

Submission on the design of a fuel efficiency standard

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Overview

Australia's vehicle regulation regime is so far out of step with other countries that vehicle manufacturers freely admit this country is a dumping ground for higher-emitting old models.

According to Volkswagen, Australia is an 'automotive third world' and a 'dumping ground for older and less-efficient vehicles'.¹ According to Nissan Australia,²

Clear and consistent direction from governments is a critical signal to car-makers to prioritise the importation of the latest low- and zero-emission vehicles for Australian consumers.

Joining the mainstream of countries, where an emissions ceiling, or fuel efficiency standard, applies, would slow or stop the practice of manufacturers sending older and higher-emitting vehicles to this country.

The best policy to achieve emissions reduction at least cost is an economy wide carbon price. But it seems unlikely that Australia will have a carbon price any time soon, so its next best option is to pursue sector-by-sector policies. In this context, light vehicles are a safe bet for cost-effective emissions reductions, for two reasons.

Firstly, Grattan Institute analysis shows that abatement achieved through an annual average emissions ceiling is likely to significantly reduce carbon emissions, and make a substantial contribution to Australia's emissions reduction task between now and 2050. An average annual emissions ceiling that begins at 143 grams of carbon dioxide-equivalent per kilometre (gCO₂/km) in 2025 and ends with zero gCO₂/km in 2035 would reduce emissions by between 410 and 460

million tonnes (Mt), depending on how rapidly the ceiling is lowered over the 10-year period.

Secondly, the light vehicle sector is well placed to achieve emissions reductions because the technology for decarbonisation already exists, and is cost efficient. Low- and zero-emissions vehicle technology has matured significantly over the past decade. Internationally, people are switching to electric vehicles: more than half of new cars sold in the EU during the last quarter of 2022 were electric or hybrid.

The objective of a fuel efficiency standard, or emissions ceiling, is to reduce emissions at lowest cost to Australians. The federal government should monitor the ceiling's impacts to ensure it fulfils this role.

1. Davis (2021).

2. Purtil (2021).

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1 Benefits of an emissions ceiling for Australia

It is a rare policy that can reduce carbon emissions, as well as unhealthy exhaust-pipe pollutants, while also saving drivers money and without prohibiting any particular type of vehicle. An emissions ceiling is such a policy, as the following sections explain.

1.1 An emissions ceiling would save drivers money

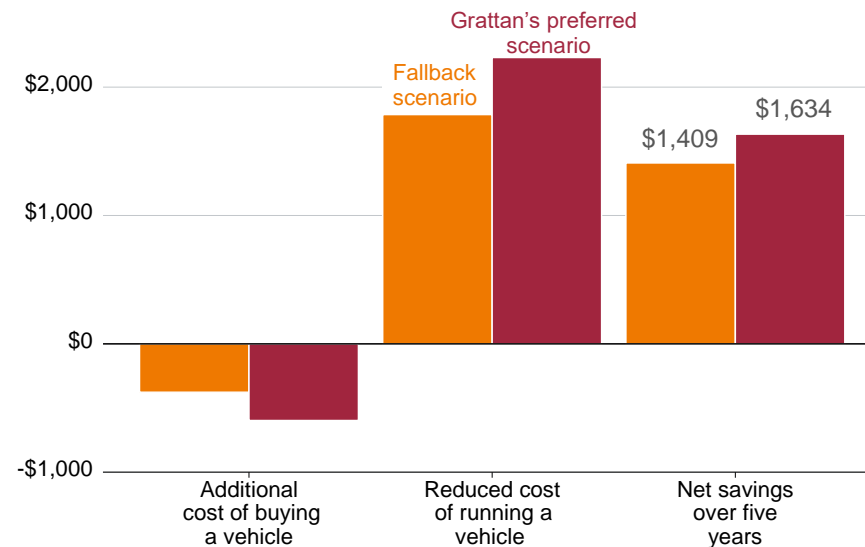
Under an emissions ceiling, the mix of new cars for sale in Australia would include a larger share of electric vehicles and lower-emitting petrol and diesel vehicles than currently. These vehicles tend to be more expensive to buy, particularly electric vehicles. But they are cheaper to run, particularly electric vehicles. Even petrol and diesel vehicles would be cheaper to run under an emissions ceiling, because they would, on average, use less fuel per kilometre travelled.

We calculate that a person who buys a new vehicle under Grattan Institute’s recommended emissions ceiling would save on average more than \$1,600 over the first five years, and \$3,500 over the life of the vehicle. Under a less ambitious fallback trajectory, a driver would save \$1,400 over the first five years, and almost \$3,000 over the life of the vehicle (Figure 1.1).³

Even if future petrol prices are lower than expected, or electricity prices are higher than expected, the driver savings from an emissions ceiling would still be considerable.

Figure 1.1: Low-emissions and electric vehicles cost more to buy but less to run

Estimated costs and savings to drivers under an emissions ceiling



Notes: Average for purchases between 2025 to 2035, with an emissions ceiling and discount rate of 7% applied. Average savings over five years shown. Savings over a 17-year 'lifetime' of a car would be \$3,565 under Grattan Institute's recommended trajectory, and \$2,954 under the fallback scenario. This analysis does not account for the loss of tax revenue to government.

Sources: Grattan analysis.

3. Grattan analysis, calculated using a 7 per cent discount rate. With a 4 per cent discount rate, average net consumer savings under Grattan's recommended emissions ceiling would be about \$2,300 over five years, and \$5,700 over the life of the vehicle.

1.2 An emissions ceiling would cut emissions at negligible cost to taxpayers

With no policy action, the lifetime emissions of vehicles sold in Australia between now and 2050 would be expected to exceed 775Mt. Under our proposed vehicle emissions ceiling, that number could be more than halved.

Our recommended annual average emissions ceiling would reduce cumulative emissions by about 460Mt by 2050. The less ambitious fallback trajectory would reduce emissions by about 412Mt (Figure 1.2). In the longer term, the reduction in emissions by 2060 would be 505Mt for the recommended trajectory, and 458Mt for the fallback trajectory.

In the year 2030, the scale of emissions reduction under our recommended emissions ceiling, at 9Mt, would be equivalent to about 2.5 per cent of Australia's total emissions, provided Australia is on track to achieve the goal of a 43 per cent reduction on 2005 levels by 2030. This is a modest contribution in the near-to-medium term, but would set the conditions for much more substantial savings over time.

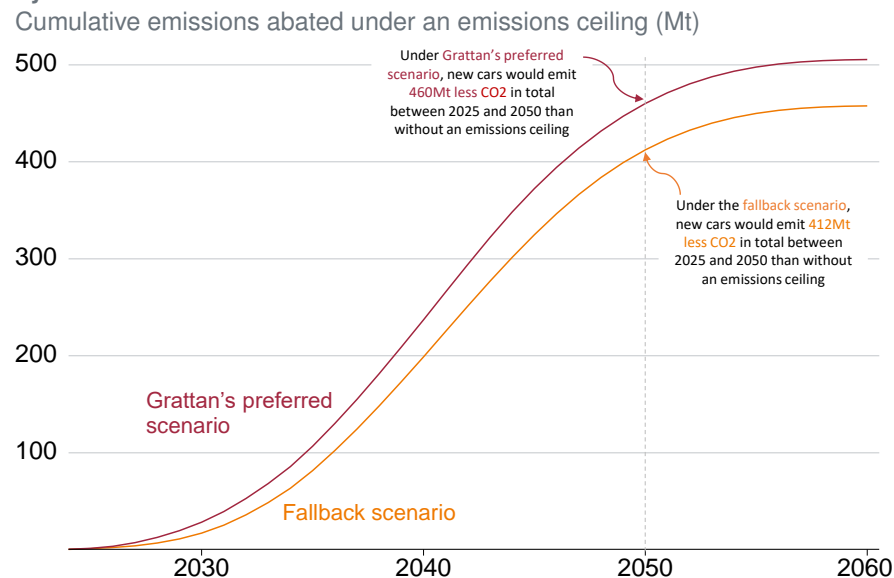
And because these emissions savings would be achieved by regulation rather than direct funding, the only cost to the taxpayer would be the cost of administering the regulation.

1.3 An emissions ceiling would open up new options for Australian drivers

Cars are more than a means to get around. For many of us, they are part of our identity. Some of us like to do burnouts in hot rods. Some of us like to tow caravans and boats for holidays or weekends away. Others choose a car that will do as little damage to the environment as possible, even if it costs more to buy.

An emissions ceiling would change the balance of options available to Australian drivers. There would be a larger range of low-emissions

Figure 1.2: An emissions ceiling could abate almost 460Mt of emissions by 2050



Source: Grattan analysis of DISER (2020, p. 4).

and zero-emissions vehicles,⁴ and a smaller offering of higher-emitting vehicles.

But drivers who want or need specialist or niche vehicles wouldn't miss out: as more people switched over time to electric vehicles, there would be space under the emissions ceiling for manufacturers to sell higher-emitting vehicles to people who were willing to pay for them.

Meanwhile, drivers who care mostly about cost and general driving would end up better off.

4. DIRD (2016).

2 How an emissions ceiling should work

We propose an average annual emissions ceiling, or standard, that applies across the offering of each manufacturer, and is gradually lowered to zero emissions.

Because light vehicles are typically on the road for at least 15 years, the emissions from petrol and diesel vehicles sold today are locked in for that time. It is therefore a key design feature of the emissions ceiling targets that they reach zero by about 2035.

The path from today's typical light vehicle emissions to zero by 2035 is quite steep. We recognise the need for an initial adjustment period, but also that the longer an adjustment period, the steeper the eventual targets will need to be to catch up.

We have modelled the financial costs and savings for consumers, and the emissions reductions, under different target pathways, by estimating the costs of technology required to meet each yearly target, the decreased running costs for motorists, and the emissions that will be saved.⁵ Our modelling assumes a January 2025 start date, but we recommend the targets be imposed as soon as practicable.

Our recommended trajectory assumes that the targets given to manufacturers decline more steeply to begin with, meeting 30gCO₂/km in 2030 and zero in 2035. This approach 'catches up' to New Zealand's fuel efficiency standard targets in 2027.⁶ A less ambitious, fallback trajectory entails softer targets in the period leading up to 2030.

Our preferred trajectory leads to larger emissions reductions and larger savings for drivers.

Under this trajectory, cumulative carbon emissions from light vehicles would be 460Mt less by 2050 than under current policy settings. By 2060, the emissions reduction would be 505Mt.

Under the less ambitious trajectory, cumulative carbon emissions from light vehicles would be 412Mt less by 2050 than under current policy settings. By 2060, the emissions reduction would be 458Mt.

The sharper initial decline under the preferred trajectory is achievable because Australia's emissions are starting from a lower baseline than New Zealand's, and the two countries are typically treated as a single market by manufacturers due to their geographic proximity.

New Zealand has shown that such an approach is possible. It started with slightly higher average emissions for new light vehicles sold, but has adopted a steep reduction trajectory, so far successfully.

5. For further detail and assumptions, see Appendix A of Terrill et al 2022.

6. New Zealand imposes separate targets for passenger vehicles and light commercial vehicles. Here we are assuming one target by taking the sales-weighted averages of those two targets.

3 Design features of an emissions ceiling

We support the government's decision that an emissions ceiling should be binding, and established in Commonwealth legislation. Voluntary emissions targets have been low ambition, but still not met.⁷

As well, the emissions ceiling should have the following characteristics.

3.1 A single target should be applied to all light vehicles

Many countries have opted to apply two distinct emissions targets to new vehicle sales – one for passenger vehicles, and a more lenient target for light commercial vehicles.⁸ But the international experience demonstrates clear shortfalls in this approach.

In the US, for example, although targets within each segment have consistently been met, the effectiveness of the scheme has been undermined because people have continued to abandon passenger vehicles in favour of SUVs and light trucks.⁹ Across its entire fleet, the US recorded an increase in average vehicle emissions from new car sales in 2019, compared to 2018 – despite most manufacturers meeting their targets.¹⁰

There have been similar problems, although to a lesser extent, in many EU countries.¹¹

A single target system also provides manufacturers with more flexibility in how they reach their targets. Australia should adopt a single target.

7. Wood et al (2021).

8. Often including some SUVs.

9. Shepardson (2021).

10. Cozzi and Petropoulos (2019).

11. International Council on Clean Transportation (2018).

3.2 How to set the emissions reduction targets

The government's commitment to reducing emissions to net zero by 2050 sets a date by which those sectors where emissions can be reduced at lower cost need to reach zero or better, to allow room for continuing emissions by sectors where the cost of emissions reduction is higher.

It currently costs less to reduce emissions from light vehicles than from many other activities. For instance, it is unlikely that trucks will reach zero carbon emissions by 2050; Grattan Institute analysis suggests that achievable but ambitious targets would be for 100 per cent of new rigid truck sales and 70 per cent of new articulated truck sales to be zero-emissions by 2040.¹²

To ensure that emissions reduction from light vehicles remains a low-cost form of abatement, the government should evaluate annually, modify if necessary, and report publicly on the impact of the ceiling on carbon emissions.

3.3 Emissions must be carefully monitored

International experience also underscores the need to carefully monitor emissions under any vehicle emissions ceiling.

Vehicle testing is conducted to monitor compliance with emissions policies. But there is a significant gap between test results and real-world emissions, because manufacturers 'game' the system by specifically designing vehicles for the tests.

At present, vehicles sold in Australia are tested for their fuel consumption and carbon emissions using the New European Drive

12. Terrill et al (2022).

Cycle (NEDC), which simulates a range of driving conditions. But the NEDC is not perfect, and has become more imperfect over time.

The gap between test results and real-world emissions has grown considerably, particularly in jurisdictions such as Europe that have an emissions ceiling. In 2001, the gap between NEDC test results and real-world driving emissions in Europe was estimated at 10 per cent.¹³ By 2017, that gap had grown to 39 per cent.¹⁴ A similar picture has emerged in Australia, with best estimates indicating the gap grew from about 10 per cent in 2008 to more than 30 per cent in 2017.¹⁵

The United Nations Economic Commission for Europe has developed the Worldwide Harmonised Light Vehicle Testing Procedure, or WLTP. The WLTP test reflects real-world driving conditions more accurately than the NEDC, because it involves more aggressive driving at higher speeds and in more tightly controlled conditions.

In 2018, the gap between WLTP and real-world emissions for European vehicles was estimated to be 14 per cent.¹⁶

The EU now uses the WLTP instead of the NEDC. Australia should also adopt the WLTP, in line with our 'long-standing policy of harmonising Australian vehicle standards with international best practice'.¹⁷

Australia should require that all new vehicles be fitted with on-board vehicle emissions monitoring devices. These devices, used in the EU, collect data on energy efficiency and fuel consumption of vehicles under real-world conditions.¹⁸ As in the EU, Australia should enforce strict privacy guidelines on the use of the data collected. Annual data

containing test and real-world results for all vehicle models sold should also be made public in Australia, as it is in the EU,¹⁹ to enable scrutiny of test results, real world-emissions, and the gap between the two.

3.4 An emissions ceiling should allow some flexibility

Australia's vehicle-emissions ceiling should allow manufacturers some flexibility in how they meet their targets. This may be through allowing manufacturers who fail to meet their targets to purchase credits from manufacturers who overachieve, or through allowing overachieving manufacturers to accrue credits that they can use to hit targets in later years.

Most international schemes include some form of flexibility. If such arrangements are designed well, they can lower the compliance burden for manufacturers without undermining the policy intent of emissions reduction at the lowest cost to Australians.

3.5 An emissions ceiling should not permit technology multipliers

In some countries, emissions ceilings include multipliers for certain vehicle technologies. These typically have been used for zero-emissions vehicles, with the rationale that these immature technologies require greater support.

Australia should not go down this path. These sorts of arrangements reduce the overall emissions reductions achieved through an emissions ceiling, and are inconsistent with a technology-neutral approach to reducing emissions in the transport sector.

By allowing zero-emissions vehicles to accrue a multiplier, technology credits allow a single vehicle to count as more than one vehicle. In

13. International Council on Clean Transportation (2019, p. 25).

14. Ibid (p. 25).

15. Smit (2019, p. 10).

16. International Council on Clean Transportation (2020, p. 21).

17. Fletcher (2018, p. 8).

18. European Union (2021).

19. European Environment Agency (2021).

some countries, zero-emissions vehicles have been given a weighting of 1.5 vehicles or 2 vehicles, despite the fact that the emissions reductions achieved through the specific technology are no greater than emissions reductions achieved in any other way.

This is typically justified on the grounds that it provides a boost to infant technologies, encouraging investment. However, globally, zero-emissions vehicles are no longer in their infancy. In the EU, for example, provisional sales data indicate that 15-to-20 per cent of all new vehicles sold in 2021 are battery electric.

Multipliers also enable manufacturers to emit more than the target specifies. For example, if zero-emissions vehicles accrue a 2x multiplier, a manufacturer who exclusively sells zero-emissions vehicles could 'meet' their target while achieving only half of the emissions reductions that would be required if no multiplier was in place.

Australia's policy should take a technology-neutral approach to reducing vehicle emissions.

3.6 An emissions ceiling should include tough penalties

Manufacturers whose fleet's emissions are above the ceiling should face penalties that are tough enough to encourage trading of credits, in a similar fashion to the default penalty that applies to electricity retailers who fail to meet their renewables quota under the Renewable Energy Target, or large industrial facilities whose emissions are above their set baseline under the Safeguard Mechanism.

In the longer term and to support lowest cost across the economy, manufacturers should be able to meet the ceiling by acquitting offsets such as Australian Climate Change Credits, with an appropriate exchange rate.

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