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Perceived Road Revenue and Excise Tax Gap Not a Barrier to EVs

Australia's Fuel Excise Revenue Fallen Nearly 70% in Real Terms in 20 Years

Executive Summary

Governments in Australia are considering how to accommodate the accelerating advent of electric vehicles (EVs) into the Australian market.

A 'drying up' of excise tax-based road revenue sources appears to be a major concern, as will inevitably happen with the accelerated transition globally to EVs.

Consideration is being given to the capacity of the Australian government (the Commonwealth government) to fund road spending if the petrol excise tax is eroded. In response, the Treasurer of New South Wales recently said the state would consider policies to ensure road user and road funding charges would continue. And the state of Victoria is considering similar.

We believe petrol excise and road revenue concerns are grossly misplaced and that actions by the Commonwealth need to accelerate while the States should stay clear of the issue.

The Australian government is well placed to deal with the revenue impact of a move to EV's.

Net of rebates, petrol and diesel excise taxes have been falling in real terms since the late 1980's. They are now 2.2% of revenue.

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Further, the Australian government does not use excise taxes to fund road spending. On average the majority of fuel excise is spent on general government activities. Concerns about the erosion of excise tax revenues seem grossly overstated.

For the states the issue is even clearer: they get no direct revenue from fuel excise. They get the odd road grant. They get guaranteed revenue from GST, including the GST on electricity used to power EV's. The switch to EV's could be an enormous boon to the states.

There Are Solutions To Fill Any Revenue Gap

The rebate for off-road vehicle use (mainly mining) is now 40% of the total excise raised. This should be slowly eliminated as an incentive to the mining industry to

move to EVs. Conveniently Australia is a major consumer of mining equipment for coal and iron ore. Incentives in Australia could impact OEM design globally.

Further, the eastern states grid is under enormous pressure to accommodate new solar and wind supplies. It has no existing transmission capacity to integrate Snowy Hydro 2.0 into the grid, a roughly $2 billion endeavour. The Australian government desperately needs to come up with billions to enable the grid to cope with new supplies even if there is no growth in overall demand. Over a decade, a 1.0c/kWh tax on retail power would likely raise $5 billion or more, enabling significant improvements to be made.

There is little any Australian government can do to impact the pace of EV uptake. Over the next 10-15 years, decisions being made in Beijing, Brussels and Washington will determine the pace at which EV rollouts occur globally. No vehicle manufacturer will keep an old ICE plant open to satisfy the 1.25% of the world market that Australia represents.

Introduction

The Australian government is moving slowly towards the inevitable transition to electric vehicles (EVs).

Globally, EV uptake has proceeded at pace. In Australia however, there are concerns over the loss of revenue from petroleum taxes and therefore the ability to fund road spending.

This briefing note reviews:

- What percentage of Australian government funding comes from taxes on transport fuels
- What has been happening to real values over time
- What percentage of road spending is funded by the Australian government, and how much of that comes from taxes on transport fuels
- What the Australian government has done in the past when faced with the 'drying up' of revenue sources, as is now inevitably going to happen with the transition to EVs
- How much latitude and influence the Australian government has on the issue of EVs
- What might be a sensible way for the government to approach this going forward
- What might be the long term impact on the economy, particularly the balance of payments.

Fuel Taxes in Australia and Share of Australian Government Revenue

Australian government excise taxes on petroleum products probably began with a tax on whale oil or kerosene within a minute of federation. By the late 1980's, the tax was over 6% of government revenues. The tax has always been a per unit tax and therefore insulated from the vagaries of oil prices.

In 2000 the tax was 38c per unit on petrol and diesel, with lower rates on LPG and aviation fuels. The aviation tax was set to equal the cost of Australian government support for the industry (ie. Civil Aviation Safety Authority, etc). Taxes on the other fuels were always designed as pure revenue generators.

The tax was indexed to the consumer price index (CPI), changing in February and August every year. In 2000 the government ceased indexation of the tax. It restarted again in 2015 under the then Abbott government.

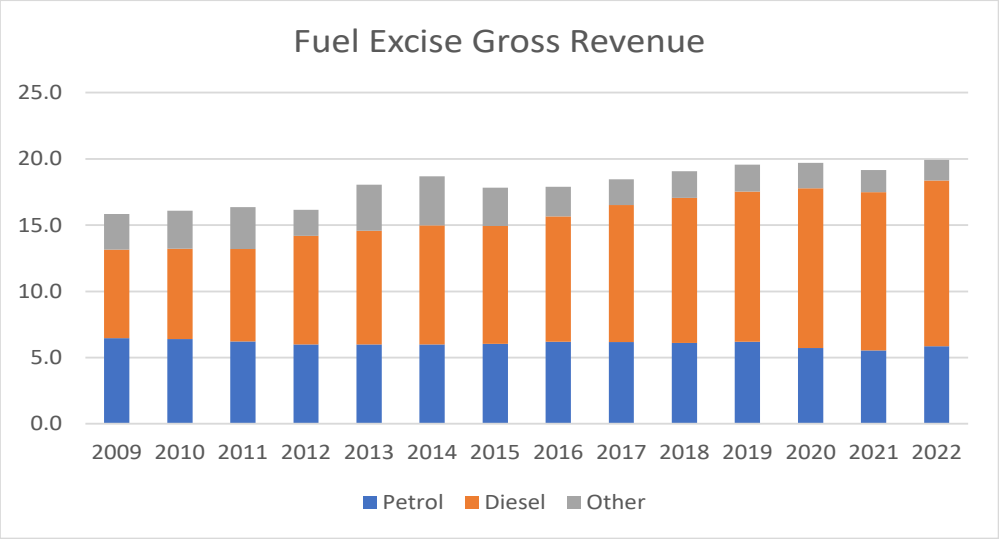
The tax contains one major exemption: diesel used in off-road vehicles is not subject to the tax (eg. in agriculture or mining). In this case users are entitled to a fuel tax rebate. That rebate is now approaching 40% of the value of the tax.

In 2021 gross revenue from the fuel excise tax was $19.2bn and net revenue was $11.6bn. Taking out excise on other fuels, we can measure net petrol and diesel excise as a share of Australian government revenue. As a share of revenue, fuel excise halved between 2000 (when it was reduced as part of the GST negotiations) and 2009 when indexation ceased. It has fallen by a further 40% since then.

As a share of revenue, fuel excise has fallen by 40% since 2009.

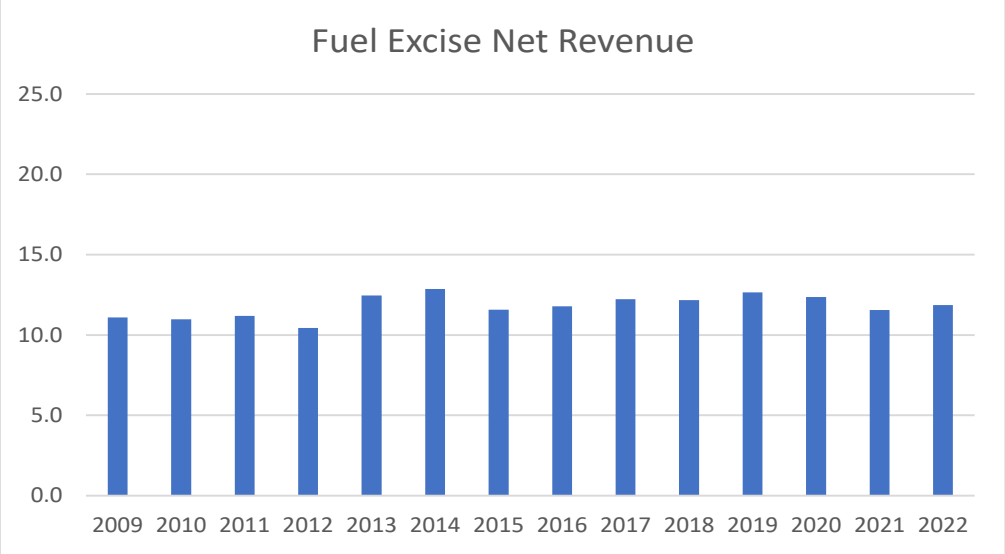
In sum, roughly 2% of Australian government revenue comes from fuel excise. As a share of revenue, it has fallen by 68% over 20 years. Australia's fuel excise as a revenue generator is becoming increasingly unimportant to the Federal budget.

Figure 1: Fuel Excise Gross Revenue ($Bn) – Before Rebates



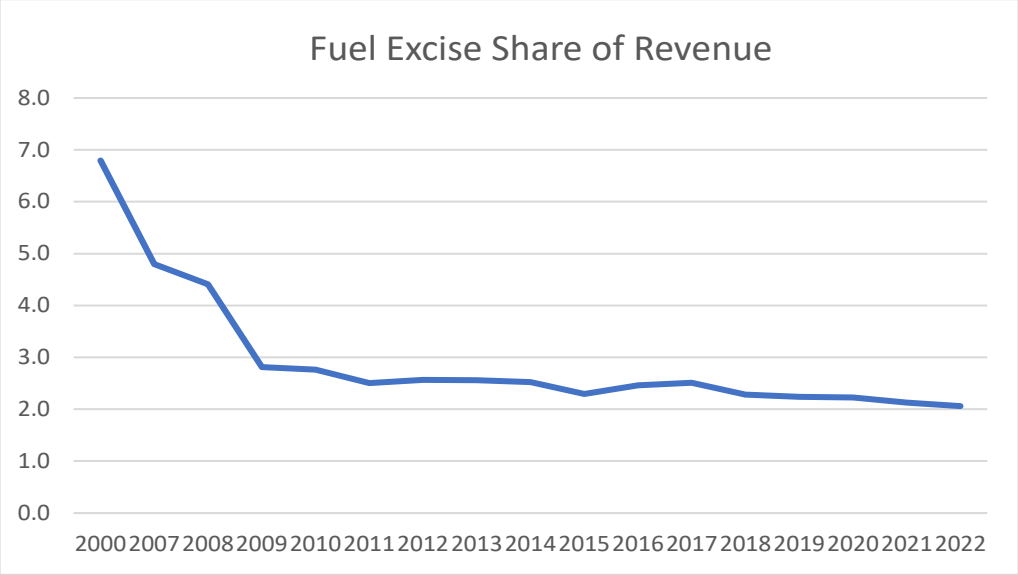
Source: Australian Budget Papers number 5.

Figure 2: Fuel Excise Net Revenue ($Bn) – Net of Rebates



Source: Australian Budget Papers number 5.

Figure 3: Fuel Excise Share of Revenue (%)



Source: Australian Budget Papers number 5.

Australian Government Road Spending and Share of Total

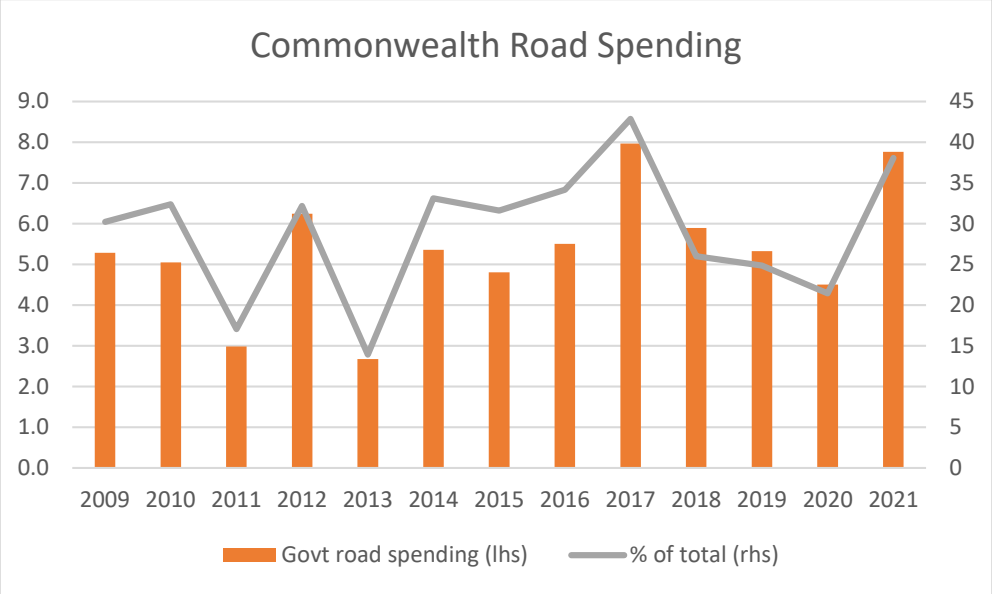
The Australian government reports its spending on roads as part of the transportation budget. Most of this spending is tied grants to the States for specific projects, some are grants to Local Councils for specific projects, and a small portion includes grants for studies of specific projects. The Australian Bureau of Statistics (ABS), which reports road and bridge spending through 8762, Engineering Construction Spending, does not include studies.

The data that is available clearly shows:

- The Australian government spends less than half (47% since 2009) of net excise on road spending
- The Australian government funds about a quarter of all road spending (29% since 2009)
- Australian government spending is extremely volatile in nature. In and of itself this is likely to increase costs and reduce capital efficiency within the road construction industry. On balance the nation would likely be better served if the Australian government were to spend about 10% less on roads but spend it in a considered and predictable manner.

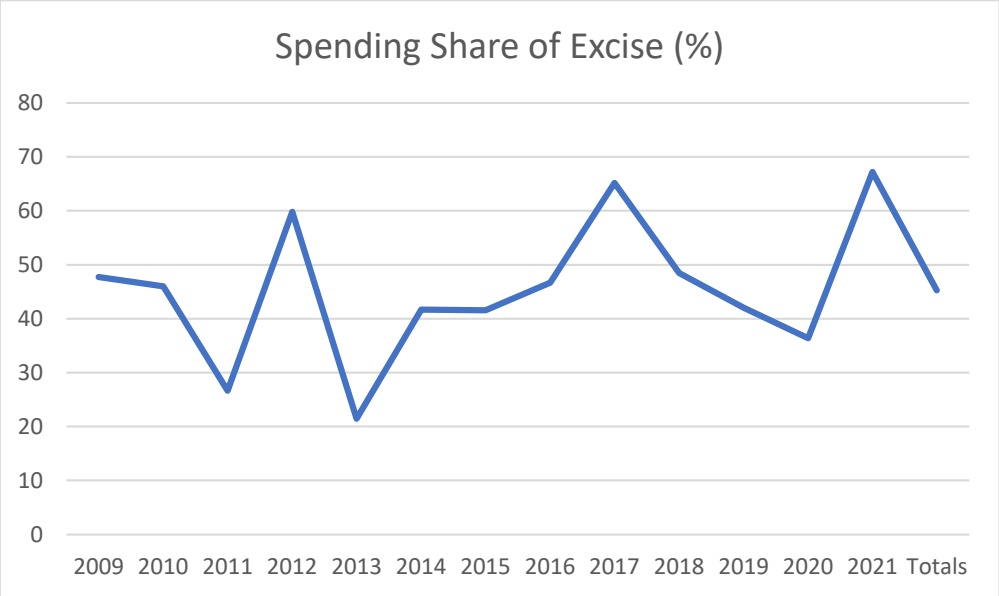
Only 47% of fuel excise is spent on roads. Australian government spending accounts for only 29% of total road spending.

Figure 4: Australian Government Share of Road Spending ($Bn or %)



Source: ABS 8762.06, Budget Papers number 5.

Figure 5: Australian Government Road Spending Share of Excise (%)



Source: Australian Budget Papers number 5.

Can the Australian Government Find New Revenue Sources?

In the mid to late 1980's the Australian government had an enormous exposure to the Bass Strait oil fields. There were two Federal imposts; the oil levy; and normal corporate income tax. The levy was extraction-based and took some 50% of the value of output. The corporate tax rate was 50% and accounted for around 10% of the value of output. The Victorian government also had a royalty that accounted for another 2.8% of output.

In 1984 the levy accounted for 7.5% of Australian government revenues. Corporate taxes accounted for a further 2.0% (the budget does not disclose taxes from individual companies so this is an estimate). In total, at least 7.5% and as much as 10% of Australian government revenue came from this one project. Adjusted for present revenue levels, this is an annual $40bn impost.

In fiscal 1986 the oil price collapsed. The levy, which was based on revenues, collapsed with it. The Australian government had a revenue hole equal to around 4% of revenue. Within a fortnight it doubled the revenue from retail excise fuel taxes, more than offsetting the decline. The Australian government demonstrated that it could quickly and efficiently find new sources of revenue if necessary.

For the past 20 years, revenue has grown at 5.2% per annum (5.8% if we throw out COVID-impacted 2020). Over the past 35 years, revenue has grown at 8.9%.

As the Australian government has an excellent decades-long track record of raising revenue it is probable that the government could also slowly replace the 2.1% of revenue generated by retail fuel taxes as EV uptake accelerates.

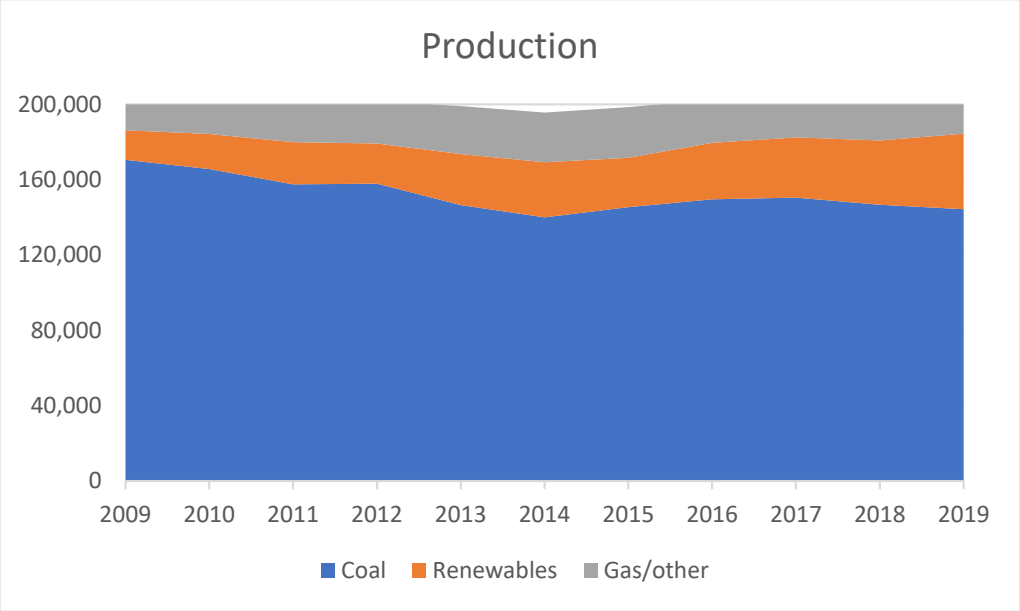
There is no real risk to road funding as the Australian government spends the majority of fuel taxes on things other than roads. State governments are by far the largest contributors to road spending.

How Much Latitude and Influence Does the Australian Government Have on the Issue of EVs?

Global automotive manufacturers have committed almost universally to transition entirely from internal combustion engines (ICE) to EVs over the coming 1-2 decades.

EVs reduce carbon emissions by replacing an ICE with an electric motor. In the U.S. (30% coal), UK (2% coal), Germany (35% coal) and France (4% coal), driving an EV reduces carbon emissions, in some cases significantly, with variations depending upon the source for electricity.

Figure 6: East Coast Electricity Output by Fuel Type ('000 GWh)



Source: Australian Energy Statistics, Dept of Energy & Environment, table O.

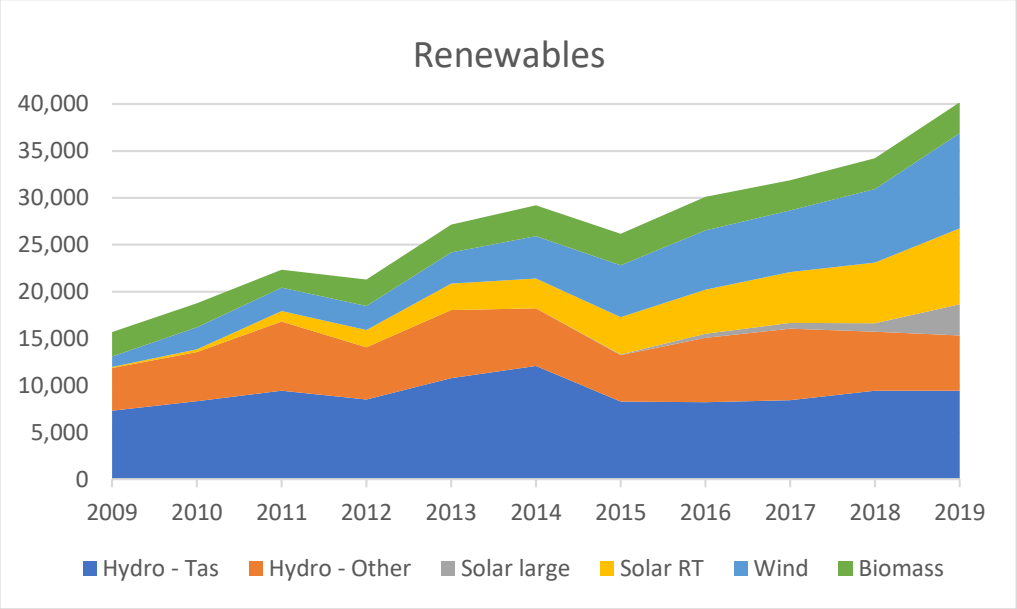
The east coast of Australia is primarily a coal-fired power market: in 2019 the vast majority of power was coal-fired. NSW (84% coal), Queensland (78% coal) and Victoria (74% lignite) are all majority coal-fired but there are rapid changes occurring.

First, despite a decade of population and economic growth, energy consumption has been static. High prices coming out of the 2005-2015 regulatory reviews have had an impact on demand, as did the closure of the Point Henry aluminium smelter, the least efficient mainland smelter.

Second, the likely retirement of 2 of the 3 mainland smelters over the coming decade will see a 6-8% decline in national electricity demand. Presumably every smelter that exits the market will take at least one coal-fired power station with it.

Third, the growth in renewables has been exceptional given that the Australian government has actively impeded the entry of large scale wind and solar into the grid, and with hydro being impacted by drought.

Figure 7: East Coast Renewables Output ('000 GWh)



Source: Australian Energy Statistics, Dept of Energy & Environment, table O.

Excluding hydro, renewables output has grown by 20% p.a. over the last decade from zero to 12% of the market. Another 5 years of this rate of growth would see renewables at 38-42% of the market, and as high as 50% depending on smelter closures. In 10 years, renewables might be 65-65% of the market.

And these growth rates appear to be accelerating. Based on OpenNEM data which updates daily, for calendar 2021 in NSW coal is down to 71% of supply, Queensland 74% and in Victoria, coal is 69% of supply. Renewables including hydro are up to 20% in the eastern states markets and on track to double 2019 output levels.

In 2019 and 2020, global car production averaged 80m units. Of these 80m cars, China accounted for 25%, the U.S. nearly 20%, the EU 15% and Japan/Korea 10%. Japan and Korea remain the largest exporters. Australia accounts for 1.25% of consumption and 0% of production. Toyota could supply half of the Australian market today solely from its Georgetown, Kentucky plant.

Producers are moving to EVs in part due to genuine demand but primarily due to regulatory requirements. If regulators in Beijing, Brussels and DC mandate EVs, then everyone who sells into these markets will sell EVs.

It would be madness to suggest that Toyota or Mercedes will develop EVs for 70% of the world but continue to run small, high cost dedicated plants to produce ICE for the Australian market. Conversely, Toyota will not bring forward plant conversion to manufacture EVs for the 1.25% of global demand in Australia.

The reality is, Australia (and every other small, developed economy) will convert to EVs when Beijing, Brussels and DC tells Australia to. The Australian government will

have no more impact on the pace of this change than it did on the global production of coronavirus vaccines.

Preparing for the Acceleration of EV Uptake in Australia

In our view, there are three or four things that the federal and state governments in Australia need to do to prepare for the acceleration of EV uptake in Australia.

First, it is critical that **the Australian government take the lead**, particularly with respect to taxes and subsidies. When States drive economic policy, multi gauge rail networks get developed. The present purchase price and consumption tax structures for cars are Australian government imposts that will have to be tinkered with. Recent statements by treasurers in NSW and Victoria that their states are considering their own tax and subsidy structures on this issue should concern all citizens.

Second, it is **critical that governments at all levels explain the issue honestly**. There is no point lying to voters that EVs cannot tow boats or run a ute. Similarly there is no point stating that Australia can (or should) be a leader in EV conversion when it still runs a coal-dominated electricity grid.

Third, **the Australian government should move aggressively to create incentive structures for the use of EVs in mining**, where we are a consumer of sufficient scale as to change OEM behaviours.

Finally, **the electricity grid needs to be sorted out quickly**. If Australia somehow were to be 20% EV's within five years, there wouldn't yet be adequate production, transmission and distribution capacity to charge vehicles.

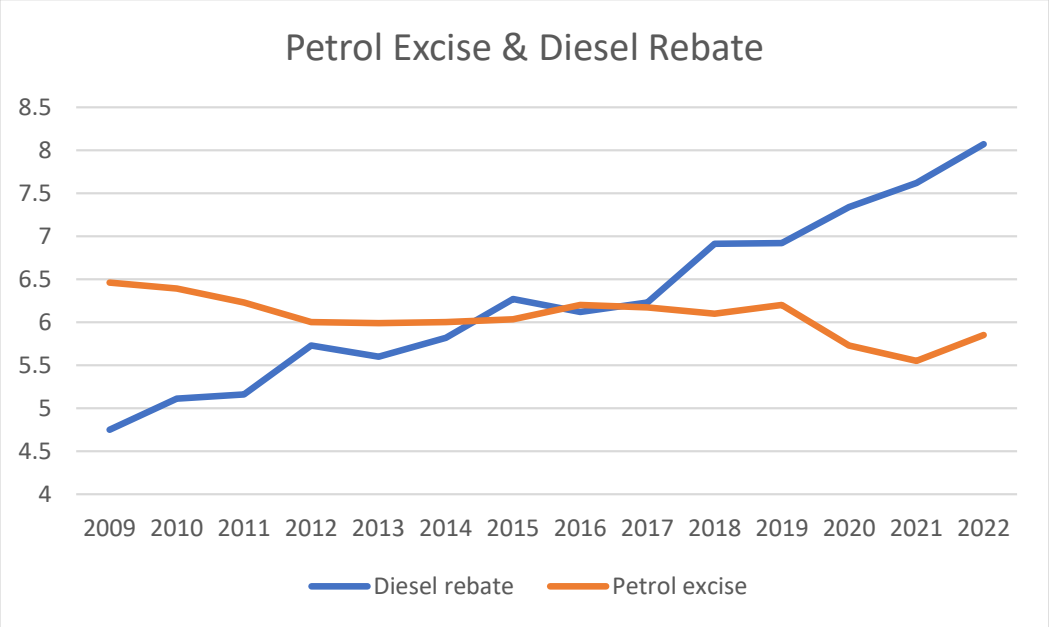
Specific initiatives the Australian government could take could include a tax on retail power to upgrade the network. A 10-year, 1.0c/kwh tax on retail electricity dedicated to the grid would create a $6-7b fund to upgrade infrastructure. This would likely see most of the required grid upgrades funded by the people who use the grid. It would likely cost $60 per household a year. This would enable Australia to be ready for conversion when manufacturers suddenly cut-off sales of petrol powered vehicles.

The other key issue would be to create incentives for the mining industry to accelerate the conversion from diesel to electric powered off-road vehicles. At present the fuel rebate, which is only for off-road vehicles, is worth $8bn p.a., which is a major disincentive to reduce the use of exceptionally high emissions imported fuel by pivoting to zero emission domestic alternatives.

The Australian government could create a substantial incentive by proportionally reducing the rebate to zero over a 15-year period while capping each individual group's rebate to a maximum of $5m annually, ensuring no farmers or small enterprises are impacted at all. In the early years, tax revenues from net excise would rise by some $1bn p.a. Even in the mining industry, this would be a material

incentive to implement change. Over time we would expect users to convert to EV's, reducing the impost paid to zero. On its own, this might see consumption of petroleum fuels fall by 40% over time at zero net cost to the taxpayer - an exceptional outcome for the country at limited net cost.

Figure 8: Diesel Rebate & Petrol Excise ($Bn)



Source: Australian Budget Papers number 5.

An interesting tangent to this is the performance of Australian consumers with respect to emissions. As we saw with electricity, despite decades of GDP and population growth, consumption has been static since 2009.

With petroleum, the relative performance is similar. Based on the diesel rebate, off-road consumption has grown by around 2.5% p.a. since 2009. Total diesel consumption has grown by 4.1% p.a. for 10 years and 3.9% p.a. for 20 years. Petrol consumption has fallen by 1.1% p.a. for 20 years and 2.7% p.a. for 10 years. In total, fuel consumption for internal combustion engines has grown by 0.5% p.a. for the past decade despite the rapid rise in off- road vehicles.

This suggests that Australian consumers will, without material incentives, move to lower consumption vehicles if given an opportunity to do so.

What Might Be the Economic Impact of a Global Shift to EVs in Australia?

The economic impact of a global shift to EV's would likely be quite positive for Australia, presuming the country can cope with a sustained increase in an already large trade surplus.

The net impact can be considered as follows:

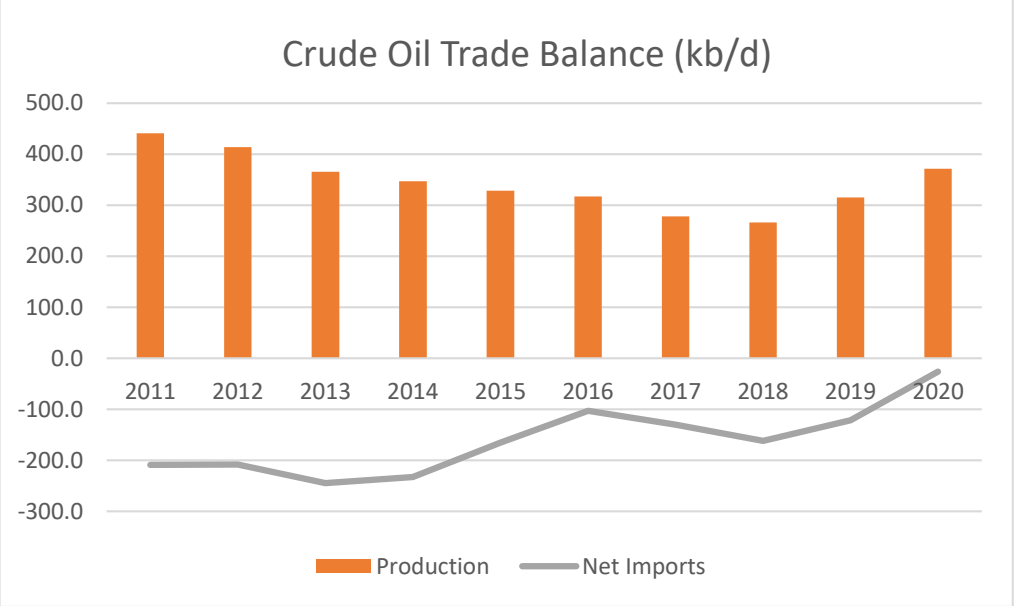
- The direct and indirect impact of ceasing production of ICE vehicles
- The direct and indirect impact of producing EV's
- The direct and indirect impact of reduced use of oil
- The direct and indirect impact of increased use of distributed electricity.

Australia currently produces no ICE vehicles and very few parts. The idea that the country will be a producer of EV's is a fantasy. As such, the direct manufacturing impact will be zero.

The indirect impact however may be more meaningful. The world going forward will likely need more lithium, rare earths, nickel and molybdenum. As with virtually all minerals, Australia has sufficient to be a global leader. Australia is also somewhat over-exposed to the global production of steel. If EV's use less steel than ICE, that would be an unambiguously negative future outcome.

Oil however is the big issue. Australia has been a net importer of crude oil since the industry was first developed. Over the past few years, the gap between domestic production and imports has been narrowing sharply, and a surplus is possible in the medium term.

Figure 9: Crude Oil Balance (kb/d)

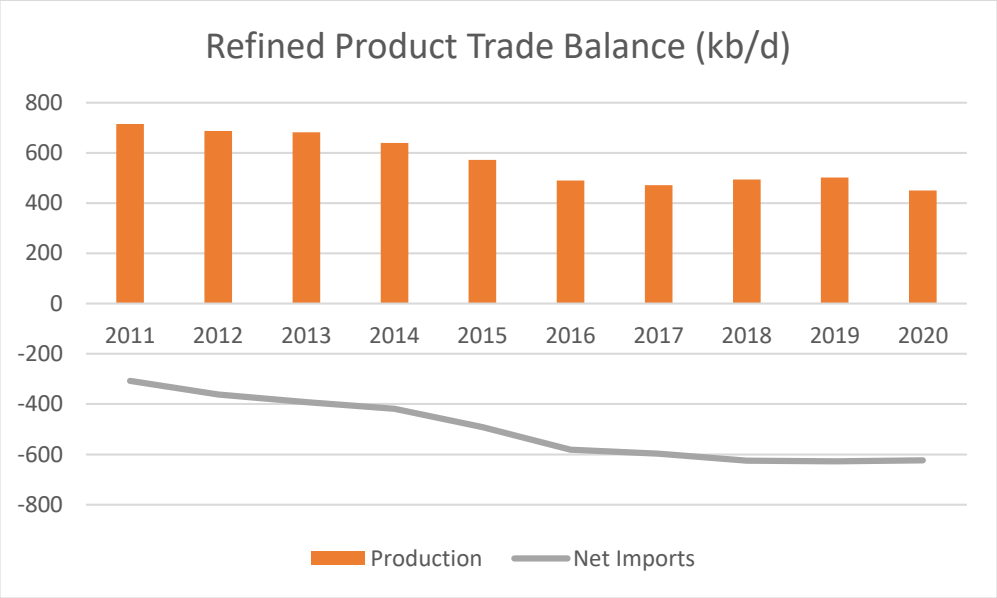


Source: BREE Resources Quarterly.

This is not so much a function of increased output but rather declining demand - solely a function of refinery closure. As a consequence Australia, historically a

market that imported crude only, is now a market that is in balance in crude but imports the majority of the refined product.

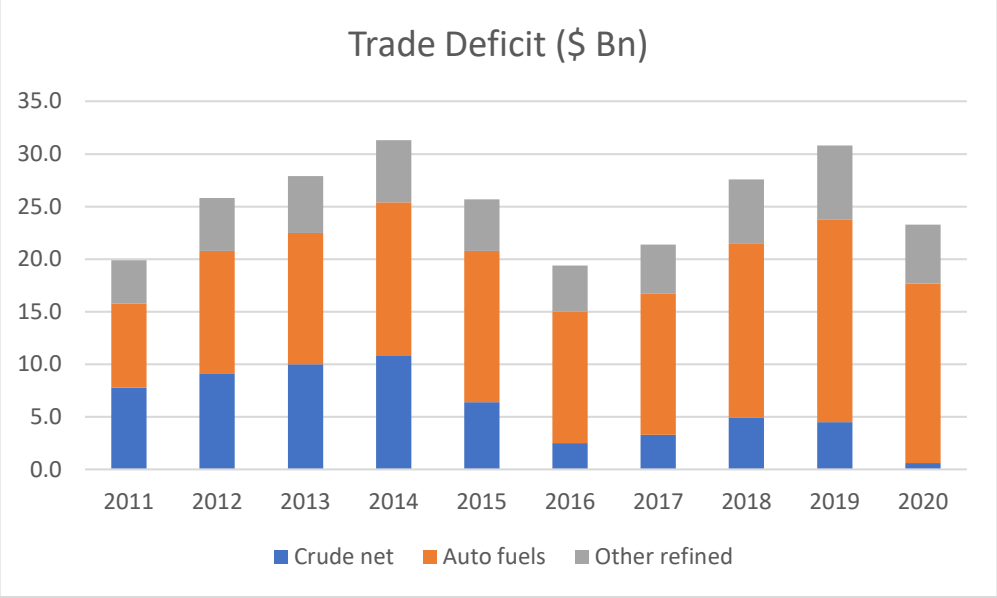
Figure 10: Refined Products Trade Balance (kb/d)



Source: BREE Resources Quarterly.

In dollar terms, Australia regularly runs trade deficits of $25bn p.a. in crude and refined products. Over the past decade, the deficit in crude was $60bn. The deficit in products was $34bn in petrol, $106bn in diesel and $53b in other refined products.

Figure 11: Petroleum Products Balance of Trade ($Bn)



Source: BREE Resources Quarterly.

On balance then, with a full conversion to EV's, the deficit in products will fall by $14bn a year, which is nearly 1% of GDP. As a society one can do a lot with 1% of GDP.

The electricity grid in the eastern states has at least a decade to prepare for accelerated EV uptake. Based on the 2005-2015 experience, the result will be excessively expensive and inefficient unless the regulatory structure is altered.

The enthusiasm of the Australian government for central government action in electricity markets is a cause for considerable concern. Based on historic performance, while the grid will cope with demand, the capital costs will be excessive and will be funded by retail consumers.

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The Institute for Energy Economics and Financial Analysis (IEEFA) examines issues related to energy markets, trends and policies. The Institute's mission is to accelerate the transition to a diverse, sustainable and profitable energy economy. www.ieefa.org

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