

THE AUSTRALIAN

Sovereign energy needs must come from national lead

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11:00PM NOVEMBER 28, 2021 •  181 COMMENTS

The pandemic and the rise of China have forced us to rethink Australia's national security. How long can we survive if our supply chains with the rest of the world are disrupted? The answer looks more like days and weeks than years. The greatest threat is a major disruption to our liquid fuel supplies, that is, cuts to our petrol and diesel stocks.

Most of us need to drive every day, whether it's for work, to take kids to school, to get food or support our families and communities. It's not optional. We can't just take months off while global supply chains are fixed or our small navy convoys Australia's few weeks' worth of emergency crude oil allocation from America's national stockholdings in the Gulf Coast to Australia. Worryingly, with Australia's last two refineries now barely surviving, this crude oil may be useless to Australia in the future.

Australia had a lot of trouble getting fuel in both world wars, even though national needs were minuscule given the populations were five million and seven million respectively. By comparison, given our now 25 million people, our country's fuel needs today are massive. Sticking with liquid fuel technology means making Australia increasingly vulnerable.

Prime Minister Scott Morrison recently declared that the "events of 2020 have reminded us that we cannot be complacent. We need a sovereign fuel supply to shield us from potential shocks in the future."

We are caught in a technological trap of our own making but it's a trap that would seriously threaten our national survival if it closes. Spending lots more on liquid fuel technology simply makes the problem ever larger. It's time to cut the Gordian knot and shift to better technology.

Technology is now able to deliver us a sovereign fuel supply. This opportunity was at best embryonic a decade ago but it's now a viable solution. This technology involves decisively shifting away from last century's liquid fuels to modern renewable energy approaches. Technologies such as electric vehicles and hydrogen trucks are today available to allow Australia to gain energy independence in the transport sector. Amazingly, this includes the relatively small aviation sector where electrification of short-range transport aircraft is under way and synthetic carbon-neutral fuels are being tested.

This technology alone is not enough. Such modern transportation could be powered by our highly centralised, fossil fuel electricity system. Such a design though remains vulnerable to technical failure and physical or cyber attack. It is like a bicycle wheel with electricity lines emanating out like spokes from a central hub. A single point of failure can impact the whole system – as the 2019-20 bushfires revealed.

Modern technology now offers the potential to replace this old-design, centralised system with a highly distributed network. This is more like the internet, a mesh where if a connection is lost, it can be worked around. A highly localised example is a home able to draw power from the national network, its own solar panels and batteries or the electric vehicle in the garage. With this, if one node goes down or several connections are lost, the impact is minimised.

Wind, solar power, hydro, backup gas, pumped hydro and batteries are today proven technologies, already in use and able to be integrated and networked for our national purposes.

To become an energy-independent nation we need a national approach. Today, the states and territories, businesses and individuals are powering ahead but they are unintentionally building a fragmented, disjointed network. It is not national, it lacks scale and it especially lacks economies of scale. The federal government needs to lead through national-level planning, co-ordination and light touch nudge regulation.

Setting fleet-wide emission or fuel economy standards can start getting Australia moving. Such standards would incentivise vehicle manufacturers to rebalance their average new vehicle sales towards more electric or hydrogen-powered vehicles. Realising this, the UK, the EU's 27 nations, Canada, China, India, Japan, Korea, Mexico and the US have already taken such action.

By 2030, Australia could be a highly resilient nation in terms of energy. Our independence would no longer depend on Middle Eastern crude, offshore refineries, the whims of foreign oil companies, unbroken global supply chains and permanent peace in Asia. Energy resilience is an achievable ambition that just needs an ambitious federal government to achieve. We need a sovereign fuel supply. It's time to make it so.

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