**Who is driving the low carbon wagon?** **Hon Robert Hill AC**

Who is driving Australia's carbon reduction agenda? The Morrison government is in danger of the States dictating its climate change policy. That's not a position the national government would traditionally have found acceptable. Climate change policy is intrinsically linked to economic policy, and managing the cost abatement curve has been a responsibility jealously guarded by Canberra.

The most audacious policy hijack occurred only this month with the publication of the NSW Electricity Infrastructure Roadmap. This is a commitment to transform the electricity sector by incentivising a $32 billion private sector investment in renewable energy, storage and transmission, what NSW Minister Kean refers to as "clean electricity generation".

The NSW government has recognised that four of its five existing coal fired power stations are expected to close within 15 years, taking out around three quarters of NSW's electricity supply and two thirds of its firm capacity. It has noted the view of AEMO that the cheapest replacement will be a mix of wind, solar, storage, gas and transmission, and is acting accordingly. Firming capacity would be provided by a combination including batteries, gas generators and demand responses.

The Commonwealth was only as recently as September threatening to "step up and back" up to 1000 MW of new gas fired baseload generation in the Hunter Valley, to cover the retirement of Liddell, the first of the coal fired power stations scheduled to close. In the language of Federal Minister Angus Taylor, to "replace like with like". What the NSW Government is now saying is that there is a better low carbon alternative, and it will act accordingly.

NSW has an aspirational objective of achieving net-zero emissions by 2050 and cannot afford current coal fired energy to be replaced by other hydrocarbon generators except in a firming role.

Furthermore, it seems some key industry players are on the same wavelength as the NSW and other State governments which are driving the renewables agenda. AGL in August had announced its intention of converting Liddell into a giant 500 MW battery. This month it has announced its intention to build a 250 MW battery at South Australia's Torrens Island. Again, the Victorian government announced this month its intention to install "Australia's largest battery" (300 MW) to support new renewable energy capacity and "modernise the State electricity grid". Of course, both SA and Victoria have long term targets of net zero emissions by 2050.

So maybe the States will do the Commonwealth's carbon abatement job for it! The commitment of the States to renewable energy is a big step in the direction of lower carbon emissions. It is worth remembering that, according to the Blueprint Institute in its recent publication *Powering the Next Boom*, the UK reduced electricity emissions by 54.7% between 2005 and 2018 through the near elimination of coal.

Over 63% or 15 GW of Australia's coal generation is expected to reach the end of its technical life and retire by 2040. But AEMO in its 2020 Integrated Systems Plan informs us

that replacing that coal generation, meeting growing demand and ensuring reliability will require at least 26 GW and potentially up to 50 GW of variable renewable generation to be online by 2040. This is more than 40% of the NEM's current capacity. That is a big ask. Furthermore, to support this change in generation mix will require a major augmentation of the transmission grid. For cost reasons alone, this major transformation could not occur without the Commonwealth assuming a leadership role.

The Commonwealth claims to be energy neutral and looks to its Technology Investment Roadmap to guide investment in lower emission technologies. It is worried by the risks inherent in change, principally the stability and security of the system, and the cost of energy to users. Thus, its cautionary position of wanting the Liddell gap plugged with gas fired dispatchable generation. The Commonwealth is much more skeptical than some States as to whether the baseload provided by coal can be replaced by renewables and storage, together with all the necessary grid upgrades, within the available tight timetable.

Gas ,with about half the carbon emissions of coal, had been seen as the transitional fuel for baseload energy, in the ultimate shift from coal to renewables. To some extent that had been occurring. But in more recent times, wind and solar generation has become cost competitive with gas, and the cost curve extends out in favour of renewables. However, the Commonwealth government was encouraged by its National Covid-19 Commission in its advice on a post Covid economic recovery, which found that with policy intervention, gas would again be competitive on price. Thus, its "gas led recovery" package.

In the words of AEMO, "the least cost and least regret transition of the NEM is from a system dominated by centralized coal fired generation to a highly diverse portfolio of behind the meter and grid scale renewable energy resources that are supported by dispatchable firming resources and enhanced grid and service capabilities". AEMO clearly sees the transition as being from coal to renewables, but nevertheless with a role for gas in the provision of dispatchable firming resources, dependent on price.

This has been a month when the debate has benefitted from a number of other contributions. Tony Wood in a paper for the Grattan Institute, *Flame Out: The future of Natural Gas*, also argues that for reasons of cost and emissions, the time for gas as a transitional fuel has passed, but gas will still have an important role as a backstop to wind and solar.

Dr Brian Fisher in *Unleashing the potential of Gas*, a publication of the Menzies Research Centre, argues that all existing firming capacity as well as additional gas generation will be utilised in firming the system. He sees this against a clear background of retiring coal fired generation and the national commitment to reducing greenhouse gas emissions in line with Australia's Paris commitments. In firming capacity, he sees gas as having a benefit over batteries in scale and over pumped hydro in complexity, cost and timeliness.

It would seem therefore that there is little doubt as to the overall direction of Australia's evolving energy transformation. There will be a substantial movement away from coal as the dominant fuel for baseload, substantial replacement by solar and wind, peaking will be provided by a number of resources including natural gas and there will be major grid investment to accommodate this new paradigm.

But some States intend to drive a faster lower carbon transformation and regard the Commonwealth's more cautious approach, which calls for major gas fired dispatchable generation, as unnecessary. In fact, they see it as counterproductive to the goal of carbon reduction in that it locks in more hydrocarbon sourced energy for the long term, and an unwise expenditure which would be better used on low carbon peaking alternatives and in upgrading the grid. From the Commonwealth's perspective, the States are being reckless in their low carbon aspirations, at an unacceptable risk to energy price and availability.

This will be an interesting contest of wills.

**Hon Robert Hill AC**

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