The Australia Institute
Research that matters.

In reverse

The wrong way to fuel savings and falling transport emissions

Australia's light duty vehicle fleet is among the least fuel efficient in the world, using 24% more fuel per kilometre travelled than the UK. If the UK's modest standards could be met here, Australian drivers would save $13 billion a year in fuel costs and overall transport emissions would be 17% lower.

Matt Saunders
Matt Grudnoff
Rod Campbell

March 2023

ABOUT THE AUSTRALIA INSTITUTE

The Australia Institute is an independent public policy think tank based in Canberra. It is funded by donations from philanthropic trusts and individuals and commissioned research. We barrack for ideas, not political parties or candidates. Since its launch in 1994, the Institute has carried out highly influential research on a broad range of economic, social and environmental issues.

OUR PHILOSOPHY

As we begin the 21st century, new dilemmas confront our society and our planet. Unprecedented levels of consumption co-exist with extreme poverty. Through new technology we are more connected than we have ever been, yet civic engagement is declining. Environmental neglect continues despite heightened ecological awareness. A better balance is urgently needed.

The Australia Institute's directors, staff and supporters represent a broad range of views and priorities. What unites us is a belief that through a combination of research and creativity we can promote new solutions and ways of thinking.

OUR PURPOSE – 'RESEARCH THAT MATTERS'

The Institute publishes research that contributes to a more just, sustainable and peaceful society. Our goal is to gather, interpret and communicate evidence in order to both diagnose the problems we face and propose new solutions to tackle them.

The Institute is wholly independent and not affiliated with any other organisation. Donations to its Research Fund are tax deductible for the donor. Anyone wishing to donate can do so via the website at https://www.australiainstitute.org.au or by calling the Institute on 02 6130 0530. Our secure and user-friendly website allows donors to make either one-off or regular monthly donations and we encourage everyone who can to donate in this way as it assists our research in the most significant manner.

Level 1, Endeavour House, 1 Franklin St
Canberra, ACT 2601
Tel: (02) 61300530
Email: mail@australiainstitute.org.au
Website: www.australiainstitute.org.au
ISSN: 1836-9014

Summary

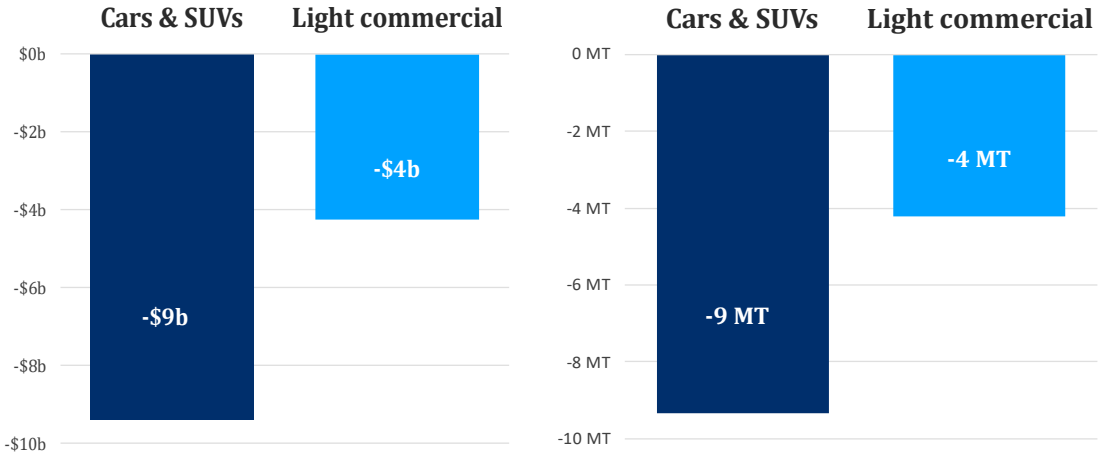
It is hard to overstate the significance of the role of transport emissions in achieving national greenhouse gas reduction targets. Transport is both a major source of greenhouse gas emissions— accounting for 18% of Australia's total emissions and the second largest source after electricity (34%)—and one of the easiest sources to abate. The widespread availability of more fuel-efficient vehicles and zero-emission vehicles means that there are many reasonably straightforward ways transport emissions can be reduced.

At the same time, with historically high fuel prices, the path to lowering transport emissions — burning less petrol and diesel — is also the path to major cost savings for households, as well as significantly improving the nation's fuel security.

This paper outlines how the growth in the greenhouse gas emissions of Australia's passenger vehicle fleet is one of the highest among the developed countries. The paper then shows that the high emissions growth is closely related to the relatively low fuel efficiency of Australia's passenger vehicle fleet, which in turn is the result of the pattern of new vehicle sales dominated by relatively inefficient vehicles especially dual-cabs utes. A pattern encouraged by current tax settings.

The analysis is compared to the outcomes in the U.K, a similar highly developed, right-hand drive country, middle ranked in average fuel efficiency, with a greater share of its population in rural and regional areas, and yet has successfully lowered its transport emissions.

Figure A: Annual emissions reduction and fuel savings from improved fuel efficiency



Source: Author's estimates using data from BITRE, ABS, and AiP

The paper finds that, over time, if the pattern of Australian passenger, SUV and light commercial vehicles purchased emulated that of the UK, then total road transport fuel consumption and emissions in Australia could be 17% lower, saving households around $13 billion a year in fuel costs, and 13.6 MT of emissions (Figure A). The paper also shows how the increase in fuel efficiency would improve Australia's fuel security and reduce the cost of meeting the new obligations of 27 days of petrol and 32 days of diesel held in storage.

Several policy changes, many well-known, could drive reductions in Australia's transport emissions:

1. A switch to an improved emissions and fuel consumption test regime so consumers can make accurate purchasing decisions. The Australian testing regime is obsolete with off-the-shelf replacements readily available and in use around the world.
2. Legislated mandatory emissions and fuel consumption standards for all new vehicles, with perhaps a phase-in period for new and old commercial vehicles.
3. Reconfigure vehicle registration fees so they are calculated on emissions rather than weight, similar to the ACT policy,[1] and reconfigure the Luxury Car Tax to also account for emissions intensities, effectively making electric and hybrid vehicles low rego and luxury tax free.
4. If again extended, the *Temporary Full Expensing* and *Loss Carry Back Tax Offset* policies should be re-configured towards low emissions purchases.
5. Governments, at all levels ideally, commit to electric vehicle fleets by 2030, thereby lowering the prices of these cars in the second-hand market.
6. Federal government look to extend the S*afeguard Mechanism* to include transport emissions.
7. Continued price incentives, subsidies, and discounts, in their various forms for electric and hybrid vehicles including encouragement to significantly expand the recharging network especially in regional areas.

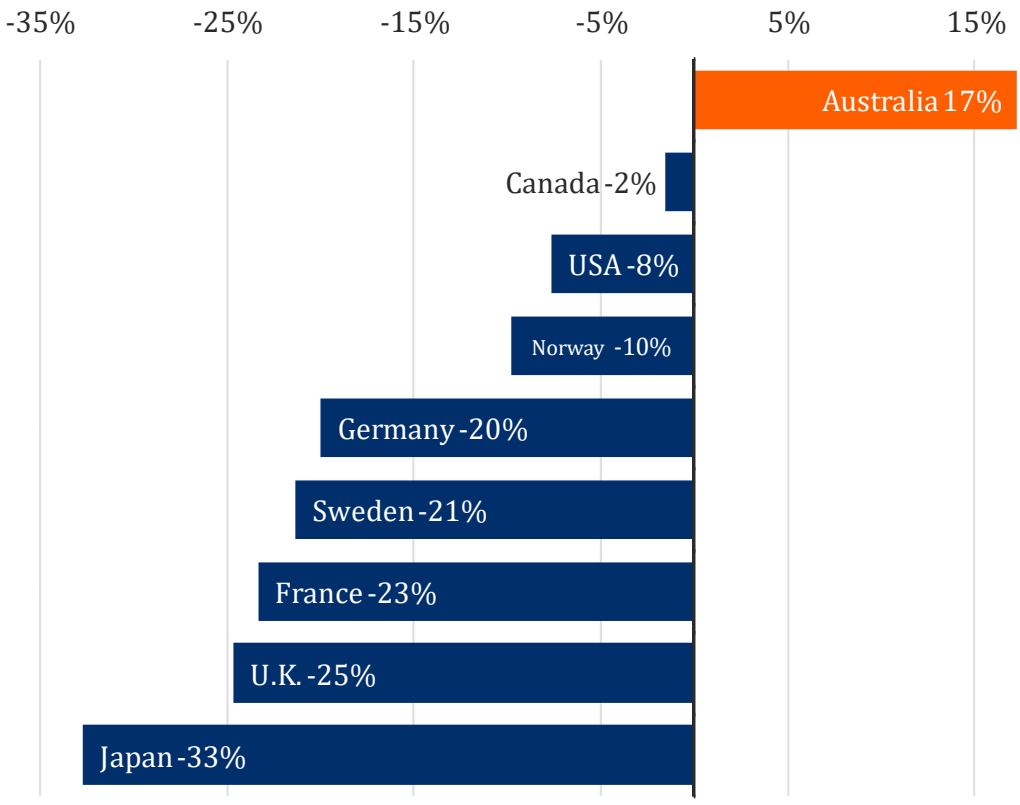
[1] The Canberra Time, 2023, ACT registration system change to charge on emissions instead of weight will save motorists $6.6 million in four years, https://www.canberratimes.com.au/story/8068261/act-unveils-new-car-rego-scheme-promises-to-cut-fees-for-most-but-not-all-drivers/?cs=14329

Introduction

It is hard to overstate the significance of transport emissions in achieving national emission reduction targets. Transport is a major source of emissions; it accounts for 18% of Australia's total emissions, making it the second largest source of greenhouse gases after electricity (34%). It is also one of the easiest sources to abate. The widespread availability of more fuel-efficient and zero-emission vehicles, as well as public and active transport options, means that there are many reasonably straightforward ways by which transport emissions can be reduced.

Most developed countries have seen road transport emissions from Light Duty Vehicles (LDVs - passenger cars, SUVs, and light commercial vehicles) fall significantly in recent decades. Australia, however, has been heading in the opposite direction—its LDV transport emissions rose 17% between 2000 and 2020, making it one of the worst performers in the OECD. By contrast, the UK, France and Germany saw their road transport emissions fall by 25%, 23% and 20% respectively (Figure 1).

Figure 1: Transport emissions growth since 2000, cars & light duty trucks



Source: UN, 2022, Greenhouse Gas Inventory Data: Detailed data by Party, https://di.unfccc.int/detailed_data_by_party

The magnitude of, and growth in, emissions from transport in Australia will make it virtually impossible for Australia to achieve Labor's target of an economy-wide 43% reduction in greenhouse emissions over 2005 levels by 2030. That is, unless the trend of Australians buying large, inefficient, high emission vehicles is reversed quickly. This means tackling Australia's enduring love affair with the ute. Moreover, with the average passenger vehicle on the road for around 11 years,[2] it means that if Australia is to have any hope of meeting this goal, change needs to be made today.

This report explores trends in Australia's transport fuel consumption and LDV sales, and outlines the potential gains in cost savings, greenhouse emissions and fuel security from improving the efficiency of the LDV fleet.

[2] BITRE, 2022, *Motor Vehicles Australia*, https://www.bitre.gov.au/publications/2022/motor-vehicles-australia-january-2022-first-issue

Transport fuel consumption

Australia's 'fleet-wide' fuel efficiency is relatively poor when compared to other developed countries. This leads to both high transport emissions and excessive nation-wide expenditure on predominantly imported fuel.

In examining just how inefficient Australia's fleet-wide fuel economy is, it helps to compare Australia to the United Kingdom. As the U.K. is a developed economy, part of the 'Anglosphere', and uses left-land drive, this comparison highlights the potential interchangeability of the two LDV vehicle fleets and the relevant impacts of doing so.

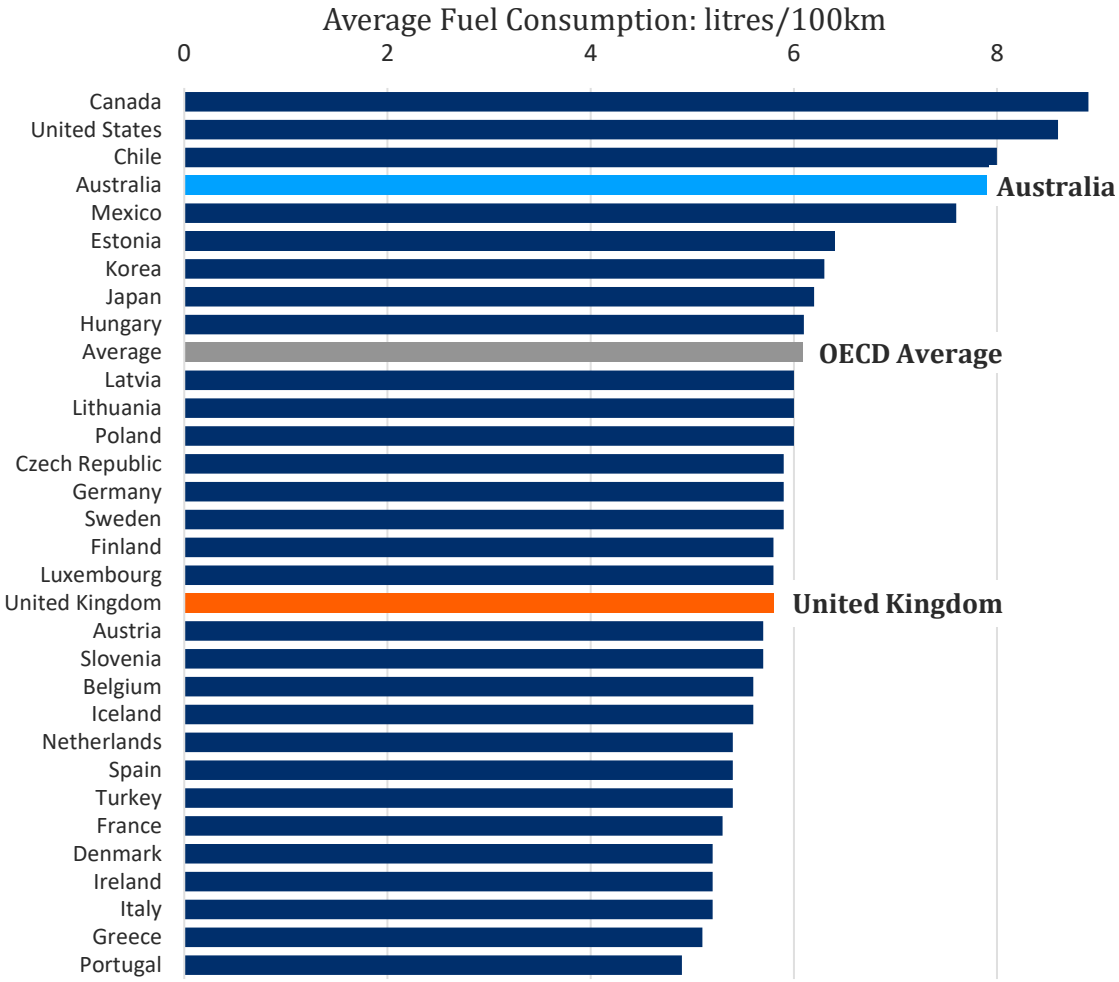
Data published by the IEA under the *Global Fuel Economy Initiative 2021* highlights the differences in fleet-wide fuel economy and emissions factors for LDVs including cars, SUVs, and light commercial vehicles in Australia and the U.K.[3] Using the IEA's most recent data for 2020, and on a litres of petrol equivalent, Australia's LDV fleet fuel economy was reported to be 8.3 litres/100km compared to 6.3 litres/100km in the U.K - 24% lower.

While they are not reported by the IEA, emissions intensities would show a similar 24% difference. This is consistent with slightly older data published by the IEA for 2017, which again shows a similar fuel efficiency gap of 27% between Australia and the U.K. and a 23% gap between Australia and the OECD average (Figure 2).[4]

[3] IEA, 2022, iea.org/reports/global-fuel-economy-initiative-2021

[4] IEA, 2019, *Fuel Economy in Major Car Markets*, iea.org/reports/fuel-economy-in-major-car-markets

Figure 2: OECD fuel consumption, Light Duty Vehicles, 2017



Source: IEA, 2019, iea.org/reports/fuel-economy-in-major-car-markets

The clear conclusion from the data is that not only are Australian transport emissions relatively high, but so too is Australian fuel consumption and expenditure. If the Australian fleet of cars, SUVs, and light commercial vehicles were as efficient as those in UK, then emissions and fuel consumption could be around 27% lower.

WHY ARE THE FLEET CHARACTERISTICS SO DIFFERENT?

The characteristics of Australia's vehicle fleet reflects the sales pattern of new motor vehicles over many years, as well as the retirement rate of older vehicles.

Quite simply, if Australia buys more inefficient new vehicles compared to the rest of the world, fleet-wide fuel efficiency will decline and fuel costs will rise further than if there had been more efficient vehicle purchasing patterns.

A simple comparison of recent new motor vehicle sales in Australian and the U.K. hints at how Australia has ended up with one of the highest polluting car fleets in the developed world.

In 2022, exactly 1,081,429 new vehicles were sold in Australia, with the top ten selling vehicles accounting for 30 percent of total sales. Of these ten, five were twin-cab utes, including the two highest-selling vehicles, three were sports utility vehicles (SUVs), and only two were small passenger cars.

Table 1 outlines the top-10 selling vehicles in Australia for the calendar year 2022, along with the reported fuel efficiency and emissions intensity of each vehicle. Asterisks denote vehicles considered utes for the purposes of this paper; daggers denote SUVs. The table highlight Australia's recent obsession with big utes and SUVs[5]. Australia's bestselling vehicle, the Toyota Hilux, sold over 64,000 units, over twice as many as the highest selling traditional passenger vehicle, the Toyota Corolla, coming 6th for sales with only 25,000 units sold. The sales weighted average reported fuel efficiency is 7.6 litres/100km with an emissions intensity of 191 g/km.

Table 1: Australia's Top-10 selling vehicles, 2022.

Vehicle	Sales	Fuel use: l/100km	Emissions: g/km
Toyota HiLux*	64,391	8.0	212
Ford Ranger*	47,479	7.2	189
Toyota RAV4†	34,845	6.0	137
Mitsubishi Triton*	27,436	8.6	225
Mazda CX-5†	27,062	8.2	191
Toyota Corolla	25,284	6.0	139
Toyota LandCruiser†	24,542	9.5	250
Isuzu D-Max*	24,336	7.9	209
MG ZS†	22,466	7.1	165
Hyundai i30	21,166	7.4	173
Average		7.6	191

Source: Federal Chamber of Automotive Industries (FCAI), https://www.fcai.com.au/news/index/view/news/787 and Green Vehicle Guide, https://www.greenvehicleguide.gov.au/

In comparison, in the UK, the 10 top selling vehicles of 2022 accounted for 18% of the country's total sales. The list includes three SUVs, including the top-selling Nissan Qashqai—but despite the existence of 'tradies' in the UK, no dual cab-ute made their top 10 (Table 2). The UK's top 10 does include two light commercial vehicles, denoted with an asterisk, but compared to the Australian top selling dual cab utes they would

[5] Discussed in more detail in the next section.

struggle to double up as family vehicles, lacking the necessary features to carry much else but the driver, a passenger, and commercial freight.

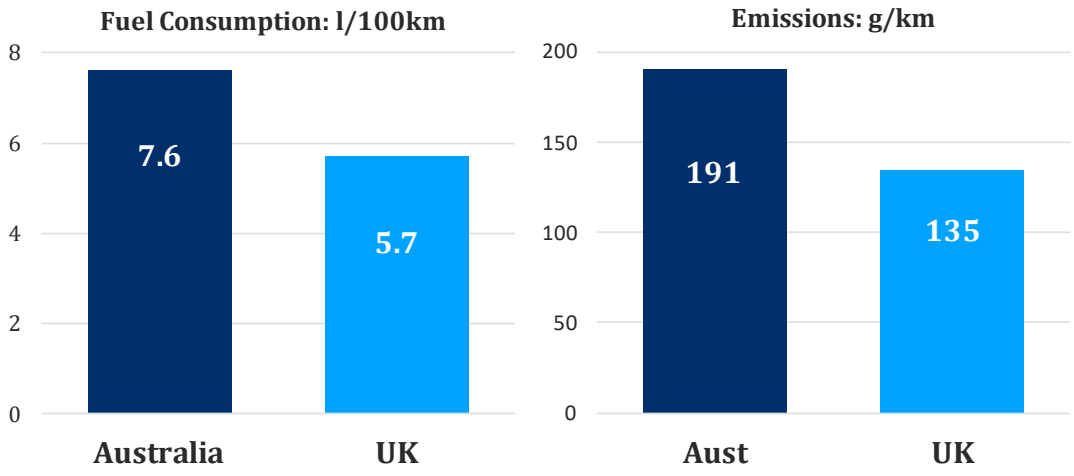
Table 2: UK's Top-10 selling vehicles, 2022

Vehicle	Sales	Fuel use: l/100km	Emissions: g/km
Nissan Qashqai	42,704	6.3	143
Ford Transit Custom*	42,215	7.9	191
Vauxhall Corsa	35,910	4.6	127
Telsa Model Y	35,551	0.0	0
Ford Puma	35,088	6.4	145
Ford Transit*	33,203	8.6	212
MINI Hatchback	32,387	6.1	138
Kia Sportage	29,655	5.9	119
Hyundai Tucson	27,839	6.6	150
VW Golf	26,558	4.5	109
Average		5.7	135

Source: Society of Motor Manufacturers and Traders (SMMT) www.smmt.co.uk/vehicle-data/car-registrations and Vehicle Certification Agency carfueldata.vehicle-certification-agency.gov.uk/

The weighted average fuel economy of the U.K. top-10 sellers is 24% lower than Australia's, at 5.7 litres/100km while similarly emissions intensity is 29% lower at 135 g/km. The data shows the stark difference between the reported fuel economy and emission intensity of new vehicles sales in the UK's and those in Australia, summarised in Figure 3.

Figure 3: Comparison of fuels efficiency and emissions, Australia & U.K, new LDVs



Source: Green Vehicle Guide (AUST) and Vehicle Certification Agency (UK)

That the top selling UK vehicles use 24% less fuel for each kilometre travelled than Australia's top selling vehicles should be of enormous concern to those concerned with

Australia's climate policies and cost-of-living. But the problem is likely far worse than it appears as the method used to measure the fuel efficiency of vehicles sold in Australia significantly understates the amount of fuel used.

The UK has recently adopted the World-harmonised Light Vehicle Testing Procedure (WLTP) to replace the now obsolete standard known as the New European Driving Cycle (NEDC)—which, coincidentally, is the basis for the fuel efficiency and emissions testing scheme used under Australian Design Rules 81/2 and 79/04. As an illustrative example, the Ford Ranger dual-cab diesel ute is a high-selling vehicle in both countries. In Australia, the Ford Ranger is described as having an average fuel economy of 7.2 litres of petrol per 100km whereas in the UK the same vehicle is described to potential customers as using 9.03 litres per 100km—a 27% disparity. On emissions, the difference for the Ford Ranger is similar at 26%, 191g/km reported in Australia compared to 237 g/km in the U.K.[6]

The disparity in the way that the UK (and most of Europe) measure the fuel efficiency and emission intensity of vehicles means that the data presented in Tables 1 and 2 are likely to significantly understate the extent of the difference in the fuel efficiency of top selling cars in Australia and the UK.

Over time, the repeated and continued differences in the fuel efficiency of new vehicle sales leads to Australia's fleet of vehicles being much less fuel efficient and more emissions intensive than it should be. This begs the question - why does Australia appear to have such an obsession with these vehicles?

WHY ARE UTES SO POPULAR IN AUSTRALIA?

Australians are often told that our collective preference for heavy, inefficient 4WD vehicles reflects our country's vast distances and harsh outback terrain—a narrative that is reinforced relentlessly by the way these vehicles are marketed. In reality, however, Australia is a highly urbanised country. The vast majority of vehicle use and fuel consumption occurs within our cities, and all of our major cities are connected by multi-lane highways.

But if Australian geography and transport patterns do not explain the national love for big, inefficient utes, what does? One answer can be found by looking at Australia's tax system—and particularly at the subsidies it provides for certain vehicle classes. In short, the Australian tax system is a major determinant of passenger and commercial

[6] Green Vehicle Guide (AUST), 2023, https://www.greenvehicleguide.gov.au/ and Vehicle Certification Agency (UK) 2023 https://www.smmt.co.uk/vehicle-data/car-registrations

vehicle choice and, in turn, has significant implications for trends in Australia's transport emissions.

Under current tax settings there are two incentives that work together to subsidise the purchases of new large dual-cab utes. The first incentive, the *Temporary Full Expensing* policy allows the purchase of new business assets, including motor vehicles, to be claimed as an immediate and full one-off tax-deductible expense.[7] For passenger vehicles the deduction is capped at around $60,000. However, for non-passenger vehicles, generally those that can carry at least one-tonne in payload, there is no limit to the deduction. The full cost of top-selling dual-cab utes can be written off instantly as an annual expense.

The second incentive works together with the first and is known as the *Loss Carry Back Tax Offset.* If the purchase of a new vehicle creates a net loss for a business, that loss can be applied to previous years' profits to reduce the tax already paid on those previous profits, resulting in a cash refund, reduced tax liability or a reduction in debt owed to the ATO.[8]

The policies work to encourage the sale of dual-cab utes—the $60,000 limit for conventional passenger vehicles does not apply, but a dual-cab ute can still function as a family or leisure vehicle. In addition, if the business owner is required to buy something/anything to claim an additional tax offset against previous profitable years, that something might as well be a big, expensive vehicle that can be easily, and happily, used outside the business.

[7] ATO, 2022, *Temporary full expensing,* https://www.ato.gov.au/Business/Depreciation-and-capital-expenses-and-allowances/Temporary-full-expensing/

[8] ATO, 2022, *Loss Carry Back Tax Offset,* https://www.ato.gov.au/business/loss-carry-back-tax-offset/

Impacts of improving fuel efficiency

If there is anything positive to take from the current situation, it is that changing Australia's car and light commercial purchase habits over time would be enough to create a significant economy-wide reduction in emissions.

Startlingly, as described in more detail below, a 24% reduction in emissions from Australia's fleet of passenger cars and light commercial vehicles—which would make the efficiency of Australia's fleet comparable to that of the UK—would equate to an 17% reduction of the country's total transport emissions, even if the emissions from the rest of the transport sector, mainly trucks, buses and motorcycles, remained unchanged.

It is important to note that matching the fleet efficiency of the UK would not give Australia the most fuel-efficient light vehicle fleet in the world; indeed, it would not even place in the top 10.

In following sections data from the Australian Bureau of Statistics (ABS), the Bureau of Infrastructure and Transport Research Economics (BITRE), Department of Climate Change, Energy, Environment and Water (DCCEEW), and the Australian Institute of Petroleum (AiP) are used to estimate the impacts on fuel consumption, transport emissions, and fuel security that would happen if Australia's vehicle fleet had similar fuel efficiency characteristics as the UK.

Lower fuel consumption

According to DCCEEW[9] and reported by BITRE,[10] Australian road transport emissions were 79.8 MT from 46,200 ML of fuel (petrol and diesel) in 2021-22. Of those 79.8 MT emissions, around 38.8Mt, or 49%, were from cars and SUVs, and 17.5 MT, or 22%, from light commercial vehicles. The remainder came from heavy trucks, buses, and motorcycles.

[9] DCCEEW, 2022, Australian *Petroleum Statistics,* https://www.energy.gov.au/publications/australian-petroleum-statistics-2022

[10] BITRE, 2022, *Australian Infrastructure and Transport Statistics - Yearbook 2022* https://www.bitre.gov.au/publications/2022/australian-infrastructure-and-transport-statistics-yearbook-2022

Assuming that the pattern of fuel consumption across cars, SUVs and light commercial vehicles is proportionally similar to emissions, the 46,200 ML of total fuel purchased in 2021-22 equates to 22,400 ML of fuel used in cars and SUVs, compared to 10,200 ML for light commercial vehicles. The remainder is used in heavy trucks, buses and motorcycles.

Combined with retail fuel price data from AiP,[11] this data suggests that in 2021-22 $56.6 billion was spent on fuel for Australia's fleet of cars, SUVs, and light commercial vehicles.[12] Table 3 summaries the emissions fuel use and expenditure by transport type.

Table 3: Emissions, fuel use and expenditure by road vehicle type, 2021-22

	Emissions (MT)	Implied Fuel Use (ML)	Estimated Expenditure at Retail Prices ($b)
Cars and SUVs	38.8	22,435	$39.0
Light Commercial	17.5	10,151	$17.6
Other	23.5	13,632	NA
Total	**79.8**	**46,217**	NA

Note: Expenditure on fuel by 'Other' is not estimated since different fuel prices apply to different vehicles types in this category via the Fuel Tax Credit scheme.
Source: Analysis of BITRE (2022) and AiP (2023)

If, on the other hand, Australia's LDV vehicle fleet had the same fuel efficiency as the U.K.'s, then fuel consumption and expenditure would be around 24% lower, at 24,700ML, or $43.0 billion: an annual saving of around 7,850 ML of fuel costing $13.6 billion a year based on 2022 retail prices. (Figure 4 and Table 4).

Table 4: Impacts of 24% improvement in fuel efficiency: cars, SUVs and light commercial vehicles

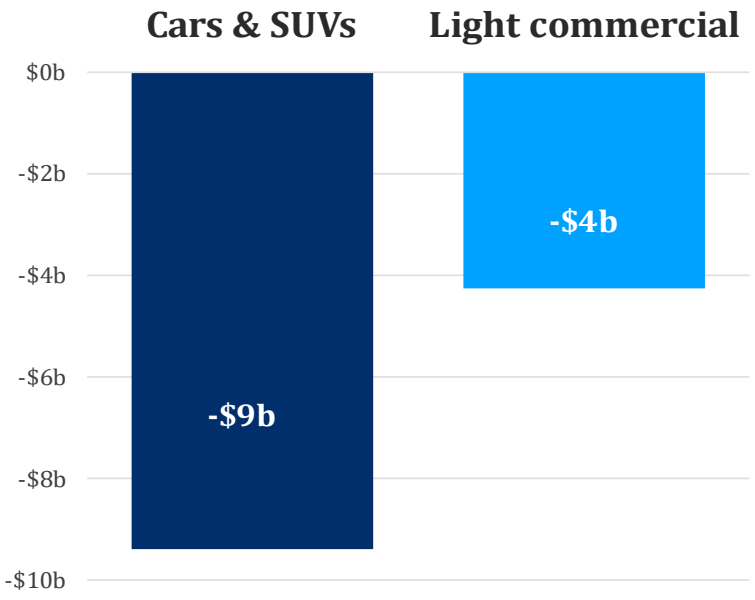
	Existing Fleet	With UK Fuel Economy	Change
Fuel use (ML)	32,585	24,734	-7,852
Fuel expenditure ($b)	$56.6	$43.0	-13.64
Emissions (MT)	56.29	42.73	-13.6

Source: Authors estimates using BITRE (2022) and AiP (2023)

[11] AIP, 2023, *AIP Annual Retail Price Data*, Ref https://www.aip.com.au/aip-annual-retail-price-data

[12] Assuming commercial users of light commercial vehicles do not have access to fuel tax credit scheme and pay the full retail price.

Figure 4: Annual fuel savings from a 24% improvement in fuel efficiency



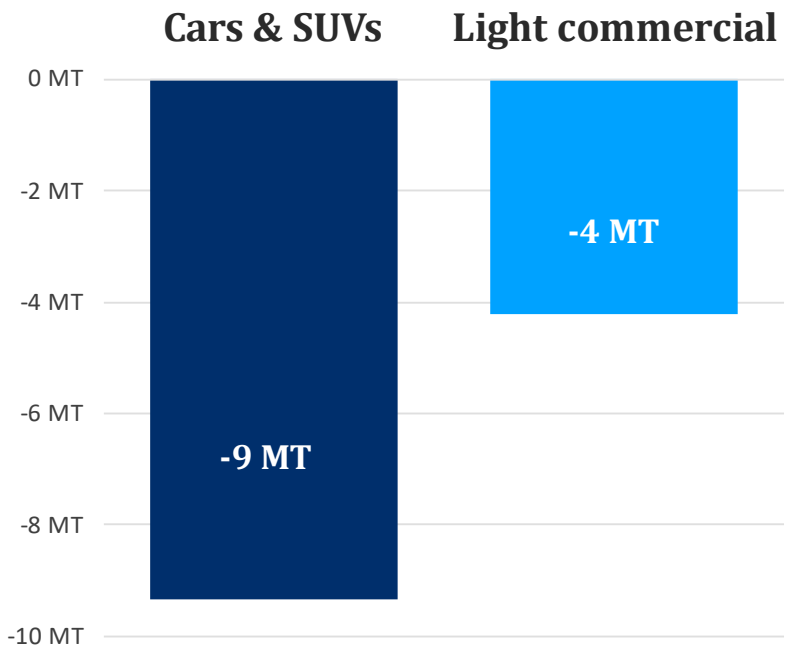
Source: Author's estimates using data from BITRE, ABS, and AiP

The reduction in fuel usage would lead to a similar approximate 24 per cent fall in emissions from LDV vehicles, from 56MT to 43MT, a 13.6MT a year fall in vehicle emissions (Figure 5).

Lower transport emissions

The reduction in fuel usage would lead to a similar approximate 24 per cent fall in emissions from LDV vehicles, from 56MT to 43MT, a 13.6MT a year fall in vehicle emissions (Figure 5).

Figure 5: Annual emissions reduction from a 24% improvement in fuel efficiency



Source: Author's estimates using data from BITRE, ABS, and AiP

The key point is that a 24% saving in fuel costs and emissions for cars and light commercial vehicles alone is the same as a 17% savings in economy-wide transport emissions, if there is no change in heavy vehicle emissions (Table 5). This shows that a significant reduction in emissions can be achieved just by changing the pattern of cars and light commercial sales towards moderately more efficient vehicles.

Table 5: Redcution in total transport emissions from cutting LDV emissions

	Current emissions 2022 (MT)	Improved LDV Efficiency (MT)	% change
Cars, SUVs, Light commercial	56.3	42.7	-24%
Other (trucks & buses)	23.5	23.5	0%
Total – Transport sector	79.8	66.3	-17%

Source: Author's estimates using data from BITRE, ABS, and AiP

The large potential savings in fuel use and emissions from simply emulating the passenger vehicle choices made in the UK – right-hand drive vehicles already in mass production – highlights that significant reductions in fuel costs and transport emissions can be achieved without radical policy changes.

Policies to drive electric passenger vehicle uptake, encourage the use of active transport, and electrify the state's bus fleets can deliver significant emission reductions as well as cleaner air and healthier cities. Nevertheless, by simply shifting the vehicle choice of Australian motorists towards more efficient vehicles already in mass production and use world-wide, including changes to the subsidies that motivate dual cab use purchases, Australia could substantially reduce emissions and increase fuel security.

Enhancing fuel security

An additional benefit of saving 7,850 ML of fuel a year is that it improves national fuel security. Under the new policy announced in November 2022, Australian refineries and major importers are required to hold minimum stocks of liquid fuels on shore in Australia; 24 days of petrol and 20 days of diesel. This will increase to 27 days for petrol and 32 days for diesel by 2024.[13]

There are two ways for Australia to meet these fuel security obligations: we can either build more storage capacity or reduce our daily usage of fuel. While policies to promote active and public transport or electric vehicles can play a major role in reducing daily fuel use, shifts in the composition of new car sales provides instant benefits to both car users (who save money on fuel) and economy-wide (by avoiding the need to build excessive fuel storage capacity).

Based on Australia's 2022 total fuel usage of 46,200 ML,[14] our daily fuel use is estimated to be 127 ML per day, implying a required current stockpile of just under 2,700 ML, increasing to just over 3,800ML by 2024.[15]

In order to demonstrate the significance of the efficiency of Australia's passenger vehicle fleet for our fuel security targets, if the efficiency of Australia's LDV fleet improved to that of the UK's, then the annual 7,850 ML of fuel saved would lower total fuel consumption to 38,370 ML, and daily consumption from 127ML down to 105ML – a 17 per cent reduction. In turn, this would mean that the current required stockpile of fuel of 2,700ML would be equivalent to 25.7 days of fuel use rather than the current 21.3 days associated with our current inefficient vehicle fleet (Table 6). Such an

[13] DCCEEW, 2022, *Australia's fuel reserves boosted to strengthen resilience and supply,* https://www.energy.gov.au/news-media/news/australias-fuel-reserves-boosted-strengthen-resilience-and-supply

[14] BITRE, 2022

[15] The underlying calculations account for the different holding requirements for petrol and diesel.

improvement of over four days in fuel security would account for almost half of the legislated required increase in storage capacity required by 2024.

Table 6: Fuel security impacts of improved fuel efficiency, ML

Fuel use	Existing Fleet	With UK Fuel Economy	% change
Cars, SUV, light commercial (ML/year)	32,585	24,734	-24%
Other Vehicles (ML/year)	13,632	13,632	0%
Total (ML/year)	46,217	38,365	-17%
Daily use (ML/day)	127	105	-17%
Current fuel reserve (ML)	2,700	2,700	
Days of supply	21.3	25.7	20%

Note: Numbers in text are reported at two significant figures

Source: Authors calculations

Whilst it would be impossible to improve Australia's LDV fleet fuel efficiency so quickly, the analysis presented above highlights that the dominance of heavy and inefficient vehicles in the pattern of vehicle purchases in Australia is not just a major driver of Australia's emissions growth, but of our lack of fuel security. Put another way, rather than spend billions of dollars building new, and dangerous, fuel storage facilities Australia could achieve significant increases in liquid fuel security at negative cost by simply pursuing rapid increase in the fuel efficiency of new passenger vehicles.

Conclusion and policy recommendations

Australians buy big dumb cars and that means we spend a lot more on petrol than we should. The fact that these cars stay on the road for a long time makes it harder to achieve our emission reduction targets. In addition, the fact that we want to have a stockpile of liquid fuels means that the more fuel we use, the more money we need to spend storing lots of fuel—and 2023 does not seem like the time to be spending money on liquid fuel storage.

While the need to hasten electrification and encourage a shift in transportation modes are clear, at the same time we need to shift the types of cars people buy. Doing so will save households, and the country, a lot on fuel expenditure and emissions, and ditching the subsidies for dual-cabs will save billions. It is hard to think of lower cost abatement policies.

Stemming from the analysis the policy recommendations are by no means new or innovative, apart from highlighting household savings that could occur if these fuel saving policies were put into place.

Following along the lines of the many who have suggested similar policies, such as Quicke,[16] PWC,[17] IEA,[18] Electric Vehicle Council,[19] Climate Council,[20] the policy recommendations run the spectrum of relatively simple to ambitious:

1. A switch to an improved emissions and fuel consumption test regime so consumers can make accurate purchasing decisions. The Australian testing regime is obsolete with off-the-shelf replacements readily available and in use around the world.

[16] Quicke, A., 2022, *Submission: National EV Strategy*, https://australiainstitute.org.au/report/submission-national-ev-strategy/

[17] PWC, 2020, *Australia's road to zero transport emissions,* https://www.pwc.com.au/government/government-matters/australias-road-to-zero-transport-emissions.html

[18] IEA, 2021, *Policies to promote electric vehicle deployment,* https://www.iea.org/reports/global-ev-outlook-2021/policies-to-promote-electric-vehicle-deployment

[19] Electric Vehicle Council, Various publications: https://electricvehiclecouncil.com.au/reports/

[20] Climate Council, 2017, *Transport Emissions: Driving Down Car Pollution in Cities,* https://www.climatecouncil.org.au/wp-content/uploads/2017/09/FactSheet-Transport.pdf

2. Legislated mandatory emissions and fuel consumption standards for all new vehicles, with perhaps a phase-in period for new and old commercial vehicles.
3. Reconfigure vehicle registration fees so they are calculated on emissions rather than weight, similar to the ACT policy,[21] and reconfigure the Luxury Car Tax to also account for emissions intensities, effectively making electric and hybrid vehicles low rego and luxury tax free.
4. If again extended, the *Temporary Full Expensing* and *Loss Carry Back Tax Offset* policies should be reconfigured towards low emissions purchases.
5. Governments, at all levels ideally, commit to electric vehicle fleets by 2030, thereby lowering the prices of these cars in the second-hand market.
6. Federal government look to extend the S*afeguard Mechanism* to include transport emissions.
7. Continued price incentives, subsidies, and discounts, in their various forms for electric and hybrid vehicles including encouragement to significantly expand the recharging network especially in regional areas.

[21] The Canberra Time, 2023, ACT registration system change to charge on emissions instead of weight will save motorists $6.6 million in four years, https://www.canberratimes.com.au/story/8068261/act-unveils-new-car-rego-scheme-promises-to-cut-fees-for-most-but-not-all-drivers/?cs=14329