**
Total – revenue	**170.0**	**-230.0**	**-950.0**	**-2,500.0**	**-390.0**	**-650.0**	**-1,000.0**	**-1,430.0**	**-1,950.0**	**-2,580.0**	**-3,340.0**	**-3,510.0**	**-14,830.0**
Expenses													
Administered													
Compensation to states and territories – registration and stamp duty (Component 1a)	-40.0	-130.0	-280.0	-600.0	-140.0	-100.0	-	-	-	-	-	**-1,050.0**	**-1,280.0**
Goods and services tax payments to states and territories (Component 1c)	130.0	360.0	780.0	1,680.0	240.0	-	-	-	-	-	-	**2,950.0**	**3,190.0**
Compensation to states and territories – goods and services tax (Component 1c)	-130.0	-360.0	-780.0	-1,680.0	-240.0	-	-	-	-	-	-	**-2,950.0**	**-3,190.0**
Charging infrastructure (Component 4)[(d)]	-32.7	-37.4	-37.5	-37.8	-	-	-	-	-	-	-	**-145.4**	**-145.4**
Total – administered	**-72.7**	**-167.4**	**-317.5**	**-637.8**	**-140.0**	**-100.0**	**-**	**-**	**-**	**-**	**-**	**-1,195.4**	**-1,425.4**
Total – departmental[(e)]	**-15.0**	**-0.3**	**-0.3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-15.6**	**-15.6**
Total – expenses	**-87.7**	**-167.7**	**-317.8**	**-637.8**	**-140.0**	**-100.0**	**-**	**-**	**-**	**-**	**-**	**-1,211.0**	**-1,441.0**
Total	**82.3**	**-397.7**	**-1,267.8**	**-3,137.8**	**-530.0**	**-750.0**	**-1,000.0**	**-1,430.0**	**-1,950.0**	**-2,580.0**	**-3,340.0**	**-4,721.0**	**-16,271.0**

(a) A positive number for the fiscal balance indicates an increase in revenue or a decrease in expenses or net capital investment in accrual terms. A negative number for the fiscal balance indicates a decrease in revenue or an increase in expenses or net capital investment in accrual terms.

(b) Figures may not sum to totals due to rounding.

(c) This includes the impact of reversing the 2019-20 Budget measure *Luxury Car Tax – increased refunds for eligible primary producers and tourism operators.*

(d) The Parliamentary Budget Office has not undertaken any analysis to confirm whether the proposed expenditures would be sufficient to achieve the objective of the policy proposals.

(e) Departmental cost estimates are based on similar changes, and account for the net effect of indexation parameters and the efficiency dividend, in accordance with the Department of Finance's costing practices.

.. Not zero but rounded to zero.

\- Indicates nil.

Table A2: Reduce electric vehicle costs, build a national fast charging network, introduce mandatory electric vehicle targets to reach 100 per cent in 2030, and related measures – Underlying cash balance ($m)(a)(b)

	2019–20	2020–21	2021–22	2022–23	2023–24	2024–25	2025–26	2026–27	2027–28	2028–29	2029–30	Total to 2022–23	Total to 2029–30
Receipts													
Tariffs (Component 1b)	*-50.0*	*-130.0*	*-280.0*	*-610.0*	*-10.0*	-	-	-	-	-	-	***-1,070.0***	***-1,080.0***
Goods and services tax (Component 1c)	*-130.0*	*-360.0*	*-780.0*	*-1,680.0*	*-240.0*	-	-	-	-	-	-	***-2,950.0***	***-3,190.0***
Fossil fuel car tax (Component 2)	*300.0*	*330.0*	*340.0*	*350.0*	*30.0*	-	-	-	-	-	-	***1,320.0***	***1,350.0***
Luxury car tax (Component 3)(c)	*40.0*	*10.0*	*-70.0*	*-210.0*	*-20.0*	..	..	..	..	..	..	***-220.0***	***-220.0***
Passenger electric vehicle target (Component 5)	*-10.0*	*-40.0*	*-90.0*	*-200.0*	*-390.0*	*-650.0*	*-990.0*	*-1,420.0*	*-1,940.0*	*-2,570.0*	*-3,330.0*	***-340.0***	***-11,630.0***
Total – receipts	**150.0**	**-190.0**	**-880.0**	**-2,350.0**	**-630.0**	**-650.0**	**-990.0**	**-1,420.0**	**-1,940.0**	**-2,570.0**	**-3,330.0**	**-3,260.0**	**-14,770.0**
Payments													
Administered													
Compensation to states and territories – registration and stamp duty (Component 1a)	*-40.0*	*-130.0*	*-280.0*	*-600.0*	*-140.0*	*-100.0*	-	-	-	-	-	***-1,050.0***	***-1,280.0***
Goods and services tax payments to states and territories (Component 1c)	*130.0*	*360.0*	*780.0*	*1,680.0*	*240.0*	-	-	-	-	-	-	***2,950.0***	***3,190.0***
Compensation to states and territories – goods and services tax (Component 1c)	*-130.0*	*-360.0*	*-780.0*	*-1,680.0*	*-240.0*	-	-	-	-	-	-	***-2,950.0***	***-3,190.0***
Charging infrastructure (Component 4)(d)	*-32.7*	*-37.4*	*-37.5*	*-37.8*	-	-	-	-	-	-	-	***-145.4***	***-145.4***
Total – administered	***-72.7***	***-167.4***	***-317.5***	***-637.8***	***-140.0***	***-100.0***	-	-	-	-	-	***-1,195.4***	***-1,425.4***
Total – departmental(e)	***-15.0***	***-0.3***	***-0.3***	-	-	-	-	-	-	-	-	***-15.6***	***-15.6***
Total – payments	**-87.7**	**-167.7**	**-317.8**	**-637.8**	**-140.0**	**-100.0**	-	-	-	-	-	**-1,211.0**	**-1,441.0**
Total	**62.3**	**-357.7**	**-1,197.8**	**-2,987.8**	**-770.0**	**-750.0**	**-990.0**	**-1,420.0**	**-1,940.0**	**-2,570.0**	**-3,330.0**	**-4,471.0**	**-16,211.0**

(a) A positive number for the underlying cash balance indicates an increase in receipts or a decrease in payments or net capital investment in cash terms. A negative number for the underlying cash balance indicates a decrease in receipts or an increase in payments or net capital investment in cash terms.

(b) Figures may not sum to totals due to rounding.

(c) This includes the impact of reversing the 2019-20 Budget measure *Luxury Car Tax – increased refunds for eligible primary producers and tourism operators.*

(d) The Parliamentary Budget Office has not undertaken any analysis to confirm whether the proposed expenditures would be sufficient to achieve the objective of the policy proposals.

(e) Departmental cost estimates are based on similar changes, and account for the net effect of indexation parameters and the efficiency dividend, in accordance with the Department of Finance's costing practices.

.. Not zero but rounded to zero.

\- Indicates nil.