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Fuel security in Australia and the International Energy Agency's 10-point plan

Australia has long-running challenges in relation to liquid fuel security and transport emissions. In response to the "energy security emergency" arising from Russia's invasion of Ukraine, the International Energy Agency published a 10-point plan to improve fuel security by cutting oil use by 6% within four months. Two years later, Australian governments have implemented none of the IEA's recommendations.

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INTRODUCTION

Australia is dependent on imported liquid fuels such as petrol and diesel, with limited oil production and refining in the country. Australia stores around 24 days' worth of petrol, 20 days of diesel, and 24 days of jet fuel.[1] While these figures are not directly

[1] DCCEEW (2024) *Minimum Stockholding Obligation*, https://www.dcceew.gov.au/energy/security/australias-fuel-security/minimum-stockholding-

comparable, this is substantially below the requirement of the International Energy Agency (IEA) to hold 90 days of the previous year's net daily oil imports.[2] Australia's fuel security concerns are not new and have been a long-running source of concern for transport, security and environmental analysts alike.[3]

These concerns were exacerbated following Russia's invasion of Ukraine and the resulting "looming emergency for global energy security" as described by the IEA. In response, the IEA published *A 10-point plan to cut oil use*, which it estimated could cut oil demand by 2.75 million barrels a day (bbl/d) in "advanced economies" within four months.[4] This represents a reduction of 6.20% of these countries' oil demand.[5]

A reduction in oil demand of 6.20% would, other things being equal, extend the country's 24 days of petrol reserves to 25.5 days and 20 days of diesel reserves from 20 days to 21 days.

Transport is a major source of greenhouse gas emissions, accounting for 19% of Australia's emissions and without interventions is expected to be Australians largest source by 2030.[6] These emissions are one of the easiest sources to abate and while many OECD countries have significantly reduced transport emissions since 2000, Australia's have continued to rise.[7] There are also discrepancies between fuel economy test results and the actual fuel consumption of Australia's cars, with the discrepancy increasing over time meaning our emissions could be higher than reported.[8]

Australia is an IEA member country and given the nation's ongoing fuel security concerns, not to mention the need to reduce greenhouse gas emissions from transport, it could be expected that Australian state and federal governments would

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obligation N.b. The Australian Government has legislated to increase these stocks from 1 July 2024 for fuel importers.

[2] Laidlaw (2020) *Liquid fuel security: a quick guide–May 2020 update*, https://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/rp/rp1920/Quick_Guides/LiquidFuelSecurity

[3] See for example Swann (2019) *Submission: Interim Report on the Liquid Fuel Security Review*, https://australiainstitute.org.au/report/submission-interim-report-on-the-liquid-fuel-security-review/

[4] IEA (2022) *A 10-Point Plan to Cut Oil Use*, https://www.iea.org/reports/a-10-point-plan-to-cut-oil-use While not explicitly stated by the IEA, we assume here that "advanced economies" refers to IEA member countries.

[5] Global oil consumption in 2022 was 97.3 million barrels per day according to The Energy Institute (2023) *Statistical Review of World Energy*, https://www.energyinst.org/statistical-review/resources-and-data-downloads

[6] DCCEEW (2023) *Reducing transport emissions* https://www.dcceew.gov.au/energy/transport

[7] Saunders, Grudnoff & Campbell (2022) *In reverse: The wrong way to fuel savings and falling transport emissions,* https://australiainstitute.org.au/report/in-reverse/

[8] DIRD (2017) *Fuel economy- Information Sheet* https://www.bitre.gov.au/sites/default/files/is_091.pdf

have embraced the IEA's recommendations. This briefing note assesses Australia's fuel security policy response to the Russian invasion and the IEA's 10-point plan.

Australia-specific calculations in this briefing note apply Australia's share of IEA member country oil consumption (2.27%) to IEA estimates of potential fuel savings.

1. REDUCE SPEED LIMITS ON HIGHWAYS BY AT LEAST 10KM/H

The IEA estimates that "around 290 kb/d of oil use can be saved in the short term through a speed limit reduction of just 10 km/h on motorways for cars. A further 140 kb/d (predominantly diesel) can be saved if heavy trucks reduce their speed by 10 km/h." This would equate to 9,758 bbl/d in Australia.

No Australian state or territory has adopted this IEA recommendation, according to their road authority websites.

The recommendation to reduce speed limits by at least 10 km/h is because vehicle speed directly influences fuel efficiency. There is variation between vehicle makes and models but efficiency decreases significantly above the threshold of about 89km/h.[9] The US Department of Energy states reducing speed by 5-10m/h (8-16km/h) can improve fuel efficiency by 7-14%.[10]

Reducing speeds would also have safety benefits. A 2008 report by Monash University found reducing speeds from 110-105km/h to 88-97km/h could reduce fatalities by up to 54%.[11] In 2003, the South Australian Government reduced the speed limit from 110km/h to 100km/h on 1,100km of rural roads. Analysis of these roads found a 27.4% reduction in crashes than would have been expected if the limit was not reduced.[12]

[9] DIRD (2017) *Fuel economy- Information Sheet* https://www.bitre.gov.au/sites/default/files/is_091.pdf

[10] US Department of Energy (no date) *Techniques for drivers to conserve fuel* https://afdc.energy.gov/conserve/behavior_techniques.html

[11] Corben et al (2008) *The impact of lowering speed limits in urban and metropolitan areas* https://www.monash.edu/__data/assets/pdf_file/0007/216736/The-impact-of-lowered-speed-limits-in-urban-and-metropolitan-areas.pdf

[12] Mackenzie, Kloeden & Hutchinson (2015) *Reduction of speed limits from 110 km/h to 100 km/h on certain roads in South Australia: a follow up evaluation* https://casr.adelaide.edu.au/casrpubfile/1743/CASR115.pdf

2. WORK FROM HOME UP TO THREE DAYS A WEEK WHERE POSSIBLE

The IEA estimates:

> One day of working from home can avoid around 170 kb/d of oil use. Three days of working from home avoids around 500 kb/d in the short term.

Three days of working from home per week would equate to a reduction of 11,347 bbl/d in Australia.

In Australia, state and territory governments responded to Covid-19 outbreaks by instituting protracted lockdowns, requiring workers to work from home where possible. However, state and territory governments have since progressively removed remote working recommendations as the Covid-19 emergency has diminished. No Australian state or territory government now recommends working from home and no changes to work from home regulations or recommendations have been made as a fuel security policy.

Due to the pandemic, most workers have now experienced remote working: in August 2021, Centre for Future Work research found that 59% of Australian workers were performing at least some of their work from home. Most workers now want and expect to be able to work remotely on an ongoing basis.[13] Working from home offers many workers increased convenience, flexibility, and work-life balance – particularly by eliminating long commutes.[14]

The right to work from home is an ongoing issue in Australia, with unions fighting to entrench work from home rights, moves opposed by some large businesses.[15] Notably absent from this debate in Australia is any mention of fuel security.

3. CAR-FREE SUNDAYS IN CITIES

The IEA estimates:

> Avoids around 380 kb/d in the short term if implemented in large cities every Sunday. If only one Sunday per month, the amount drops to 95 kb/d.

[13] Nahum (2021) *Working from Home, or Living at Work?,* https://futurework.org.au/report/working-from-home-or-living-at-work/

[14] Pennington and Stanford (2020), *Working from Home: Opportunities and Risks*

[15] Hewett (2023), 'Big test for return to the office starts now', *Australian Financial Review,* https://www.afr.com/work-and-careers/workplace/big-test-for-return-to-the-office-rules-starts-now-20230717-p5douq

This would equate to 2,156 bbl/d in Australia.

Discouraging the use of private vehicles as a way to reduce oil consumption is not a new idea. During the 1973 oil crisis, West Germany, Berlin, Switzerland, Denmark and the Netherlands implemented car-free Sundays to ration the resource.[16]

50 years later, the climate crisis is necessitating a drastic reduction of oil consumption and similar strategies could be used. Car-free days, especially in busy cities, could deliver significant emissions reductions, and additional benefits of improving air pollution, reducing urban heat-island effects, and making cities more pedestrian-friendly and safe. Annual car free days have been used by governments and civil society in Brussels,[17] Edinburgh,[18] and Vancouver to promote these benefits.[19] Ginza, a busy shopping district in Tokyo, bans cars on weekends and public holidays.[20] Madrid and Oslo have banned most cars from their city centres.[21]

Australia has no plans to implement car free days in any Australian state or city. While there are some car-free areas in some cities (e.g. Pitt Street and Martin Place in Sydney, and plans to close parts of Flinders, Spencer and Collins streets in Melbourne[22]), the primary purpose of these initiatives has been to make cities more pedestrian friendly, not to cut oil use.

[16] Whitney (1973) *4 European Countries and West Berlin Spend a Car-Free Sunday*, https://www.nytimes.com/1973/11/26/archives/4-european-countries-and-west-berlin-spend-a-carfree-sunday-berlin.html

[17] Brussels Regional Public Service (2023) *Car Free* Sunday, https://mobilityweek.brussels/

[18] Arthur (2023) *Transport Convener: We're reimagining streets for people this Car Free Day*, https://www.edinburgh.gov.uk/news/article/13817/transport-convener-were-reimagining-streets-for-people-this-car-free-day

[19] Car Free Vancouver (2023) *Car Free Days 2023*, https://www.carfreevancouver.org/

[20] Ginza Information Management (n.d.) *Traffic Info*, https://www.ginza.jp/en/townguide/trafficinfo

[21] O'Sullivan (2018) *Madrid Takes Its Car Ban to the Next Level*, https://www.bloomberg.com/news/articles/2018-05-24/madrid-takes-its-car-ban-to-the-next-level ; Peters (2019) *What happened when Oslo decided to make its downtown basically car-free?*, https://www.fastcompany.com/90294948/what-happened-when-oslo-decided-to-make-its-downtown-basically-car-free

[22] Abbott (2023) *Cars to be curbed on CBD streets under new council plan*, https://www.theage.com.au/national/victoria/cars-to-be-curbed-on-cbd-streets-under-a-new-council-plan-20230525-p5db3w.html

4. MAKE PUBLIC TRANSPORT CHEAPER, INCENTIVISE WALKING AND CYCLING

The IEA estimates:

> Short-term measures where feasible and culturally acceptable can avoid around 330 kb/d of oil use.

This would equate to 7,489 bbl/d in Australia.

Lowering the cost of public transport, improving accessibility, and enhancing reliability can help reduce private car use and deliver significant reductions in emissions and oil consumption – all while alleviating cost of living pressures, reducing inflation, easing congestion on roads, and minimising air and noise pollution.

Luxembourg[23] and Malta[24] have made all public transport free, while Estonia's capital Tallinn offers free public transport to residents.[25] Spain also introduced temporary free travel for certain trips, funded by a windfall tax on energy and banking profits from rising energy prices.[26]

Australia ranks among the world's most expensive countries for public transport.[27] By some estimates, Melbourne is the priciest city, where it is cheaper to own and run a car for short trips.[28] While Australia offers *some* free transport options, these are only within the CBDs of major cities like Melbourne's free tram zone, select tram and bus services in Adelaide, certain bus and ferry routes in Brisbane, and 'transit zones' in Perth. This does not effectively encourage commuters from outside cities to choose public transport over driving, and their primary aim isn't to reduce emissions or oil consumption.

Walking, cycling, and other options e-scooters and e-bikes, are also alternatives to private car use. This is especially so for urban, car-dense areas. These alternative

[23] The Government of the Grand Dutchy of Luxembourg (2023) *Public transport. Fast and free, the best way to explore the country*, http://luxembourg.public.lu/en/living/mobility/public-transport.html

[24] Malta Public Transport (2022) *Free Travel*, https://www.publictransport.com.mt/en/free-travel

[25] Gray (2018) *Estonia is making public transport free*, https://www.weforum.org/agenda/2018/06/estonia-is-making-public-transport-free/

[26] Frost (2022) *Spain has just extended its free train travel scheme until December 2023*, https://www.euronews.com/travel/2022/10/04/spain-short-and-medium-distance-trains-will-be-free-this-autumn-thanks-to-a-windfall-tax

[27] Picodi (2023) *The comparison of public transport fares in big cities*, https://www.picodi.com/au/bargain-hunting/public-transport-2023

[28] Public Transport Users Association (Victoria, Australia) (2022) *Myth: Melbourne's fares are comparatively cheap*, https://www.ptua.org.au/myths/cheap/

modes of transport help realise '15-minute city' plans, which is the idea that everyday necessities should be within a 15-minute walk, cycle, or ride on public transport. The aim is to reduce car use and emissions and promote alternative forms of transport rather than promote fuel security.

5. ALTERNATE PRIVATE CAR ACCESS TO ROADS IN LARGE CITIES

The IEA estimates:

> A reduction of around 210 kb/d of oil in the short term if alternate car access is applied on two days per week in large cities with good public transport options.

This would equate to 4,766 bbl/d in Australia.

Odd-even number plate policies restrict private car use through alternating days on which private cars can be used, even number plated cars can drive on certain days of the week while odd number plated cars can drive the other days. Numerous cities across the world, including Madrid, Paris and Mexico City,[29] have reduced oil consumption, pollution and emissions through this mechanism. No Australian jurisdiction (federal, state or even local government) has followed this lead, the closest Australia appears to have come is odd-even rationing in response to strike-related fuel shortages in the 1960s, 70s and 80s.[30] Australia has implemented very few related policies, such as road space rationing or congestion pricing.

6. INCREASE CAR SHARING AND ADOPT PRACTICES TO REDUCE FUEL USE

The IEA estimates:

> An increase of around 50% in the average car occupancy across advanced economies in 1-in-10 trips and adopting best-practices to decrease car fuel use can save around 470 kb/d of oil in the short term.

[29] IEA (2022) *A 10-Point Plan to Cut Oil Use*

[30] Trembath (2018) *Flashback Friday photos | 'Odds and evens' was the game played during petrol strikes in the '60s, '70s and '80s*, https://www.theleader.com.au/story/5408365/flashback-friday-photos-petrol-strikes/

This would equate to 10,666 bbl/d in Australia.

Australia has limited policies to encourage carpooling. Outside some limited exceptions,[31] Australia's only policy encouraging carpooling is the presence of transit lanes in Australia (T2 and T3) in which driving is only permitted for higher occupancy vehicles. These policies do not appear to be justified by fuel security concerns. Australia also lacks measures to improve fuel efficiency of cars, including fuel efficiency standards, and mandatory tyre pressure monitoring systems.[32]

7. PROMOTE EFFICIENT DRIVING FOR FREIGHT TRUCKS AND DELIVERY OF GOODS

The IEA estimates that "these measures can avoid around 320 kb/d of oil use in the short term." This would equate to 7,262 bbl/d in Australia.

The trucking industry is a competitive environment with fuel, a large input cost. Promoting efficient driving for trucks will not only reduce fuel use but would reduce consumption making trucking more cost effective. There are a range of ways trucks can optimise fuel use, such as regular services, checks of tyre pressures and driving techniques.

Training drivers in eco-driving techniques is being adopted overseas and could reduce fuel consumption for large vehicles such as trucks and buses. Eco-driving involves using lower engine revs per minute (RPM), maintaining steady speeds and avoiding unnecessary braking and accelerations.[33] Eco-driving techniques can lead to 20% less fuel consumption and a reduction in emissions.[34] Motivating employees to reduce fuel

[31] Some advertising and guides, limited trials of measures such as government carpooling programs, dedicated carparking etc eg https://www.news.com.au/national/south-australia/city-council-and-state-government-launch-new-carpooling-scheme/news-story/0528aa421fb06e3ca028e5ee716325f9

[32] https://safe-t-tyre.com.au/do-all-new-cars-come-with-tyre-pressure-monitoring-systems%EF%BF%BC/

[33] RATP (2019) *Eco-driving: an eco-friendly technique used in the metro as well as in our buses* https://www.ratp.fr/en/discover/coulisses/daily-life/eco-driving-eco-friendly-technique-used-metro-well-our-buses

[34] Andrieu & Pierra (2012) *Comparing effects of eco-driving training and simple advices on driving behavior* https://www.sciencedirect.com/science/article/pii/S1877042812042024?via%3Dihub

consumption through ‘eco-challenges’ whereby driving economically is incentivised could also reduce fuel use.

Reducing empty travelling or, ‘dead running’ as it is known in the industry can reduce unnecessary oil consumption. Cooperation between companies and digital technologies, such as Backload.it can not only avoid empty travelling, but can result in savings for companies and customers.[35] Broader awareness raising for the public could also reduce the demand for short or ‘overnight’ deliveries that contribute to inefficiency truck use.

8. USING HIGH-SPEED AND NIGHT TRAINS INSTEAD OF PLANES WHERE POSSIBLE

The IEA estimates that this measure would avoid “around 40 kb/d oil use in the short term.” This would equate to 908 bbl/d in Australia.

Melbourne to Sydney is under 900 km by road and was the sixth busiest domestic air route in the world in 2022.[36] In 2022 the three busiest air routes in Australia were Melbourne to Sydney (7 million passengers), Sydney to Brisbane (3.6 million passengers) and Melbourne to Brisbane (2.8 million passengers).[37]

However, intercity rail travel in Australia is minimal. Melbourne to Sydney and Sydney to Brisbane routes are connected by twice daily services,[38] using XPT trains introduced into service in 1982. The night service has a single sleeper car with a capacity of just 18 beds nightly.[39] The overnight Melbourne to Sydney arrives too late to guarantee a connection onward to Brisbane. The trains have no power points or Wi-Fi, and the train insulation blocks mobile internet connection.[40]

The Brisbane service in particular appears designed to discourage passengers. The service and arrives in Brisbane at 3.53 am. The day service from Sydney and the

[35] Backload.it (2023) *Why backload it?* https://backload.it/how-it-works.htm

[36] OAG (2022) *Busiest routes 2022*, https://www.oag.com/hubfs/free-reports/busiest-routes/Busiest-Routes-2022-OAG.pdf

[37] Statistica (2023) *Most popular domestic air travel routes in Australia in 2022, by passengers carried*, https://www.statista.com/statistics/948957/most-popular-domestic-air-travel-routes/#:~:text=In%20the%20year%20to%20December,were%20carried%20on%20this%20route.

[38] NSW Trainlink, Routes and timetables, https://transportnsw.info/routes/nsw-trainlink

[39] NSW Transport (2023) *XPT Regional Trains*, https://transportnsw.info/regional/regional-train-coach-facilities/xpt-regional-trains

[40] Field research by the author.

evening service from Brisbane require passengers to change to a bus between Casino and Brisbane.

The Melbourne to Adelaide (Overland) and Sydney-Adelaide-Perth (Indian Pacific) routes have been privatized and reduced to a niche tourist attraction at best with the Melbourne to Adelaide service cut to 2 days per week,[41] and the Indian Pacific once per week.[42]

Australia has no serious plans for major scale improvements to rail transport or high speed rail, despite four decades of studies with an estimated cost of $150 million.[43] with a net result of precisely zero kilometers of track laid.

9. AVOID BUSINESS AIR TRAVEL WHERE ALTERNATIVE OPTIONS EXIST

The IEA estimates this would "avoid 260 kb/d of oil use in the short term." This would equate to 5,900 bbl/d in Australia.

This study has not identified any policies of Australian government to reduce air travel.

10. REINFORCE THE ADOPTION OF ELECTRIC AND MORE EFFICIENT VEHICLES

According to the IEA, this measure would avoid

> more than 100 kb/d of oil use in the short term, building on expected sales of electric and more fuel-efficient cars over the next four months. Sustained action on supply chains and policy support can help secure further savings.

This would equate to 2,269 bbl/d in Australia. Australia and Russia are the only advanced economies without a vehicle efficiency standard for new vehicles.[44] On

[41] Journey Beyond Rail , The overland, https://www.journeybeyondrail.com.au/journeys/overland/

[42] Journey Beyond Rail, Indian Pacific, https://www.journeybeyondrail.com.au/indian-pacific/

[43] Laird (2023) *Can the new High Speed Rail Authority deliver after 4 decades of costly studies?,* https://theconversation.com/can-the-new-high-speed-rail-authority-deliver-after-4-decades-of-costly-studies-206287

[44] DITRCDA (2024) *Cleaner, Cheaper to Run Cars: The Australian New Vehicle Efficiency Standard—Consultation Impact Analysis*,

average, passenger cars in Australia use 20% more fuel than passenger cars in the US.[45] Successive Australian Governments have considered policies to improve vehicle fuel efficiency, but these proposals have not been implemented.

The Australian Government released the National Electric Vehicle Strategy in 2023.[46] The Strategy sets out various measures to reduce transport emissions and increase the uptake of electric vehicles, including through the introduction of a new vehicle efficiency standard (NVES). In February 2024, the Australian Government released a draft NVES. The proposed standard would commence in 2025. It aims to discourage sales of high-emissions vehicles by imposing a cap on CO_2 emissions per kilometre (emissions intensity) from vehicles sold in Australia. This cap would be reduced annually to bring down transport emissions over time. The government estimates that its preferred policy settings for the standard would reduce CO_2 emissions by 369.18 Mt by 2050 and enable fuel savings of $107.6 billion by 2050.

The primary objective of the NVES is to reduce greenhouse gas emissions. Improving fuel security is described as a "secondary consideration".[47] The policy document notes that "a NVES could reduce consumer demand for imported oil as the supply of more fuel-efficient vehicles increases".[48] However, it does not model precisely by how much the NVES might reduce oil consumption.

The proposed NVES has been criticised for insufficiently disincentivising sales of large cars, like SUVs or utes, which both produce more emissions and consume more oil.[49,50] Under the policy, heavier cars are permitted to emit more CO_2 per kilometre. Although the NVES would reduce these emissions intensity limits over time, it would not impose a cap on gross emissions. This means that incentives to sell more and larger cars remain intact, potentially cancelling out any reductions in emissions and oil consumption caused by improved fuel efficiency.

https://www.infrastructure.gov.au/department/media/publications/cleaner-cheaper-run-cars-australian-new-vehicle-efficiency-standard-consultation-impact-analysis.

[45] DITRCDA (2024) ibid.

[46] DCCEEW (2023) The National Electric Vehicle Strategy, https://www.dcceew.gov.au/energy/transport/national-electric-vehicle-strategy.

[47] DITRCDA (2024) ibid, p. 18.

[48] DITRCDA (2024) ibid, p. 18.

[49] Joshi (2024) *Big cars are dead weight dragging down climate policy*, https://ketanjoshi.co/2024/02/17/car-companies-are-wrecking-climate-efforts-to-make-money/

[50] Denniss (2024) *Australians keep buying huge cars in huge numbers. If we want to cut emissions, this can't go on*, https://www.theguardian.com/commentisfree/2024/feb/06/australians-keep-buying-huge-cars-in-huge-numbers-if-we-want-to-cut-emissions-this-cant-go-on

Australian SUV sales have increased rapidly in recent years.[51] The IEA reported that between 2021-22, oil use by SUVs increased by 500kb/d globally, equivalent to one-third of total global growth in oil demand.[52] In Australia, over 50% of new cars sold in 2022 were SUVs. If the NVES does not address this trend, any potential benefits for oil consumption and fuel security may not be realised.

CONCLUSION

The IEA concludes its discussion of its 10 point plan by noting:

> Reducing oil use must not remain a temporary measure. Sustained reductions are desirable in order not only to improve energy security but also to tackle climate change and reduce air pollution. Governments have all the necessary tools at their disposal to put oil demand into decline in the coming years, which would support efforts to both strengthen energy security and achieve vital climate goals.

Australian governments have made minimal efforts to begin reducing oil use, let alone ensuring it is not a temporary measure. Given the minimal efforts towards the IEA's recommendations, the of Australian governments' commitment to act on fuel security seems questionable to say the least.

[51] Martin (2023) *Where did the cars go? How heavier, costlier SUVs and utes took over Australia's roads*, https://theconversation.com/where-did-the-cars-go-how-heavier-costlier-suvs-and-utes-took-over-australias-roads-215774.

[52] International Energy Agency (2023) As their sales continue to rise, SUVs' global CO2 emissions are nearing 1 billion tonnes, https://www.iea.org/commentaries/as-their-sales-continue-to-rise-suvs-global-co2-emissions-are-nearing-1-billion-tonnes.