

Energy policy: where parallel universes are set to collide

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There are parallel universes in energy policy and they are about to collide.

In one universe, the governments of Australia and most of the Western world are committed to the flight from coal to renewable energy. In the other, we have already gone as far as we can go in that direction with existing storage technology.

The combination of wind droughts and the lack of feasible grid-scale battery storage makes the green energy transition impossible for the time being, despite what we are told.

Several times a year, there are periods with next to no wind across the whole of south-eastern Australia (the National Energy Market).

These ‘wind droughts’ can be described as icebergs in the path of the *RE Titanic*.

Very few people pay close attention to the wind apart from cyclists, sailors, and spin bowlers.

For many years, dedicated wind-watchers have sounded a warning about these ‘icebergs’, but the captain and passengers on the *RE Titanic* remain blissfully unaware of the approaching calamity.

The supply of wind is critical for wind power in the way that the water supply is required for irrigation, but the wind power industry has apparently been built without properly contemplating the impact of these wind droughts.

People have developed a false sense of security because when Australia had more than enough conventional power from coal and gas to back up the renewables grid, it did not matter whether the sun shone or the wind blew.

However, over the last two decades a large number of coal power stations have closed in south-eastern Australia, while most of those that remain are approaching the end of their working lives. Then there is Liddell in NSW, which is being phased out.

We have reached a critical tipping point.

If we lose more fossil fuel capacity from the grid, Australia's power supply will fail every time there is not enough wind or solar power available to meet the peak demands at breakfast and dinnertime. The records show quite clearly that these renewable energy droughts happen often and there will not be enough power.

Consequently, when the next coal power station closes, every wind drought will threaten the power supply integrity and prolonged wind droughts will be potentially catastrophic.

If the coal capacity is not maintained, then more gas will have to be burned at a crippling cost.

The official response is to accelerate the roll-out of windmills and solar panels but these make no contribution to the grid on windless nights.

Building more capacity does not help any more than having a big petrol tank in a car helps when it is empty. You can't capture what isn't there.

This would appear to be stating the obvious, but it seems to have been neglected in planning the electricity system that we have today.

Completely windless nights hardly ever happen, but there are frequent and prolonged periods with critically low levels of wind across the whole of south-eastern Australia. These occur whenever high-pressure systems hover over large areas of land, sometimes for days on end.

Amateur wind watchers including 'Tony from Oz' (Anthony Lang) and Paul Miskelly have been documenting this situation since 2008, but their work is practically invisible apart from references in places like Jo Nova's blog and the output of the Energy Realists of Australia.

In recent years, Paul McArdle of WattClarity and the independent analyst Mike O'Ceirin charted the wind records from the AEMO since 2010.

It has been found that the average generation increased steadily, as expected, near 29 per cent of the installed capacity, but the output at the lowest points remained stuck near the bottom of the chart.

This means that proposals to overbuild wind power capacity to cover low-wind periods will not work because at the very lowest points no feasible amount of overbuilding will be sufficient.

Three strategies are proposed to fix the problem.

- More transmission lines
- Batteries
- Pumped hydro storage

Transmission lines are no help when there is a wind drought across the whole of the National Energy Market.

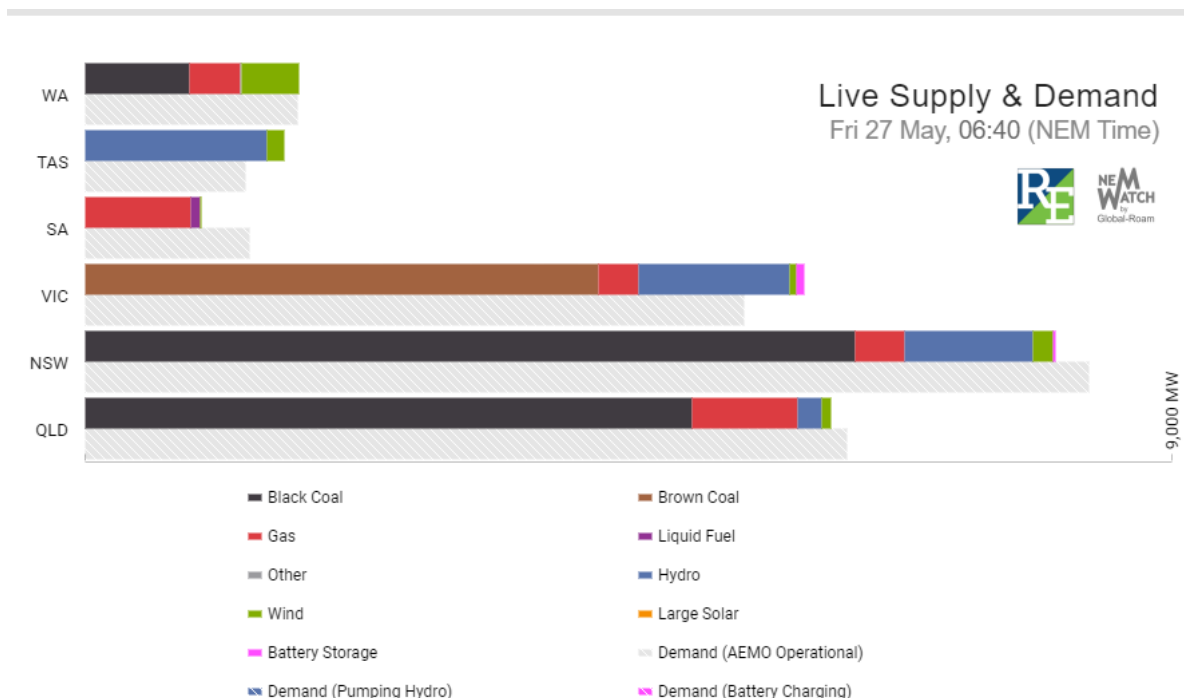
The capacity of the so-called ‘big batteries’ is negligible compared with the amount of power consumed in the grid. **Moore’s law** (exponentially increasing capacity) does not apply to energy storage.

Pumped hydro is not a contender at the scale required because the major Snowy 2.0 scheme will only be a partial replacement for a single coal power station. Moreover, it comes with a massive financial and environmental cost.

It is important for everyone to become more ‘wind literate’ in order to realise how often there is very little wind, sometimes across the whole of the continent. Just glance at the ‘**NemWatch widget**’ on your phone or computer, especially at breakfast and dinnertime.

The amount of generation in each state is displayed with the sources colour-coded – black coal, brown coal, red for gas, and green for wind.

Sometimes there is very little green like on the morning of May 27 last year.



Windpower enthusiasts will call ‘Foul!’ as though focusing on the gaps in the supply is cherry-picking!

Not so. This is due diligence, like looking for the defective rung in a ladder before you climb or locating the defective part in the aero-engine that could crash the plane.

The failure of supply during wind droughts is not a bug in the renewable energy system, it is a feature.

It almost certainly means that the green transition cannot proceed any further until some new form of storage is available or nuclear power is on deck.

[Click here](#) for information on the casualties of Net Zero or read more at Rafe's blog [The Rathouse](#).

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