Australia's liquid fuel security risks and the role of road transport electrification

Multiple commentators over the past decade have noted the precarity of Australia's liquid fuel supplies and our unique management of fuel security with minimal regulation or government intervention in order to allow an "efficient market".

Both sides of politics agree on the concern but successive governments have been unable or unwilling to implement comprehensive solutions.

In 2023 the International Energy Agency (IEA) noted that Australia imported 94.1% of our net oil requirements, at a cost of A$59.9 billion, 10% of our total imports. Refined petroleum was A$37.7 billion of this total, making it our number one import by value. These are not insignificant amounts in our balance of payments.

Australia's liquid fuel supply depends on private suppliers, market forces and a limited fleet of foreign owned tanker ships. Our efficient "just in time" supply has led to Australia being the only oil importing country which is unable to meet our IEA obligations to retain a 90 day store of net oil imports.

Australia relies on imported refined fuels, mainly from Singapore, Republic of Korea and Malaysia which have large scale refineries with low costs. A small amount of imported oil is refined in Australia's two remaining refineries which operate with Federal government subsidies. The IEA notes that global refining is predicted to decline from 2030 and that countries should commence planning for alternative energy sources.

Our shipping routes are a major risk to supply. Tankers from our refined fuel suppliers cross the South China Sea with its escalating disputes, the strategic Straits of Malacca or the seas around the Korean peninsula. In turn, 30% of the word's traded crude oil for refining is transported via the Red Sea and Straits of Hormuz where even minor conflict using drones has caused serious disruption to shipping. The 1973 oil crisis demonstrated how larger conflict in the localised region of the Middle East could profoundly disrupt global oil supplies.

The Russia-Ukraine war has shown that energy disruption to an entire continent was both possible and highly disruptive, and the Covid 19 pandemic has demonstrated the precarity of most global supply chains, in particular shipping.

Australia's military leaders have identified fuel security as a major strategic risk requiring planning and review of all energy sectors plus consistent bipartisan political support for solutions. In his article, Air Vice Marshal John Blackburn RAAF notes that "The IEA is unclear how Australia would respond to a serious oil disruption and market failure."

https://www.australiandefence.com.au/budget-policy/energy-security-is-there-a-problem

Around 75% of liquid fuel imported into Australia is used in transport with the majority (54%) used for road transport.

Countries with similar constraints to Australia's have concentrated on the road transport sector with ambitious plans to reduce dependence on imported fuel, mainly because the technology is available and policy changes are relatively easy. Road transport is low hanging fruit.

China

China had the specific aim to reduce dependence on imported oil when it chose to electrify road transport nearly twenty years ago. The extent of reduction has been masked by an expansion in the economy and number of cars, but the US Energy Information Administration

noted a 14% reduction in gasoline consumption in the year from August 2023-2024, associated with a rise in battery electric and plug in hybrid vehicles to over 50% of new car sales by October 2024. (USEIA, November 20, 2024). The USEIA also noted an 11% drop in diesel consumption in the year June 2023-2024 associated with LNG powered trucks growing to 20% of new sales over the same time period.

Republic of Korea

In 2021 South Korea introduced a comprehensive suite of policies to increase the uptake of zero emissions vehicles. These include substantial purchase subsidies, funding for extensive charging infrastructure and major funding for R&D for battery manufacturing/recycling, autonomous vehicles, ridesharing services and micromobility. There are designated targets for substantial reductions in fuel consumption at 2030 and 2050. The program is also designed to boost the productivity and competitiveness of Korean vehicle manufacturing and exports.

Norway

Multi-party support for zero emissions vehicles has been in place since the 1990s, with the result that they made up 89% of new car sales in 2024 and 27% of the entire registered car fleet.

The key policies are a progressive car tax based on a combination of mass, CO2 and NOx emissions (the "polluter pays" principle) and exemptions/reductions for VAT and import/sales taxes. The Norwegian EV Association consistently reports each year that the main reason its members buy electric vehicles is because they are cheaper.

Despite a significant rise in the driving age population, fuel demand for passenger cars has declined rapidly since 2016, falling by more than 20% in line with EV market penetration. However diesel demand for trucks and buses has has grown in line with population, so overall fuel consumption has only slightly declined. This is consistent with low electrification in the heavier vehicle sector. As transition picks up in this sector, fuel demand destruction could snowball as soon as 2025.

https://www.rystadenergy.com/news/norway-fuel-demand-electric-car-bus-truck-gasoline-diesel

Ramping up incentives to speed up electrification of Australia's passenger, light and heavy road transport vehicle fleet is a demonstrably practical and effective way to reduce Australia's reliance on imported fuels and improve our energy security.

Although large parts of our electricity and gas sectors are under foreign ownership, electricity generation is almost entirely from Australian resources.

Electrifying road transport is relatively simple using existing and rapidly evolving new technology whereas aviation, shipping, mining and agriculture are more complex and are likely to depend on development of alternative fuels.

This is reflected in the commentary around the Australian Defence Forces (ADF) where the strategic risk is seen to extend well beyond insufficient reserves and refineries. The development of an alternative fuels pathway and changing to renewable energy sources are seen as critical to future proof the ADF.

https://ad-aspi.s3.ap-southeast-2.amazonaws.com/2022-08/SR%20187%20The%20ADF%20and%20its%20future%20energy%20requirements.pdf?VersionId=7cntFK63_AzJkM1FlVvBN02DR4felWO9

This includes plans to electrify and hybridise the entire ADF fleet where possible in keeping with the future of international defence equipment. (R. Marles, Defence Connect, 21 May 2024).

Defence forces both in Australia and internationally have identified the strategic risk of fuel insecurity and have been able to plan for the energy transition without politicisation of the issue.

Rapid electrification of our domestic road transport fleet is relatively low hanging fruit and would substantially reduce our dependence on imported fuels. It is a matter that should have solid bipartisan political support in the national interest.

The Australian Electric Vehicle Association (AEVA) has a suite of carefully developed policies which are available to assist in planning the transition.