

Fuelling efficiency

Introducing fleet fuel efficiency standards would reduce transport emissions, save motorist money on fuel, increase the availability of electric vehicle models, and reduce Australia's reliance on imported foreign oil.

Discussion paper

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Summary

Australia has become an outlier in the global light vehicle market, with a comparatively inefficient and anachronistic vehicle fleet. In 2018, the average carbon dioxide (CO₂) intensity for new passenger vehicles in Australia was 169.8gCO₂/km compared to 129.9gCO₂/km in the United States, 120.4gCO₂/km in Europe and 114.6gCO₂/km in Japan.

Regulatory approaches to increase fuel efficiency and lower carbon emissions from vehicle fleets are commonplace internationally. Fuel efficiency standards (sometimes referred to as CO₂ emissions standards) have been adopted in around 80% of the global light vehicle market. Fuel efficiency standards regulate the efficiency of new vehicles sold. They involve a fleet average efficiency target, where manufacturers pay a penalty for exceedance of that target (based on the average of the new vehicles they sell). Manufacturers can sell vehicle models with emissions performance above the target but must also sell low emissions/high efficiency models to meet the average and avoid penalty.

The introduction of mandatory fuel efficiency standards in Australia would bring a number of benefits. Standards would help reduce Australia's transport emissions, which account for 18% of Australia's emissions and are rising. They would also save motorist money on fuel costs, reduce the need for imported oil in Australia, and encourage vehicle manufacturers to supply electric and efficient models to the Australian market.

If fuel efficiency standards had been introduced in 2016:

- 9 million tonnes of CO₂ would have been prevented – similar to a year's worth of emissions from domestic aviation,
- \$5.9 billion in fuel costs would have been saved, and
- 4000 megalitres of imported fuel could have been avoided.

However, progress towards introducing standards in Australia has been hampered by politicisation of electric vehicles, industry lobbying, misinformation about the impact of standards, and delayed government action. Previous government attempts to introduce standards were met with disinformation, prompting the International Council on Clean Transport (ICCT) to address misconceptions surrounding Australia's proposed standards.

Fuel efficiency standards have been recommended by two separate government inquiries, committed to by multiple governments but never adopted, and recommended in multiple government reports stretching back over a decade.

In 2014, the Australian Climate Change Authority (CCA) recommended the introduction of fuel efficiency standards to reduce the emission intensity of the Australian light vehicle fleet from 192gCO₂/km in 2013 to 105gCO₂/km in 2025. Modelling later undertaken by the Bureau of Infrastructure, Transport and Regional Economics (BITRE) as part of the Ministerial Forum into Vehicle Emissions found these standards would have a net benefit to the economy of \$13.9 billion by 2040 and save Australia \$48.70 for every tonne of CO₂ avoided. Yet, mandatory standards have not been introduced.

Other mandatory vehicle standards (emissions standards and fuel quality standards) already exist in Australia to regulate the noxious tailpipe emissions from vehicles and the quality of fuel. They are interrelated with fuel efficiency standards, but ultimately separate. Additionally, voluntary fuel efficiency standards were introduced in 2020. However, the lack of penalties for non-compliance means there is no incentive for vehicle manufacturers to meet the voluntary standards, which are industry-led and suffer from loopholes. Targets are set well below the emissions/efficiency targets of comparable countries and award controversial 'off-cycle' credits for additional technology such as reflective surface coating and efficient exterior lights.

Designing a robust Australian fuel efficiency standard will require consideration of a number of factors, including how the standards are regulated, what targets are set and how they change over time, how long the grace period is between announcement and application of penalties, and the vehicle attributes upon which the targets are based.

While design and implementation will require detailed consultation and modelling, some core principles should be considered. Fuel efficiency standards should be:

- Strong and aligned with Australia's emissions reductions commitments, eventually leading to a ban on new fossil fuelled vehicle sales by 2030 or 2035 at the latest,
- implemented as soon as practicable,
- have integrity – standards should be mandatory, independent from industry, and based on independent and publicly accessible data.

There is broad support amongst Australians for the introduction of fuel efficiency standards. Climate of the Nation 2021 (a nation-wide survey of attitudes to climate change) shows 65% of Australians support the introduction of national fuel efficiency standards in line with those in Europe.

Ultimately, the main barrier to introducing mandatory fuel efficiency standards in Australia has been a lack of political will. The new Government has an opportunity to turn this around, taking Australia out of the slow lane and catching up to other countries by introducing mandatory fuel efficiency standards this year.

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Introduction

Australia has been notoriously slow in the move towards electric vehicles, driven largely by negative government sentiment and an unsupportive policy landscape. Consumer interest in electric and more efficient vehicles is rising, but the supply of affordable models is now a key issue. The impacts of Australia's heavy reliance on imported oil to power its transport system have been costly.

Fuel prices across the country have gone through the roof, driven by global oil constraints as Russia's invasion of Ukraine pushes up global oil prices. In response, the Morrison Government temporarily halved the fuel excise on petrol, cutting the tax by 22 cents per litre for a six-month period. Aimed at addressing the rising cost of living, this measure did little to address the underlying issue of Australia's growing dependence on imported oil, and fuel prices have remained high.

Transport emissions rebounded from dips recorded during COVID-19 lockdowns, with no overarching national strategy in place to reduce them. Emissions from the transport sector make up one fifth of Australia's total emissions and are one of the fastest growing sources of emissions in the country.

Additionally, Australia's lack of electric vehicle and climate policies has hampered the supply of electric vehicles into the Australian market, with electric vehicle demand now outstripping supply.

Introducing standards to regulate the fuel efficiency of the Australian fleet would help address these issues. Vehicle manufacturers are more likely to place their efficient and zero emissions models in countries with mandatory efficiency standards to avoid severe penalties. The take up of more efficient and electric vehicles would reduce Australia's transport emissions and reliance on imported oil to power Australian transport.

Pressure is mounting on the newly elected Australian Government to introduce fuel efficiency standards. The ACT Government has recently made clear they will continue to advocate for strong national standards but are prepared to explore opportunities with other Australian states and territories if the Commonwealth fails to act.

As the Australian Government readies its pitch to host a future UN climate change conference in partnership with Pacific nations, stronger fuel efficiency standards could be an additional part of establishing Australia's climate credentials.

Vehicle efficiency

Australia's vehicle fleet is amongst the world's least efficient and most polluting. Regulating vehicle efficiency can reduce greenhouse gas emissions, due to the corresponding relationship between emissions and vehicle efficiency depending on the energy and carbon content of different fuels. For example, a petrol vehicle with fuel consumption of 4L/100km has an average carbon dioxide (CO₂) emissions intensity of 91gCO₂/km, while a diesel vehicle with the same fuel consumption has an emissions intensity of 107gCO₂/km.¹

The Australian vehicle fleet is less efficient than other vehicle markets. In 2018, the average CO₂ intensity for new passenger vehicles in Australia was 169.8gCO₂/km compared to 129.9gCO₂/km in the United States, 120.4gCO₂/km in Europe and 114.6gCO₂/km in Japan.² Figure 1 below compares Australia's CO₂ emissions intensity for new passenger vehicles in 2018 with Europe, Japan and the United States.³

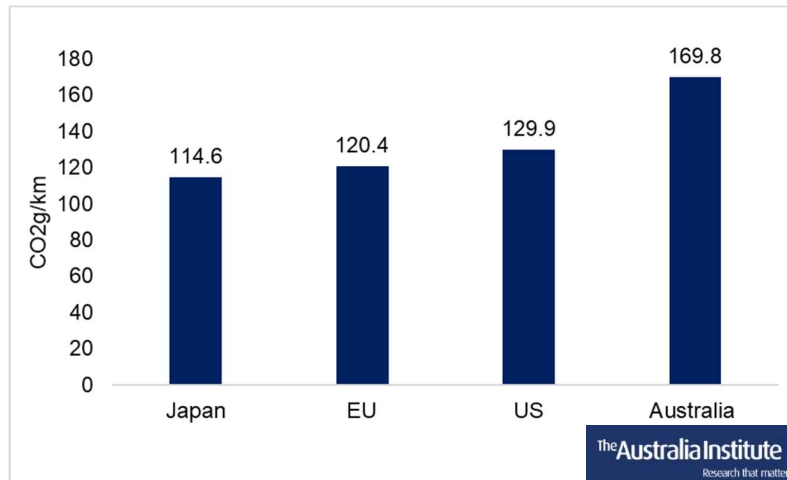
¹ National Transport Commissions (2021) *Carbon dioxide emissions intensity for new Australian light vehicles 2021*, P 10,
<https://www.ntc.gov.au/sites/default/files/assets/files/Carbon%20dioxide%20emissions%20intensity%20for%20new%20Australian%20light%20vehicles%202020.pdf>

² All values converted to NEDC. Australian figure from: National Transport Commission (2020) *Carbon Dioxide Emissions intensity for New Australian Light Vehicles 2019*,
<https://www.ntc.gov.au/sites/default/files/assets/files/Carbon-dioxide-emissions-intensity-for-new-Australian-light-vehicles-2019.pdf>

International figures from The International Council on Clean Transportation, Data tables May 2020,
<https://theicct.org/pv-fuel-economy/>

³ Note – More recent data is available from the National Transport Commission, however due to changes in the reporting methodology from third party sources in 2020 onwards, the NTC data includes emission credits and cannot be compared with previous years.

Figure 1: Average emissions intensity (gCO₂/km) of new passenger vehicles, 2018

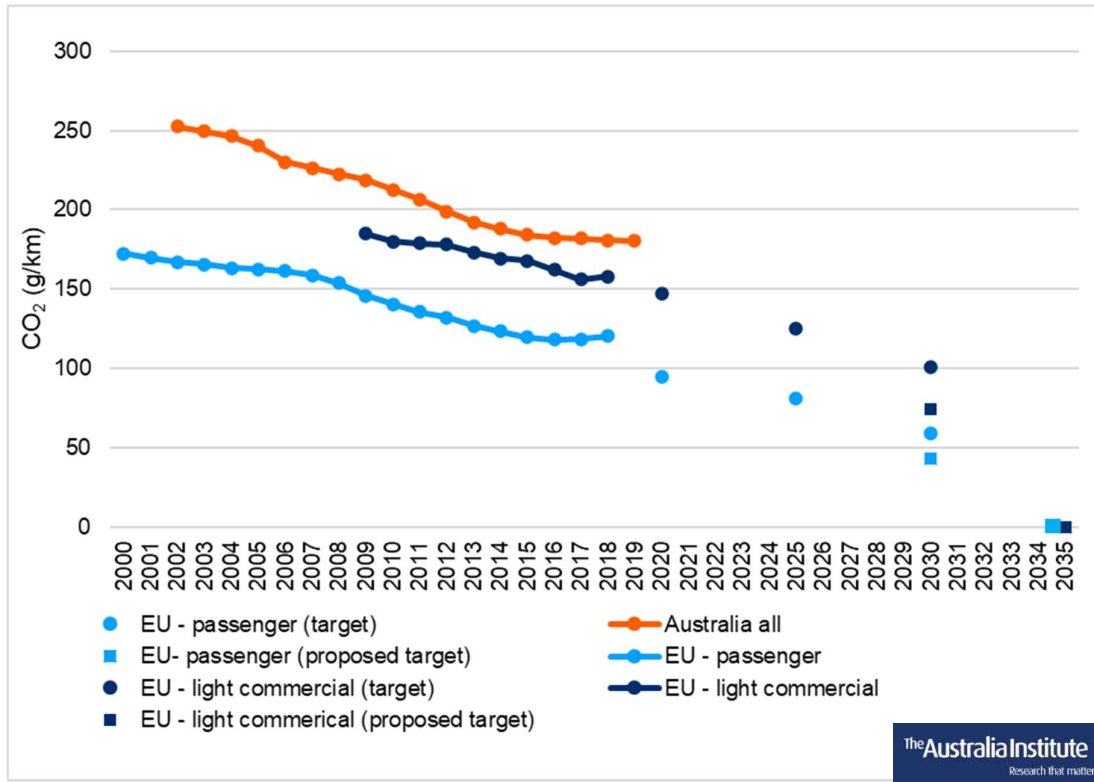


Source: National Transport Commission (2020) *Carbon Dioxide Emissions intensity for New Australian Light Vehicles 2019*, and International Council on Clean Transportation (2020) *Data tables May 2020*

Note: measured under or converted to NEDC cycle

Figure 2 shows the change in CO₂ emissions intensity of new vehicles over time in Australia and Europe. Australia's passenger vehicle fleet, which includes passenger and light commercial vehicles in the data shown, is significantly higher even than Europe's light commercial vehicle fleet.

Figure 2: Emissions intensity (gCO₂/km) of new vehicles under NEDC cycle – Europe and Australia



Source: Australian figures from National Transport Commission, European figures from International Council on Clean Transportation.⁴

Rising transport emissions have been addressed in other jurisdictions through fuel efficiency standards or other efficiency measures such as feebate schemes, where fees are levied on inefficient vehicles to fund rebates on efficient vehicles.

According to the 2022 International Energy Efficiency Scorecard, which ranks 25 of the world’s largest energy users on efficiency metrics,⁵ Australia ranks third last in the transport category, in part due to lack of fuel efficiency standards. France scores highest on transport efficiency and has had a feebate system in place for over 14 years to regulate vehicle efficiency.

⁴ National Transport Commission (2020) *Carbon Dioxide Emissions intensity for New Australian Light Vehicles 2019*.

International Council on Clean Transportation (2020) *Data tables May 2020*.

International Council on Clean Transportation (2021) *Fit for 5: A review and evaluation of the European Commission proposal for amending the CO₂ targets for new cars and vans*, <https://theicct.org/wp-content/uploads/2021/12/fit-for-55-review-eu-sept21.pdf>

⁵ ACEEE (2022) *International Energy Efficiency Scorecard*, <https://www.aceee.org/international-scorecard>

Many countries are moving to ban the sale of new internal combustion engine (ICE) vehicles completely, and some countries with established targets are moving target dates forward.⁶ Most recently, the European Union agreed to fully phase out the sale of new ICE passenger vehicles by 2035.⁷ In Australia, the only jurisdiction aiming to institute a 2035 phase out date is the ACT, announced in July 2022.⁸

FUEL EFFICIENCY AND EMISSIONS PERFORMANCE REPORTING

Recent changes to the way that Australian passenger vehicle emissions are reported have raised concerns about the independence and accuracy of Australian data on vehicle emissions.

The emissions intensity performance of new passenger and light commercial vehicles sold in Australia is reported annually by the National Transport Commission (NTC) through the Carbon Dioxide Emissions Intensity Report series. Annual sales data is provided to the NTC by the Federal Chamber of Automotive Industries (FCAI) to inform the annual reports.⁹

However, in 2020 the FCAI made changes to their emissions intensity reporting method. Heavy sport-utility vehicles (SUVs) and light commercial vehicles are now split from passenger vehicles and the two segments are reported separately. Additionally, the FCAI now incorporate 'super-credits', where some vehicle models are awarded extra points for air-conditioning credits and off-cycle credits.¹⁰

The changes to the FCAI reporting methodology, ostensibly made to align Australia with international emissions intensity reporting, mean the NTC can no longer report on the year-on-year changes in Australian passenger vehicle emissions as they have previously, and figures included in the NTC reporting now represent average emissions after accounting for the use of credits.

⁶ ICCT (2021) *Updating on government targets for phasing out new sales of internal combustion engine passenger cars*, https://theicct.org/sites/default/files/publications/update-govt-targets-ice-phaseouts-jun2021_0.pdf

⁷ Perkins (2022) *Australia risks being 'left behind' as EU bans fossil fuel cars from 2035*, <https://www.smh.com.au/environment/climate-change/australia-risks-being-left-behind-as-eu-bans-fossil-fuel-cars-from-2035-20220630-p5ay3r.html>

⁸ Lindell (2022) *New internal combustion engine cars, light trucks will be banned in ACT from 2035 as part of electric transition*, <https://www.canberratimes.com.au/story/7822512/act-sets-date-for-ban-on-new-fossil-fuel-cars/>

⁹ National Transport Commission (2022) *Light vehicle emissions intensity reports*, <https://www.ntc.gov.au/transport-reform/light-vehicle-emissions>

¹⁰ FCAI (2021) *Fuel quality and emissions*, <https://www.fcai.com.au/fuel-quality-and-emissions/fuel-quality-and-emissions>

Concerns have been raised about the lack of independent data on transport emissions and efficiency, including suggestions that the new reporting framework is skewed to favour particular car makers through the application of super credits for hybrid vehicles.¹¹

To ensure independent and accurate data on the emissions intensity of Australia's light vehicle fleet, vehicle manufactures should be required to report directly to the NTC or Federal Government.

¹¹ Hannam (2021) *Blowing smoke: Toyota's emissions advantage splits sector*, <https://www.smh.com.au/environment/climate-change/blowing-smoke-toyota-s-emissions-advantage-splits-sector-20210819-p58k8u.html>

Attempts and recommendations to introduce fuel efficiency standards

Many attempts have been made to progress fuel efficiency standards in Australia, including multiple government committees and reports that recommend the introduction of fuel efficiency standards. Attempts have been made to introduce standards through private members bills and government commitments, and fuel efficiency standards are the subject of an on-going and long delayed government forum.

In 2014, the CCA recommended the introduction of fuel efficiency standards, set to reduce the emissions intensity of the Australian light vehicle fleet from 192gCO₂/km in 2013 to 105gCO₂/km in 2025. The CCA examined three standards, concluding that the strongest standard (105gCO₂/km in 2025) would deliver the largest net benefits and was the best way to reduce greenhouse gas emissions and lower fuel bills by making Australia's vehicles more efficient.¹²

Analysis of the design and impact of fuel efficiency standards in Australia was then conducted as part of the Ministerial Forum on Vehicle Emissions standards, established in 2015. The Ministerial Forum was tasked with considering three measures: vehicle emission standards to reduce noxious emissions, fuel efficiency standards to reduce CO₂ emissions, and fuel quality standards and instruments to reduce noxious and greenhouse gas emissions.¹³

In December 2016, the Ministerial Forum released a draft regulation impact statement on fuel efficiency measures, analysing the impact of three potential fuel efficiency targets for 2025, based on the CCA targets – 'strong' (105gCO₂/km), 'medium' (119gCO₂/km) and 'mild' (135gCO₂/km).¹⁴ Modelling undertaken by the Bureau of Infrastructure, Transport and Regional Economics (BITRE) found that all three targets would result in net cost savings. The main benefit identified was a reduction in fuel costs to the economy, along with greenhouse gas emissions reductions. The main cost was the production cost of technologies required to meet the standards; however this was more than offset by the benefits.

¹² Climate Change Authority (2014) *Light Vehicle Emissions Standards for Australia Research Report*, <https://www.climatechangeauthority.gov.au/publications/light-vehicle-emissions-standards-australia>

¹³ Australian Government (2018) *Better fuel for cleaner air*, P 1, <https://www.industry.gov.au/sites/default/files/2020-07/better-fuel-cleaner-air-ris.pdf>

¹⁴ Australian Government (2016) *Improving the efficiency of new light vehicles*, https://www.infrastructure.gov.au/sites/default/files/migrated/vehicles/environment/forum/files/Vehicle_Fuel_Efficiency_RIS.pdf

Under all three fuel efficiency targets assessed, Australia would save money for every tonne of CO₂ avoided. The net benefit to the economy of introducing the strong standard (105gCO₂/km by 2025) would be \$13.9 billion by 2040, with the negative cost of abatement being -\$48.70/tonne.¹⁵

The Ministerial Forum appears to have slipped into purgatory. A final Regulation Impact Statement from the Ministerial Forum was due in mid-2017, but as of July 2022, the Forum has made no further public progress towards fuel efficiency measures. Not only has this delay hampered the Ministerial Forum's own progress, the existence of the forum has also been used as the basis for delaying other measures to secure fuel efficiency standards.

In 2014, former Greens Leader Christine Milne introduced a private member's bill proposing the introduction of carbon emissions standards for new passenger vehicles and light commercial vehicles.¹⁶ Under the proposed legislation, "Passenger and light commercial vehicles would be required to meet a vehicle carbon emissions target of 130 grams of carbon dioxide emitted per kilometre by 2020, and 95 grams of carbon dioxide emitted per kilometre by 2023",¹⁷ aligning Australia with the European Union's 2020 standard.

The Bill was referred to the Environment and Communications Legislation Committee for inquiry, with in-principle support given by the Clean Energy Regulator (CER), and the CCA. However, the Committee recommended the bill not be passed, on the basis that the Ministerial Forum on Vehicle Emissions had been initiated during the Inquiry:

"Given that the Ministerial Forum will be undertaking intensive consideration of the matters and other related issues, the committee considers that the bill should not be passed."¹⁸

Previous Labor governments have also committed to introducing fuel efficiency standards. In 2010, the Gillard Government committed to introducing mandatory fuel efficiency standards for new light vehicles from 2015. The standards would target 155gCO₂/km in 2024. However, due to a change in government in 2013, standards were never legislated.

In 2019, Labor (in opposition) again announced a commitment to introduce vehicles emissions standards, in line with the CCA recommendation of 105gCO₂/km. This announcement faced strong backlash, particularly from the automobile industry, and was

¹⁵ Australian Government (2016) *Improving the efficiency of new light vehicles*, https://www.infrastructure.gov.au/sites/default/files/migrated/vehicles/environment/forum/files/Vehicle_Fuel_Efficiency_RIS.pdf

¹⁶ Senate Environment and Communications Legislation Committee (2014) *Motor Vehicle Standards (Cheaper Transport) Bill 2014*, https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Environment_and_Communications/Motor_Vehicle_Standards/Report

¹⁷ Ibid.

¹⁸ Ibid. p. 16

met with disinformation campaigns (discussed further below). A Coalition Government was elected in 2019, and standards were never legislated.

Additionally, fuel efficiency standards have been recommended by multiple Parliamentary committees and inquiries, including the 2018 Senate Committee Inquiry into Electric Vehicle uptake in Australia and the 2019 House of Representatives Inquiry into the Future of Australian Transport. The Australian Electric Vehicle Market Study, commissioned by ARENA and conducted by Energeia in 2018, found that vehicle emissions standards, implemented in line with the CCA target of 105gCO₂/km, would 'underpin a significant increase in [plug in electric vehicle] uptake in Australia'.¹⁹

Table 1 below lists recommendations and attempts to implement fuel efficiency standards in Australia from 2008:

¹⁹ ARENA (2018) *Australian Electric Vehicle Market Study Conclusion and Future Direction*, P 78, <https://arena.gov.au/assets/2018/06/australian-ev-market-study-report.pdf>

Table 1: Historical attempts and recommendations for introducing fuel efficiency standards

Year/type	Name/Description	Recommendation/Findings
2008 Discussion paper	Vehicle Fuel Efficiency: Potential measures to encourage the uptake of more fuel efficient, low carbon emissions vehicles prepared by the Australian Transport Council with support from the Australian Government	CO₂ Emission [fuel efficiency] Standards for New Light Vehicles identified as a potential measure which could be implemented to improve vehicle fuel efficiency and CO ₂ emissions performance. ²⁰
2010 Report	Report of the Prime Minister’s Task Group on Energy Efficiency	Recommendation 6: “consider the introduction of a mandatory light vehicle CO₂ [fuel efficiency] standard ” ²¹
2010 Government commitment	Gillard Labor Government emissions standards for cars	“The Gillard Labor Government will cut emissions on our roads by introducing new mandatory [fuel efficiency] standards for all new light vehicles, including cars, from 2015.” ²²
2014 Report	Australian Government Climate Change Authority Light Vehicle Emissions Standards for Australia Research Report	“Australia has an opportunity to reduce greenhouse gas emissions and lower fuel bills for Australian motorists by making light vehicles more efficient. A light vehicle emissions standard is the best way to achieve this.”
2014 Private Members Bill	Motor vehicles standards (Cheaper Transport) Bill introduced by Greens leader Christine Milne	Proposed the introduction of [fuel efficiency] standards for new passenger vehicles.
2016 Ministerial Forum	Ministerial Forum on Vehicle Emissions Standards. Improving the efficiency of new light vehicles: Draft Regulation Impact Statement	Cost-benefit analysis of three potential fuel efficiency standards targets show “ the benefits exceed the cost under all three possible targets ” ²³
2018 Report	Senate Committee into Electric Vehicles	Recommendation 6.31 “The Committee recommends that the Australian Government introduce more stringent vehicle emissions standards, and establish a new [fuel efficiency] standard , informed by those implemented in other developed countries and the findings of the Ministerial Forum on Vehicle Emissions.” ²⁴
2018 Report	ARENA Australian Electric Vehicle Market Study	Fuel Efficiency Regulation – Implementation of 105gCO₂/km fuel efficiency standard would underpin a significant increase in PEVs in Australia ²⁵
2019 Inquiry	House of Representatives Standing Committee on Infrastructure, Transport and Cities: Innovating Transport across Australia – Inquiry into automated mass transit	Recommendation 13: “The Committee recommends that the Australian Government consider facilitating the transition to automated and electric vehicles by giving consideration to options such as ... Promoting zero-emission vehicles through [fuel efficiency] standards ” ²⁶
2019 Election Commitment	Labor Emissions Standards Proposal	“Labor will .. aim to phase-in standards of 105gCO₂/km for light vehicles” ²⁷

BARRIERS TO INTRODUCTION

Fuel efficiency standards are a common, relatively simple policy mechanism with net benefits. However, previous attempts to introduce standards in Australia have been marred by disinformation and misleading claims.

Following the Labor Party's 2019 commitment to introduce standards if elected, then Prime Minister Scott Morrison labelled the proposed standards a "carbon tax on cars".²⁸ The standards were referred to as "reckless emission targets"²⁹ by the Energy and Emissions

²⁰ Australian Transport Council and Environment Protection and Heritage Council Vehicle Fuel Efficiency Working Group (2008) *Vehicle Fuel Efficiency: Potential measures to encourage the uptake of more fuel efficient, low carbon emission vehicles*, P 86-87, https://thepep.unece.org/sites/default/files/2017-06/Vehicle.Fuel_.Efficiency.pdf

²¹ Australian Government Prime Minister's Task Group on Energy Efficiency (2010) *Report of the Prime Minister's Task Group on Energy Efficiency*, P 3, <https://library.bsl.org.au/jspui/bitstream/1/2154/1/task-group-energy-efficiency.pdf>

²² Labor (2010) *Emissions standards for cars*, https://parlinfo.aph.gov.au/parlInfo/download/library/partypol/DPGX6/upload_binary/dpgx60.pdf;fileType=application%2Fpdf#search=%22library/partypol/DPGX6%22

²³ Australian Government (2016) *Improving the efficiency of new light vehicles*, P 6 https://www.infrastructure.gov.au/sites/default/files/migrated/vehicles/environment/forum/files/Vehicle_Fuel_Efficiency_RIS.pdf,

²⁴ Senate Select Committee into Electric vehicles (2019) *Final report from the Select Committee on Electric Vehicles*, https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Electric_Vehicles/ElectricVehicles/Report

²⁵ ARENA (2018) *Australian Electric Vehicle Market Study Conclusion and Future Direction*, P 78, <https://arena.gov.au/assets/2018/06/australian-ev-market-study-report.pdf>

²⁶ Australian Government (2020) *Australian Government response to the House of Representatives Standing Committee on Infrastructure, Transport and Cities report: 'Innovating Transport across Australia' Inquiry into automated mass transit*, https://www.infrastructure.gov.au/department/ips/government_responses/government-response-inquiry-into-automated-mass-transit.aspx

²⁷ Labor (2019) *A Strategy for a Cleaner Transport Future – Monday, 1 April 2019*, https://www.billshorten.com.au/a_strategy_for_a_cleaner_transport_future_monday_1_april_2019

²⁸ Caldwell (2019) *Prime Minister Scott Morrison labels Labor's emission standards a 'carbon tax on cars'*, <https://www.dailytelegraph.com.au/news/nsw/prime-minister-scott-morrison-labels-labors-emission-standards-a-carbon-tax-on-cars/news-story/a7f3cb4cd55de78155100afe5726b06e>

²⁹ Taylor (2019) *Labor's u-turn on electric cars*, <https://www.minister.industry.gov.au/ministers/taylor/media-releases/labors-u-turn-electric-cars>

Reductions Minister Angus Taylor, with the Minister claiming that “even our police forces will be hit”.³⁰

Targeted Facebook ads were used by the Coalition Government to claim that then Labor opposition leader Bill Shorten wanted to tax utes, including popular brands such as the Toyota Hilux.³¹ Ads were targeted towards users with an interest in particular vehicle types.

This was despite just one year earlier, Coalition Infrastructure Minister Paul Fletcher explicitly stating on ABC News mornings, that fuel efficiency standards were not a carbon tax on cars:

“And let’s be clear; no carbon tax on cars. Want to make that absolutely clear. The Turnbull Government is about lower taxes and lower cost of living for Australians. That’s why we’re looking at this question of what does it cost you each year in fuel to run a vehicle. And that’s why fuel efficiency standards are something we’re looking at. Are Australian consumers worse off compared to all the other OECD countries where there are fuel efficiency standards?”³²

Many of the scare campaigns surrounding Australian fuel efficiency standards refer to the misleading claim that standards would increase the cost of a car by almost \$5,000. This claim contradicts government analysis and is based on a cherry-picked figure from a 2016 report by the Centre for International Economics, commissioned by the Australian Automobile Association (AAA).³³ The \$5,000 figure is the upper limit (\$1,500-\$4,863) from the highest cost scenario from the report’s cost-benefit analysis and excludes the calculated benefits from emissions standards policy, including the obvious savings from fuel and abated greenhouse gas emissions. The report also includes a range of scenarios in which emissions standards provide a net benefit of up to \$12.2 billion.

Disinformation following the proposed 2015 standards prompted the ICCT to issue a briefing paper addressing the misconceptions surrounding fuel efficiency standards in Australia.³⁴

³⁰ Galloway & Harris (2019) *Car costs key as PM officially kicks off election campaign*, <https://www.dailytelegraph.com.au/news/national/federal-election/car-costs-key-as-pm-officially-kicks-off-election-campaign/news-story/9f613c8e514244b0b1fb695dc621395c>

³¹ Brakels (2019) *How Vehicle Fuel Efficiency Standards Work: They Save Lives & Money & You Can Still Buy A Ute*, <https://www.solarquotes.com.au/blog/fuel-efficiency-standards/>

³² Parliament of Australia (2018) *Hansard – Transcript of interview with Joe O’Brien: ABC News Mornings: 31 May 2018, fuel efficiency standards in Australia and world-wide*, <https://parlinfo.aph.gov.au/parlInfo/search/display/display.w3p;query=Id:%22media/pressrel/5997810%22>

³³ Centre for International Economics (2016) *Reducing greenhouse emissions from light vehicles – Compulsory standards and other policy options*, <https://www.aaa.asn.au/wp-content/uploads/2018/03/cie-reducing-emissions-from-light-vehicles-final.pdf>

³⁴ ICCT (2017) *Addressing misconceptions surrounding light-vehicle fuel efficiency standards*, https://theicct.org/wp-content/uploads/2021/06/Australia-LDV-fuel-efficiency-stds-misconceptions_ICCT-Briefing_12102017_vF.pdf

According to the ICCT, the proposed light vehicle fuel efficiency standards would not reduce vehicle choice in Australia nor result in more expensive vehicles:

“The proposed design of the light vehicle [fuel efficiency] standards in Australia will preserve vehicle choice, and reduce the gap between efficiency of vehicles sold in Australia and the leading markets of the world. As a result, consumers will save a considerable amount on fuel, while simultaneously reducing CO₂ emissions.”

Fuel efficiency standards

Fuel efficiency standards (sometimes called vehicle CO₂ standards, fuel economy standards or CO₂ emissions standards, but referred to as fuel efficiency standards in this report) regulate the average CO₂ emissions from a vehicle fleet. They involve a fleet-wide average emissions or efficiency target, where manufacturers pay a penalty for exceedance of that target (based on the average of the new vehicles they sell). Manufacturers can sell vehicle models above the target but must also sell high efficiency models to meet the average and avoid penalty.

Australia currently has no mandatory fuel efficiency standards. Voluntary fuel efficiency standards have been introduced by FCAI, however these lack penalty mechanisms and ambitious efficiency targets. Related vehicle standards (emissions standards and fuel quality standards) are also in place.

RELATED STANDARDS

Vehicles and their fuel are an integrated system, so standards governing the quality of the fuel, the efficiency of the vehicle and the pollutant emissions from the vehicle are inter-related, but ultimately separate and regulated by separate standards.

The terms are sometimes used interchangeably, leading to confused claims about whether Australia does or does not have fuel efficiency standards in place.³⁵ Australia does have fuel quality standards (although lower than comparative countries) and noxious emissions standards (also set lower than comparative countries) but does not have mandatory fuel efficiency standards.

³⁵ Blair (2019) *Labor's Convenient emissions omission*, <https://www.dailytelegraph.com.au/blogs/tim-blair/labors-convenient-emission-omission/news-story/900328c01432d389625674a583d15430>

Table 2: Attributes of vehicle and fuel standards in Australia

	Fuel Efficiency Standards	Vehicle Emissions Standards	Fuel Quality Standards
Measurement	CO ₂ emissions or litres of fuel	Noxious emissions (eg. carbon monoxide and PM2.5)	Parameters including sulphur, octane, etc.
What is regulated	Vehicle technology	Vehicle technology	Fuel mix & quality
Department	Climate Change, Energy, Environment & Water	Infrastructure, Transport, Regional Development, Communications & the Arts	Climate Change, Energy, Environment & Water
Mandatory standards	None	Australian Design Rule (ADR) 79/04 based on Euro 5 (light vehicles) ³⁶	Fuel Quality Standards Act 2000 & Fuel Quality Standards Regulations 2019

Vehicle emissions standards

Vehicle emissions standards regulate noxious emissions from vehicles, such as carbon monoxide.³⁷ These standards have been in place in Australia since the 1970s and are set by the Australian Design Rules (ADRs) under the Road Vehicle Standards Act 2018.³⁸

Vehicle emissions standards for light vehicles are currently set at ADR 79/04, equivalent to the Euro 5 standards, which set limit values for multiple pollutants.³⁹

Australian vehicle emission standards are weaker than emissions standards adopted internationally, including in the United States and European Union.⁴⁰ In Europe, stricter Euro 6 standards have been in place since 2015, and a new emissions standard – Euro 7 – is currently under development.⁴¹ To improve air quality and reduce the effects of air

³⁶ Federal Register of Legislation, *Vehicle Standard (Australian Design Rule 79/04 – Emissions Control for Light Vehicles) 2011*, <https://www.legislation.gov.au/Details/F2021C01200>

³⁷ Australian Government (n.d) *Final Emissions Limits for Light Vehicles*, https://www.infrastructure.gov.au/sites/default/files/documents/Final_Emission_Limits_for_Light_Vehicles_Euro_2-Euro_6.pdf

³⁸ Federal Register of Legislation, *Vehicle Standard (Australian Design Rule 79/04 – Emissions Control for Light Vehicles) 2011*

³⁹ Ibid.

Australian Government (n.d) *Vehicle emissions standards*, <https://www.infrastructure.gov.au/infrastructure-transport-vehicles/vehicles/vehicle-safety-environment/emission-standards>

⁴⁰ Ibid.

⁴¹ Transport and Environment (2021) *Euro 7*, <https://www.transportenvironment.org/challenges/air-quality/the-euro-7/>

pollution, Australia should consider strengthening vehicle emissions standards. However, this would be a separate process to the introduction of fuel efficiency standards.

Moving to stronger Euro 6 emissions standards could be done immediately for diesel fuel vehicles in Australia and should be done as soon as possible for petrol vehicles, following fuel quality improvements.⁴² Previous investments by the former Coalition Government in Australia's two refineries, and recent commitments by the current government to regulate low sulphur petrol, means Euro 6 standards should be achievable for petrol vehicles by 2024/25.

Fuel quality standards

Fuel quality standards regulate the quality of fuels such as petrol, diesel and gas sold in Australia in order to reduce pollutants and emissions from fuel use. Fuel quality standards are set through Determinations under the Fuel Quality Standards Act 2000 and the Fuel Quality Standards Regulations 2019.⁴³ Determinations regulate parameters such as the sulphur, octane, and aromatic content of fuels.⁴⁴

Australia's fuel quality is low by international standards, but this is not a barrier to introducing fuel efficiency standards.⁴⁵ According to the ICCT, the "quality of fuel available for road transport across Australia does not present any impediment to reduce vehicle CO₂ emissions at rates comparable to the other regions of the world".⁴⁶

⁴² Terrill, Burford & Fox (2021) *The Grattan car plan*, P 16, <https://grattan.edu.au/wp-content/uploads/2021/10/Grattan-Car-Plan.pdf>

⁴³ Federal Register of Legislation, *Fuel Quality Standards Act 2000*, <https://www.legislation.gov.au/Details/C2021C00266>

Federal Register of Legislation, *Fuel Quality Standards Regulations 2019*, <https://www.legislation.gov.au/Details/F2021C00770/Html/Text>

⁴⁴ Federal Register of Legislation, *Fuel Quality Standards (Automotive Diesel) Determination 2019*, <https://www.legislation.gov.au/Details/F2019L00456>

Federal Register of Legislation, *Fuel Quality Standards (Petrol) Determination 2019*, <https://www.legislation.gov.au/Details/F2021C00147>

⁴⁵ Climate Change Authority (2014) *Light Vehicle Emissions Standards for Australia Research Report*, <https://www.climatechangeauthority.gov.au/sites/default/files/2020-06/Light%20Vehicle%20Report/Lightvehiclesreport.pdf>

⁴⁶ ICCT (2014) *Submission 6 – Motor Vehicle Standards (Cheaper Transport) Bill 2014: Fuel Quality and CO₂ emissions standards for Australia*, <https://www.aph.gov.au/DocumentStore.ashx?id=101552ca-5581-41d5-b1a9-8cd25a87fcbb&subId=402843>

VOLUNTARY STANDARDS

Voluntary, industry-led fuel efficiency standards were introduced in 2020,⁴⁷ led by the FCAI. However, the voluntary standards are weak compared to international standards, unenforceable, and include the use of controversial credits.

Under the voluntary standard there is no incentive to meet targets and no penalty for non-compliance. Results from the voluntary scheme, released in March 2022, show most car brands in the passenger car segment failed to meet their brand-specific emissions targets.⁴⁸

Additionally, the targets set by the FCAI are far weaker than international standards. The 2030 CO₂ emissions target is 100gCO₂/km for passenger vehicles and light SUVs and 145gCO₂/km for heavy SUVs and light commercial vehicles. These voluntary 2030 targets are similar to the legally enforceable targets set by the EU for 2021 – almost a decade apart.⁴⁹

The voluntary standards also allow the accrual of air conditioning credits, off-cycle credits and super credits. Off-cycle credits are designed to capture eco-innovation and fuel saving technologies that are not recorded in the test cycle, while super credits are awarded for zero emissions and low emissions vehicles to encourage the development and sale of EV and hybrid technology.

The use of these credits reduces the transparency of reported vehicle CO₂ emissions. Car makers can claim up to 7gCO₂/km per unit of off-cycle credits. These can be subtracted from the sales weighted average CO₂ to calculate the final reported emissions result for the car maker. Credits can also be banked and used for up to five years and may be transferred to another vehicle category – effectively using positive results in one vehicle category to offset negative results in another.⁵⁰

Additionally, there is limited evidence of strong emissions reduction benefits from off-cycle technologies. Under the FCAI methodology, any off-cycle credit used in the EU or US is available to use under the Australian system. However, the US system has been criticised for crediting technologies that may not significantly reduce emissions in the real world. The

⁴⁷ Federal Chamber of Automotive Industries (2020) *Federal Chamber of Automotive Industries announces voluntary CO₂ Emissions Standard*, <https://www.fcai.com.au/news/index/view/news/652>

⁴⁸ Schmidt (2022) *Most car makers fail to meet Australia's voluntary emissions targets*, <https://thedriven.io/2022/04/12/most-car-makers-fail-to-meet-australias-voluntary-emissions-targets/>

⁴⁹ Parkinson (2020) *Offer of weak, voluntary CO₂ standards means Australia will remain dumping ground for dirty cars*, <https://reneweconomy.com.au/offer-of-weak-voluntary-co2-standards-means-australia-will-remain-dumping-ground-for-dirty-cars-82749/>

⁵⁰ FCAI (2020) *FCAI rules for calculating CO₂ compliance*, https://www.fcai.com.au/library/publication/fcai_rules_for_calculating_co2_compliance.pdf

Union of Concerned Scientists has called on the US EPA to re-evaluate the technologies in its off-cycle menu,⁵¹ the same off-cycle menu used under the Australian voluntary system.

Some vehicle manufactures have suggested the credit system provides an unfair advantage to particular brands.⁵² Car brands such as Volkswagen have criticised the voluntary standards, particularly the allowable transfer of credits from hybrid vehicles to utes and SUVs.⁵³

BENEFITS OF FUEL EFFICIENCY STANDARDS

Mandatory fuel efficiency standards for new vehicles in the Australian market would provide substantial benefits to consumers by way of lower fuel costs and increased access to electric vehicle models. Additionally, standards would reduce greenhouse gas emissions from the light motor vehicle fleet and improve Australia's fuel security by decreasing the transport sector's reliance on imported oil.

The following section estimates fuel savings, reduced oil imports, and emissions reductions that would have occurred if Australia had mandated fuel efficiency standards in 2016. Calculations are based on analysis by Smit, Whitehead and Surawski. Assumptions and methodology are included in the Annex.

Fuel savings

More efficient vehicles require less fuel to travel the same distance, saving consumers money on fuel. The fuel savings benefits of introducing fuel efficiency standards in Australia have been well recognised, including by the Climate Change Authority (CCA) and the Ministerial Forum on Vehicle Emissions.⁵⁴

Analysis by Smit, Whitehead and Surawski estimates that Australian car owners would have saved \$1.3 billion over a three-year period (2016-2018) in fuel costs if fuel efficiency

⁵¹ Cooke (2021) *EPA Can't Let "Off-Cycle" Credits Become an Off-Ramp for Automakers*, <https://blog.ucsusa.org/dave-cooke/epa-cant-let-off-cycle-credits-become-an-off-ramp-for-automakers/>

⁵² Dowling (2021) *Hybrid cars get green light to earn "super credits" to offset emissions of utes and 4WDs in Australia*, <https://www.drive.com.au/news/hybrid-cars-get-green-light-to-earn-super-credits-to-offset-emissions-of-utes-and-4wds-in-australia/>

⁵³ Ibid.

⁵⁴ Climate Change Authority (2014) *Light Vehicle Emissions Standards for Australia Research Report*, <https://www.climatechangeauthority.gov.au/publications/light-vehicle-emissions-standards-australia>

standards were in place.⁵⁵ Using the same methodology, savings over a six-year period (2016-2021) would be approximately \$5.9 billion.

Fuel cost savings derived from fuel efficiency standards are cumulative, as cars continue to save on fuel costs over their lifetime. Additionally, petrol prices have increased over the past three years, increasing the savings associated with efficient fuel use.

Reduced imported oil

Introducing fuel efficiency would help ensure liquid fuels are consumed more efficiently and decrease overall liquid fuel consumption.

Australia is almost entirely reliant on imports of refined fuels and crude to meet consumption. In FY2021, 91 per cent of all fuel consumed in Australia was imported – including 68 per cent imported as refined crude, while 71 per cent of fuel refined in Australia is imported as crude and condensate.⁵⁶

Three quarters (73 per cent) of Australia’s total liquid fuel demand is consumed by the transport sector and over half (54 per cent) is consumed by road transport alone.

If fuel efficiency standards had been introduced in 2016, Australia could have imported 4000ML less oil (see Annex for calculations and assumptions).

Reduced CO₂ emissions

Fuel efficiency standards would reduce transport emissions by increasing the efficiency of the vehicle fleet. Australia could have prevented 9 million tonnes of greenhouse gas emissions if fuel efficiency standards had been introduced in 2016 (see Annex for calculations and assumptions). This is similar to emissions from domestic aviation in a normal year.⁵⁷

Transport is the third highest emitting sector in Australia. The vast majority (85%) of transport emissions come from road transport, and 44% come from private passenger vehicles alone.⁵⁸

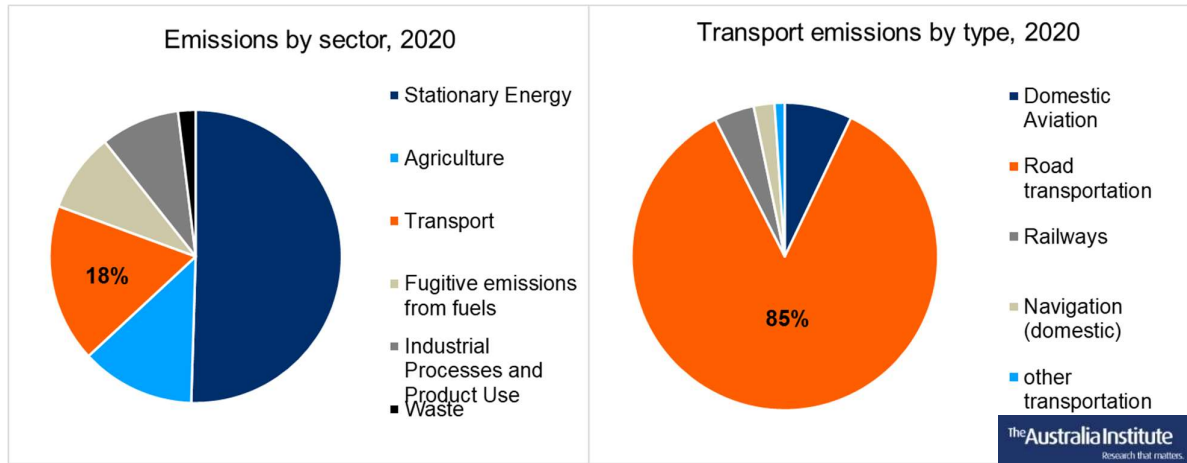
⁵⁵ Smit, Whitehead and Surawski (2019) *Australians could have saved over \$1 billion in fuel if car emissions standards were introduced 3 years ago*, <https://theconversation.com/australians-could-have-saved-over-1-billion-in-fuel-if-car-emissions-standards-were-introduced-3-years-ago-117190>

⁵⁶ Carter, Quicke and Armistead (2022) *Over a Barrel*, https://australiainstitute.org.au/wp-content/uploads/2022/04/P1036-Over-a-barrel_liquid-fuel-security-WEB.pdf

⁵⁷ Department of the Environment and Energy (2018) *Australia’s emissions projections 2018*, p 22, <https://www.industry.gov.au/sites/default/files/2020-07/australias-emissions-projections-2018.pdf>

⁵⁸ Australian Government (2020) *National Inventory Report*, <https://www.industry.gov.au/data-and-publications/national-inventory-reports>

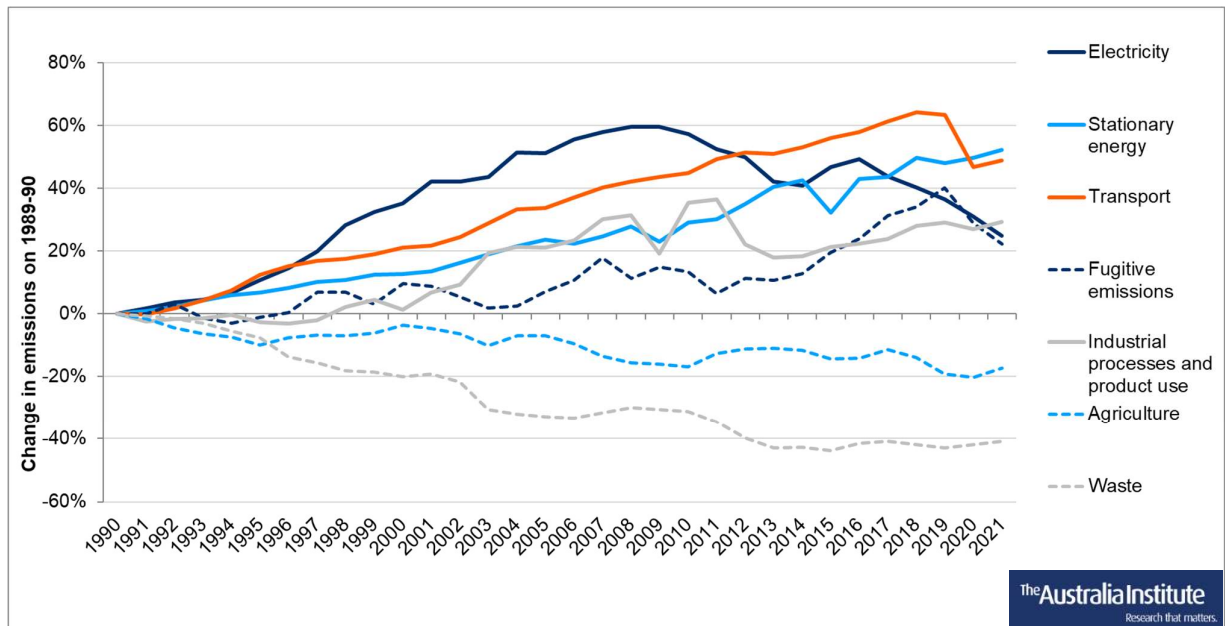
Figure 3: Australian greenhouse gas emissions by sector, and transport emissions by type, 2020



Source: National Inventory Report 2020, P 35

Transport emissions have increased 48.8% or 29.8 Mt CO₂-e since 1990, despite a recent temporary drop due to the impacts of the COVID-19 pandemic.⁵⁹ The graph below shows percentage change in emissions by sector.

Figure 4: Percentage change in Australian greenhouse gas emissions, by sector



Source: National GHG Inventory - quarterly update September 2021

⁵⁹ Australian Government (2021) P 10, *Quarterly Update of Australia's National Greenhouse gas Inventory: September 2021*, <https://www.industry.gov.au/sites/default/files/February%202022/document/nggi-quarterly-update-september-2021.pdf>

Increased electric vehicle availability

Fuel efficiency standards create an incentive to bring more efficient and electric models to market.

Currently, Australia is facing an electric vehicle supply problem. Waiting lists for electric vehicles are long, driving second hand electric vehicle prices up. While this supply problem is not confined to Australia (internationally, supply chains are struggling due to lack of critical minerals and the COVID-19 pandemic) it is exacerbated in Australia due to the lack of standards. The limited number of electric vehicle models that are available globally will likely be placed in markets with standards in place – to help avoid manufacturers facing fines. This has been made clear through calls from industry to introduce standards.⁶⁰

The International Energy Agency (IEA) recommends ambitious fuel efficiency standards to accelerate the uptake of electric vehicles worldwide, stating that ‘Stringent [fuel] efficiency and/or CO₂ standards have promoted EV adoption in most leading EV markets and should be adopted by all countries seeking to hasten the transition to electromobility.’⁶¹

DESIGN AND IMPLEMENTATION OF FUEL EFFICIENCY STANDARDS

The design and implementation of fuel efficiency standards will require detailed consultation and modelling; however, some core principles should be considered.

Firstly, the standard should be strong and ambitious. Australia is already behind other countries in vehicle efficiency, with lots of catch up to do. Australian fuel efficiency standards should be designed to put Australia on track to align with comparable nations like the United Kingdom, New Zealand and the United States.

The national average target should become stronger over time, and be aligned with Australia’s broader emissions reductions targets, including Australia’s commitments under the Paris Agreement. This should include regular reviews of the targets to ensure they are ratcheted down.

Several international forecasts show that in order to achieve net zero emissions by 2050, new car sales must be 100% zero emissions vehicles by the early 2030s and by 2035 at the very latest.⁶² Australian standards should therefore reduce to zero gCO₂/km by 2030 or

⁶⁰ Mercer and Mackintosh (2022) *Electric vehicles are racing ahead overseas, so why isn't that happening in Australia?* <https://www.abc.net.au/news/2022-06-17/electric-vehicles-in-australia/101155228>

⁶¹ IEA (2022) *Global EV Outlook*, <https://www.iea.org/reports/global-ev-outlook-2022>

⁶² IEA (2021) *Global EV Outlook*, P 55 <https://www.iea.org/reports/global-ev-outlook-2021>
Transport & Environment (2018) *How to decarbonise European transport by 2050*,

2035 at the latest—effectively banning the sale of new fossil fuelled vehicles. The Climate of the Nation 2021 survey shows the majority of Australians (65%) support a ban on the sale of fossil fuelled vehicles by 2035.⁶³

Secondly, standards should be implemented as soon as practicable. While a phase in period may be necessary, this should not be used as a delay tactic. To expedite the process, standards could be designed using existing resources. Considerable work has already been done for modelling and designing fuel efficiency standards for Australia (discussed further below). Much of this work could inform the design of new standards, particularly the work of the CCA and the Ministerial Forum into Vehicle Emissions.

Finally, fuel efficiency standards should have integrity. They should be implemented and enforced independently from industry. The CCA are set to be reinstated as a central advisory body to Government and would be well placed to implement these standards. Standards should be mandatory with significant penalties for noncompliance. Additionally, off-cycle and super credits are not necessary to the functioning of a fuel efficiency standards system, but if included should be robust, transparent and limited to technologies with strong evidence of emissions reductions benefits.

To ensure independent and accurate data on the emissions intensity of Australia's light vehicle fleet, vehicle manufactures should be required to report directly to the NTC or the Federal Government.

There are a number of other factors to consider in designing a fuel efficiency standard. The gap between officially reported emissions for new vehicles and real-world driving emissions will need to be addressed. This gap is largely due to the design of laboratory tests and strategies used by car manufacturers to achieve better results under lab conditions.⁶⁴ The World Harmonise Light Vehicles Testing Procedure (WLTP) is the preferred emissions testing procedure, designed to more accurately represent real driving cycles.⁶⁵ The new Government's commitment to establish a real-world vehicle fuel testing program is a welcome measure in this regard.⁶⁶

Other considerations include allowing for manufactures to pool emissions with other manufactures, how a sales weighted average target could be applied to allow the vehicle

https://www.transportenvironment.org/wp-content/uploads/2021/07/2018_11_2050_synthesis_report_transport_decarbonisation.pdf page 9

⁶³ Quicke (2021) *Climate of the Nation*, <https://australiainstitute.org.au/wp-content/uploads/2021/10/211013-Climate-of-the-Nation-2021-WEB.pdf>

⁶⁴ Quiggin and Smit (2019) *We thought Australian cars were using less fuel. New research shows we were wrong*, <https://theconversation.com/we-thought-australian-cars-were-using-less-fuel-new-research-shows-we-were-wrong-122378>

⁶⁵ Collie (2020) *Fuel economy testing: What is WLTP and how does it work?*, <https://www.drive.com.au/news/wltp-whats-all-the-fuss-about/>

⁶⁶ Labor (2022) *Powering Australia*, <https://www.alp.org.au/policies/powering-australia>

fleet to retain diversity in terms of vehicle shape and size,⁶⁷ and how long the ‘grace’ period between announcement and implementation of penalties should be to allow manufactures to adjust their vehicle supply plans.

ALTERNATIVE METHODS OF REDUCING CARBON EMISSIONS/INCREASING EFFICIENCY

Other measures exist to reduce carbon emissions and increase the efficiency of a vehicle fleet. These can be implemented alongside fuel efficiency standards or as stand-alone policies, and include consumer awareness initiatives, higher fuel taxes, tax or registration fees with a CO₂ component, zero emissions vehicle sales targets, and incentives for efficient or zero emissions vehicles.

One method of incentivising zero and low emissions vehicles adopted by a number of countries is a feebate system.

Feebate systems levy a fee on the purchase of higher emitting vehicles and use the revenue to incentivise the purchase of zero or low emissions vehicles. They are easy to implement, self-funding schemes (if designed carefully), that provide more incentive than fuel efficiency standards to go above and beyond the required emissions reductions, due to the continuous incentive to improve emissions performance.

France’s Bonus-Malus scheme is an example of a feebate system and provides a useful case study, having been established over 14 years ago.⁶⁸ According to the ICCT analysis of France’s feebate system, step functions used to set levels of fees and rebates were initially too widely spaced, allowing manufactures to increase rebates substantially by registering vehicles with CO₂ emissions just below the step function. The system was later improved by reducing step functions, and phasing into a continuous function system. The French Bonus-Malus scheme has effectively shifted vehicle sales towards lower emitting and electric models, decreasing the average emissions of new vehicles.⁶⁹

The New Zealand Government are also introducing a feebate scheme, the Clean Car Discount scheme.⁷⁰ The Clean Car Discount was introduced in July 2021, providing rebates

⁶⁷ Ibid, p 45.

⁶⁸ ICCT (2018) *Practical Lessons in vehicle efficiency policy: The 10-year evolution of* <https://theicct.org/practical-lessons-in-vehicle-efficiency-policy-the-10-year-evolution-of-frances-co2-based-bonus-malus-feebate-system/>

⁶⁹ Monschauer & Kotin-Forster (2018) *Bonus-Malus Vehicle Incentive System in France*, <https://www.euki.de/wp-content/uploads/2018/09/fact-sheet-bonus-malus-vehicle-incentive-system-fr.pdf>

⁷⁰ ICCT (2022) *General statement of ICCT’s support to the Clean Vehicle Standards*, <https://www.transport.govt.nz/assets/Uploads/ICCT-review-of-New-Zealand-CO2-Clean-Vehicles-Bill-targets-February-2022.pdf>

for electric and plug-in hybrid vehicles. Rebates of up to NZD\$7,500 are available for new vehicles, and NZD\$3,000 for used vehicles. The second stage of the New Zealand scheme entered into force in 2022. It expanded the Clean Car Discount, charging a fee of up to NZD\$4,500 on new high emitting vehicles. As a whole, the feebate system is cost-neutral, as electric vehicles incentives are funded through fees on higher emitting vehicles.⁷¹

According to the ICCT, best practice feebate schemes are continuous and linear, with a pivot point set to make the system self-funding (rebates for low emissions vehicles are funded entirely by additional fees on higher emitting vehicles), with a linear metric (CO₂ emissions or fuel consumption).

If designed carefully, feebate systems can be a cost-neutral method of disincentivising higher emitting vehicles and incentivising lower emitting vehicles, thereby reducing transport emissions.

While both fuel efficiency standards and feebates system share the same objective – reducing transport emissions - feebate systems directly affect the vehicle price faced by consumers, where as fuel efficiency standards apply to vehicle manufacturers.

⁷¹ NZ Transport Agency (n.d) *Clean Car questions and answers*, <https://www.nzta.govt.nz/vehicles/clean-car-programme/clean-car-programme-questions-and-answers/>

Conclusion

Discussions about fuel efficiency standards in Australia have been marred by disinformation and attempts to introduced standards have been thwarted by changes in government.

Ultimately, the main barrier to the introduction of fuel efficiency standards in Australia has been a lack of political will. The new Australian Government has an opportunity to turn this around, taking Australia out of the slow lane and towards a more efficient and less polluting vehicle fleet.

The introduction of robust fuel efficiency standards that are implemented as soon as practicable, have integrity and lead to 100% zero emissions new vehicle sales by 2030 or 2035 at the latest would not only reduce transport emissions, but save Australians money in fuel costs and reduce the nation's dependence on imported oil.

The new Climate Bill, introduced on 27 July 2022, opens the door to a new era of climate policy – the next cab off the rank should strong fuel efficiency standards.

Annex

Table 3: Fuel and emissions savings from introduction of fuel efficiency standards

	2016	2017	2018	2019	2020	2021	Total
Fuel use per year (mL)	32,000	32,000	32,000	33,019	33,019	33,019	
Fuel use by passenger vehicles per year (mL)	-	-	-	18,094	18,094	18,094	
Percentage of fuel used by passenger vehicles	50%	50%	50%	55%	55%	55%	
New cars as percentage of total fleet	5%	5%	5%	5%	5%	5%	
Efficiency improvement from fuel standards	27%	27%	27%	27%	27%	27%	
Fuel savings of new vehicles per year (mL)	216	216	216	244	244	244	
Total fuel savings per year (mL)	108	324	540	784	1029	1,273	4,058
Fuel price (average annual retail petrol of 5 largest capital cities) (c/l)	125	135	141	135	130	172	
Fuel savings for new vehicles per year (\$m)	270	291	305	329	317	421	
Total fuel savings per year (\$m)	135	436	762	1,056	1,334	2,194	5,916
Emissions savings (Mt Co2) per year	0.257	0.771	0.129	1.867	2.448	3.030	9.657

Calculations are based on analysis by Smit, Whitehead and Surawski,⁷² with updated fuel use figures based on ABS data⁷³ and petrol price data from ACCC.⁷⁴ For the year 2021, average petrol price is assumed to be the average of the December-21 and March-22 quarters.

The percentage of fuel used by passenger vehicles from 2016-2018 is assumed to be 50% based on analysis by Whitehead et al. For 2019-2021 the percentage of fuel used by passenger vehicles is based on ABS motor vehicle survey data. Data is released every two years and is available up to 2020, so results for 2019-21 are the same. New cars as percentage of total fleet is assumed to be 5%, based on analysis by Whitehead et al.

⁷² Smit, Whitehead and Surawski (2019) *Australians could have saved over \$1 billion in fuel if car emissions standards were introduced 3 years ago*, <https://theconversation.com/australians-could-have-saved-over-1-billion-in-fuel-if-car-emissions-standards-were-introduced-3-years-ago-117190>

⁷³ ABS (2020) *Survey of Motor Vehicle Use, Australia*, <https://www.abs.gov.au/statistics/industry/tourism-and-transport/survey-motor-vehicle-use-australia/12-months-ended-30-june-2020#data-download>

⁷⁴ ACCC (2021) *Report on the Australian petroleum market*, P 27, <https://www.accc.gov.au/system/files/Report%20on%20the%20Australian%20petroleum%20market%20-%20June%202021.pdf>

Improvement in efficiency due to fuel efficiency standards is assumed to be 27%, based on the average difference in grams of CO₂/km between the best performing variants of top selling passenger models in the UK and Australia.⁷⁵ However, the improvement in efficiency is a policy variable, and standards could be made more or less stringent to increase or decrease efficiency. The cumulative fuel savings are assumed to be half for the first year, as new vehicles are purchased throughout the year.

For emissions savings, the ratio of petrol to diesel consumption is based on ABS data of fuel consumption from Australian passenger vehicles in 2019-20 where 80% consumed fuel was petrol and 20% was diesel.⁷⁶ Carbon dioxide emissions intensity is assumed to be 2.3kg of carbon dioxide per 1 litre of petrol and 2.7 kg of carbon dioxide per 1 litre of diesel.⁷⁷

⁷⁵ Australian Government (2016) *Improving the efficiency of new light vehicles*,
https://www.infrastructure.gov.au/sites/default/files/migrated/vehicles/environment/forum/files/Vehicle_Fuel_Efficiency_RIS.pdf

⁷⁶ ABS (2020) *Survey of Motor Vehicle Use, Australia*

⁷⁷ National Transport Commissions (2020) *Carbon Dioxide Emissions intensity for new Australian light vehicles 2020*, P 10,
<https://www.ntc.gov.au/sites/default/files/assets/files/Carbon%20dioxide%20emissions%20intensity%20for%20new%20Australian%20light%20vehicles%202020.pdf>