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Australia's government-induced transition to a high-cost, unreliable electricity supply

Dr Alan Moran
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Australian governments are forcing a "transition" in electricity supply from coal (and gas) to wind and solar. Though the ACT has virtually no electricity generation other than that from rooftops, it leads the way in terms of its purchasing contracts for grid-sourced renewables.

Wind and solar have different operating characteristics than coal and gas electricity generators. Coal and gas (and nuclear) can operate pretty much continuously but weather and nightfall limits solar to generating only 20 per cent of the time and wind to about 30 per cent. And electricity supply from wind and solar generators is highly variable.

With wind/solar at their present market share of about 30 per cent, both coal and gas can fill their troughs in supply. But it is the policy of all Australian government jurisdictions to force coal and most gas out of the market. Moreover coal (or, for that matter, nuclear) is ill-suited and costly as a backstop to variable wind and solar supplies.

Recognising the need to compensate for the intermittency of wind and solar energy, 15 months ago, Commonwealth Energy Minister, Chris Bowen, proposed a Capacity Investment Scheme to iron out the peaks and troughs of wind and solar generated electricity.

The idea was to induce a build-up of storage systems to enable uninterrupted supply of electricity. This becomes increasingly necessary to provide support as coal, which still supplies over 60 per cent of the nation's electricity, is phased out.

Approved storage systems under the Capacity Investment Scheme are pumped hydro like Snowy 2 and batteries. Pumped hydro generates by releasing water when alternative supplies are short and uses electricity at other times, when it is in excess supply (and therefore cheap), to pump the water back uphill. Batteries supply and replenish on a similar basis.

Snowy 2 (providing the boring machine named "Florence" can be made to work) with other pumped hydro is projected to provide enough storage for about 9 hours supply as the market grows. The Australian Energy Market Operator (AEMO) reckons we need to increase this to 12 hours by using batteries.

Mr Bowen's Capacity Investment Scheme was earmarked to help do that job. But, in the event, 23 of its planned 32 gigawatts of installed capacity is earmarked for additional wind and solar. Rather than capacity support for wind and solar, it has become just another subsidy scheme to

induce additional supplies of this renewable energy. In passing, it is worth recalling that 20 years ago we were assured that all such schemes would be unnecessary, as wind and solar would by now have become lower cost technologies than the archaic coal plant they would replace!

With the Capacity Investment Scheme and other measures, the Albanese Government has turbocharged the renewable energy subsidy programs from an annual cost of \$9 billion under Scott Morrison to over \$15 billion. The various measures are summarised below.

So, we have seen a vast increase in subsidies (that is, costs to energy users and taxpayers) which has brought about a considerable increase in government outlays and in the price of energy to households and commercial users alike. For energy-intensive industries, like smelters, the increased prices are crippling and governments have introduced offsetting support – ironically, they are providing subsidies to offset the effect of the subsidies that they have already imposed!

All this aside, AEMO's planned half a day of storage is hopelessly inadequate in view of the high variability of wind and solar. Overseas estimates are that a wind/solar system requires at least 20 days storage, while the highly regarded Australian consultancy, Global Roam, has estimated that Australia would need at least 10 days storage. And this is with a perfectly designed system involving a 20 per cent over-supply of generation capacity without any losses during storage or transmission.

These are early days of the energy "transition". But our politicians are plunging us into an electricity supply system with perilously higher costs and lower reliability than we are already experiencing.

Editor's note: Dr Alan Moran was the Director of the Deregulation Unit at the Institute of Public Affairs from 1996 until 2014 and was previously a senior official in Australia's Productivity Commission and Director of the Commonwealth's Office of Regulation Review. He played a leading role in the development of energy policy and competition policy review as the Deputy Secretary (Energy) in the Victorian Government.