CLIMATE ENERGY FINANCE

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AEMO CONFIRMS ANY RELIABILITY RISKS TO ELECTRICITY SUPPLY CAN BE OFFSET BY EXPEDITING NEW RENEWABLES, TRANSMISSION, STORAGE & ORCHESTRATION

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The Australian Energy Market Operator's (AEMO) August 2023 Electricity Statement of Opportunities (ESOO) – its 10 year reliability outlook for the National Electricity Market (NEM) – demonstrates yet again that state and federal governments must move to expedite planned transmission projects, utility and distributed renewable energy generation, and storage.

While AEMO's projections show that, in the absence of accelerated delivery, some gaps in reliability will arise over the coming decade, this is a result of the retirement of 62% of Australia's end-of-life coal power clunkers by 2033 – generators that are in any case increasingly unreliable and prone to unplanned outages that impact supply. A clear indicator of this is the fact that in 2022, forced outages at Australia's ageing coal power fleet left the grid short of forecast coal generation capacity for nearly one-quarter of the year. Continuing to place reliance on outmoded, polluting and unreliable coal power is an unacceptable concentration of risk, when investment should be directed to energy transition.

Notably, AEMO explicitly confirms that risks to supply can be adequately addressed by state and federal government renewable energy transition initiatives currently underway. These include enhancing orchestration of virtual power plants (VPPs) and distributed energy resources (DER) to help shore up supply and firming, major transmission infrastructure, pumped hydro storage (PHS), and battery energy storage systems (BESS), assuming these can be delivered on schedule.

AEMO also states that its risk scenarios do not factor in the reliability gains to be made from the massive 248 gigawatt (GW) pipeline of renewables, storage and transmission proposals across the county. This is 4 times the current total installed capacity of 63GW in Australia's NEM.

AEMO notes that DER such as rooftop solar, behind-the-meter household batteries and community batteries, peaking shaving, demand response management, and EVs will have an increasingly important role as they are "orchestrated" to help meet power system needs, supporting supply and firming of the grid – another factor reducing reliability risks.

The message is clear: accelerating the pace of energy transformation and transitioning our grid is critical to ensuring reliable energy supply and solving the current energy crisis precipitated by the hyperinflation of fossil fuels. Ambition and action by state and federal governments is key. Only the transformation of our energy sector to cheap, clean, firmed renewables will deliver the energy security Australians need, while consigning hyperinflationary, volatile and polluting fossil fuels to history, solving energy bill shock, and helping mitigate the fossil fuel-driven climate crisis.

It is also clear that with credible ambition, action and coordinated policy implementation, AEMO's ESOO modelling shows there is no reliability threat to NSW in relation to the scheduled 2025 closure of the Eraring coal-fired power plant. NSW' lights will stay on.

KEY TAKEOUTS:

OVERVIEW

- 62% of coal generators are expected to close in the decade to 2033.

- Generator unplanned coal plant outage rates are forecast higher than previously, reflecting recent trends of poor performance of end-of-life coal clunkers.

- AEMO now applies delays to reflect observed development and delivery risks of new projects in the reliability forecast.

- 3.4GW of new wind, solar, battery and pumped hydro developments have advanced sufficiently to be considered in the 2023 ESOO.

- A much larger pipeline of proposed generation and storage projects – totalling 173 GW of variable renewable energy (VRE) and 74 GW of dispatchable resources (including BESS, PHS) – demonstrate the opportunity for the market to respond to emerging reliability gaps, if projects are developed in a timely manner.

- These schemes, if supported by the development of actionable transmission projects, as identified in AEMO's 2022 Integrated System Plan (ISP), and the development of 6.6 GW/ 16.3GWh of orchestrated consumer investments (largely behind-the-meter battery systems) and 2.1 GW of flexible demand response that are projected in AEMO's Step Change scenario by 2032-33, have the potential to significantly improve the outlook if they progress as projected. CEF also advocates for accelerated deployment of DER, particularly commercial and industrial solar and storage and residential rooftop solar and batteries.

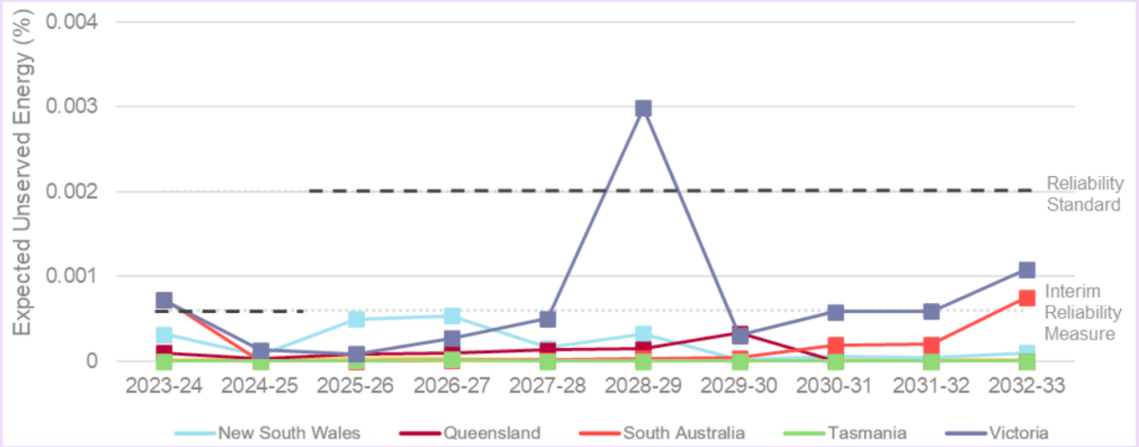
NSW / ERARING COAL POWER PLANT

- In NSW, the government is evaluating the closure date for Australia's largest coal power station, Eraring, of August 2025, and the alternative lower cost solutions available. CEF's July 2023 report, 'The lights will stay on' found Eraring can and should close on schedule assuming expedited approvals processes and construction for the project pipeline of replacement capacity which will more than offset the closure, front-end loading at least 1.2GW annually of utility scale wind and solar to 2030, and continuing the current run rate of 1.2GW annually of rooftop solar. The estimated $200-400m of public subsidies per annum the NSW government would need to pay Eraring's operator to keep it running should be invested in accelerating the state's energy transition.

- AEMO's forecast reliability gaps identified from 2025-26 in NSW align with the retirement of Eraring and are larger than that forecast in its update to the 2022 ESOO (due to factors including higher forecast demand, a reduced contribution from the NSW Peak Demand Reduction Scheme, and higher unplanned outage rates).

- However, AEMO's Step Change scenario – Figure 2 below – shows there are next to no grid reliability issues forecast; that is, increased coal unreliability and coal power closures can be more than offset by actions to respond to this, including orchestration of DER.

Figure 2 Expected unserved energy, *Federal and state schemes* sensitivity, 2023-24 to 2032-33 (%)



NEM PROJECT PIPELINE

Generation and storage developments

In total, 20.8 GW of scheduled or semi-scheduled new **generation and storage developments** are forecast to be operational by 2032-33. These developments include:

- NSW - Tallawarra B (320 MW) from November 2023.
- NSW - Kurri Kurri Power Station (750 MW) from December 2024.
- QLD - Kidston PHS (250 MW/2,000MWh) from February 2025.
- NSW - Snowy 2.0 (2,040 MW/350,000 MWh) by December 2029.
- QLD - Borumba PHS (1,998 MW/48,000 MWh) from June 2030.
- 5,241 MW/11,054 MWh of utility-scale batteries, including Eraring Big Battery (NSW), Hazelwood (Vic), Orana (NSW), Swanbank (QLD), Torrens Island (SA), and the Wooreen (Vic).
- Numerous renewable energy developments across the NEM, including 4,918 MW of wind generation and 5,212 MW of utility-scale solar generation.

Transmission

Committed and anticipated **transmission developments** will improve the NEM's ability to share capacity between generation and load centres, including between regions. These projects include:

- Project EnergyConnect linking South Australia, NSW and Victoria.
- Waratah Super Battery, including and transmission upgrades
- Western Renewables Link in Victoria, connecting RE in north-west Victoria to Melbourne.
- Central West Orana REZ transmission, increasing the capacity for new renewables in NSW.

Fossil fuel capacity closures

Existing generator operators have advised AEMO of an expected closure schedule for 6,730 MW of generation capacity (~20% of the current thermal generation fleet) in the next 10 years, including:

- Eraring Power Station (2,880 MW) in NSW in August 2025.
- Torrens Island B Power Station (800 MW) in South Australia in 2026.
- Osborne Power Station (180 MW) in South Australia in 2026.
- Yallourn Power Station (1,450 MW) in Victoria in 2028.
- Callide B Power Station (700 MW) in Queensland in 2028.
- Numerous smaller gas and diesel generators (total 383 MW) in South Australia in 2030.
- Hallett Gas Turbine (240 MW) in South Australia in 2032.
- Delta Electricity has updated its expected closure date for Vales Point Power Station (1,320 MW) in NSW from 2029 to 2033, just beyond the 10-year outlook.

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