

QB24-000039

NUCLEAR POWER**ISSUE/QUESTION**

Emerging technologies such as small modular reactors (SMRs) have renewed interest in the potential for nuclear energy in Australia.

POLITICAL TALKING POINTS:**Office Use Only**

- Peter Dutton's gamble for nuclear power plants across Australia will increase bills, cost taxpayers billions and risk reliability of the grid.
- Australia has a massive comparative advantage when it comes to the cheapest form of energy – firmed renewables, with more sunlight hitting our landmass than any other country
- It would take decades for Australia to start from scratch if we followed the LNP's gamble for nuclear in Australia, time we don't have after the LNP oversaw 26.7 GW of coal generation announced closure dates – with no plan to replace it.
- Independent energy market bodies like AEMO (Australian Energy Market Operator) have repeatedly said that the pathway to cleaner, cheaper, reliable energy is with renewables, supported by storage and transmission.
 - *“Australia's ageing coal-fired power stations are closing down. Renewable energy connected by transmission, firmed with storage and backed up by gas is the lowest cost way to supply electricity to homes and businesses through Australia's energy transition.”* pg. 3, 2024 AEMO Draft ISP

KEY POINTS:

- The Australian Government has no plans to change the longstanding moratorium on nuclear power in Australia.
- The Australian Government has made clear it will support Australia's energy transformation through policies set out in Powering Australia, focused on firming renewables. It does not include nuclear energy.
- Nuclear energy is the centrepiece of the Liberal National Party policy on 'Australia's Energy Future' announced on 19 June 2024. The announcement included:
 - the location of five conventional and two small modular reactors (SMR);
 - target dates for electricity production from the first reactors of 2035 for SMRs, and 2037 for conventional reactors;
 - a commitment that the "Australian Government will own these assets" and form partnerships with experienced nuclear companies to build and operate them; and
 - a commitment to deliver a net-zero electricity grid by 2050.
- In countries with established nuclear power industries or limited solar and wind resources, nuclear power can provide a low emissions alternative to fossil fuels.
- The long deployment time and high cost of nuclear power makes it an unviable choice for Australia.
- Much of the grid's decarbonisation will have already occurred before Australia could have the regulatory frameworks and capability in place for nuclear power.
- The Government's Capacity Investment Scheme seeks competitive tender bids for renewable capacity and clean dispatchable capacity projects to:
 - deliver an additional 32 GW of capacity by 2030
 - fill expected reliability gaps as ageing coal power stations exit
 - deliver the Australian Government's 82% renewable electricity by 2030 target.
- The GenCost 2023-24 report shows onshore wind and large-scale solar remain the lowest cost new-build energy generation sources in Australia, even when factoring in transmission costs.

BACKGROUND:

- The Liberal National Party's policy on 'Australia's Energy Future' announced "*a future Federal Coalition Government will introduce zero-emissions nuclear energy in Australia, which has proven to get electricity prices and emissions down all over the world, to work in partnership with renewable energy and gas as part of a balanced energy mix*".
- The proposal includes building seven nuclear power plants, located at power stations which have closed or are scheduled for closure, specifically:
 - Liddell Power Station, New South Wales
 - Mount Piper Power Station, New South Wales
 - Loy Yang Power Stations, Victoria
 - Tarong Power Station, Queensland
 - Callide Power Station, Queensland
 - Northern Power Station, South Australia (SMR only)
 - Muja Power Station, Western Australia (SMR only).
- The policy states:
 - *Energy experts have warned the cost of Labor's rollout will cost between \$1.2 and \$1.5 trillion.*
 - *Labor's approach requires imposing 58 million solar panels, 3,500 new industrial wind turbines, and up to 28,000 kilometres of new transmission lines across the country.*
 - *No country in the world relies solely on solar and wind, as Labor is proposing.*
 - *There are 32 countries operating zero-emissions nuclear plants. Another 50 countries are looking to do so.*
 - *Of the world's 20 largest economies, Australia is the only one not using nuclear energy, or moving towards using it.*
- GenCost 2023-24 includes costs for large-scale nuclear and SMR technologies. The report found:
 - wind and solar are the lowest cost new-build energy technologies in Australia (both standalone and integrated with the required storage, transmission and firming) today and in 2030.

- the capital and levelised costs for large-scale and SMR nuclear technologies are higher than for integrated renewables. To achieve the indicated costs for large-scale nuclear, Australia would need a continuous building program.
 - a first-of-a-kind premium of up to 100% cannot be ruled out for Australia's first deployment of nuclear technologies.
 - deployment of large scale or SMR technology in Australia was unlikely to occur before 2040, or 15+ years from the decision date to pursue nuclear.
- Due to the lack of technical data for large-scale nuclear projects in Australia, GenCost draws its data and analyses from South Korea. CSIRO's approach accounts for differences in labour, engineering, and supply chain costs.
- The report includes real-world data from the now-cancelled US NuScale Carbon Free Power Project in its analysis to provide a capital cost estimate for SMRs from 2023 (\$31,138 per kilowatt), not previously provided in GenCost.
- In November 2023, the NuScale Carbon Free Power Project in the US was cancelled due to failure to secure financing. In January 2023, the estimated generation cost had increased from \$87/MWh to \$133/MWh (including US Government subsidies).
 - The project's termination is significant because it was the only SMR in the US with design certification from the Nuclear Regulatory Commission.
- The GenCost 2023-24 report estimates that in 2030 the LCOE for:
 - SMRs range from \$230 to \$382/MWh;
 - integrated solar and wind ranges from \$73-\$109/MW for 60 per cent share, and \$89-\$128/MWh for 90 per cent share.
 - black coal with carbon capture and storage (CCS) range from \$156 to \$248/MWh; and
 - gas with CCS ranges from \$119 to \$200/MWh.
- According to the International Atomic Energy Agency (as of 23 April 2024), 417 nuclear power reactors are in operation globally. 58 are under construction, 24 of which are in China.

There are no *n*th-of-a-kind SMRs globally, only two first-of-a-kind projects in China and Russia.

RECENT MEDIA:

- Coverage on the Liberal National Party's policy on 'Australia's Energy Future' has been extensive.
 - The Sydney Morning Herald article "Dutton Hits the Nuclear Button" (20 June 2024) reports "cracks in the proposal have already appeared, as state premiers rejected the idea, some Nationals MPs opposed nuclear power in their seats and conceded it was potentially divisive, while major industry players flagged concerns about huge costs, viability and the timeline for delivery".
 - The Guardian article "The Coalition's nuclear power plan offers the worst of all energy worlds: higher emissions and higher electricity costs" authored by Malcolm Turnbull (19 June 2023) reports "Today's nuclear power announcement by Peter Dutton offers Australians the worst of all energy worlds. It is designed to delay and obstruct the rollout of renewables, it will increase, massively, the cost of electricity, and it will extend our reliance on burning coal".
 - The Australian Financial Review's article "Dutton's nuclear bet short on detail, cost (20 June 2024) reports "The Coalition has become increasingly confident that the costs and delays besetting the government's renewables rollout will help overcome "the mother of all scare campaigns" on the costs and risks of a switch.
- The Australian Financial Review's article "Nuclear Power will be cheaper than CSIRO estimates, Libs insist" (22 May 2024) reports "the Coalition did not disagree with the CSIRO estimate that it could cost up to \$8.6 billion to build one power station but denied the electricity would be up to twice as expensive as the produced by fired renewables" and quotes Angus Taylor as saying "the Coalition's plans, to be announced this year, would not involve any form of government subsidies".
- The Australian Financial Review (11 May 2024) quoted the Executive Director of the International Energy Agency, Fatih Birol, as saying "If there's a country that has a lot of resources from other sources such as wind and solar, I wouldn't see nuclear as a priority – I'm talking about Australia."
- The *Australian Financial Review's* article 'Dutton's nuclear plan 'very competitive' (10 April 2024) highlighted a poll undertaken in March by RedBridge which asked voters about the Opposition's plans for 'Australia producing next-generation, zero emissions nuclear energy'.
 - According to the article, among the 2,590 voters surveyed:
 - 52 per cent said they supported, or strongly supported
 - 22 per cent who were opposed, or strongly opposed.
 - 26 per cent were unsure.

- Support declined to below 50 per cent in each region when those in NSW (42%), Victoria (41%), Queensland (48%) and Western Australia (39%) were asked whether they support nuclear being built in a specific regional area in their state.