AEMO
AUSTRALIAN ENERGY MARKET OPERATOR

Update

Electricity Statement of Opportunities

May 2021

A report for the National Electricity Market

Important notice

PURPOSE

The purpose of this publication is to provide an Update to the Electricity Statement of Opportunities for the National Electricity Market as the announced withdrawal of Yallourn Power Station in June 2028 materially changes the forecasts of the supply demand balance in South Australia and Victoria that were set out in the 2020 National Electricity Market Electricity Statement of Opportunities.

AEMO publishes this Update under clause 3.13.3A(b) of the National Electricity Rules. This publication is generally based on information available to AEMO as at 12 March 2021 unless otherwise indicated.

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1. ESOO Update

National Electricity Rules (NER) clause 3.13.3A (b) requires AEMO to publish updates to the statement of opportunities as soon as practicable when new information becomes available that materially changes the supply or demand projections, including plant retirements. The recent announcement that all four units at Yallourn Power Station will be withdrawn on 30 June 2028 is considered significant new information, requiring a published update to the 2020 Electricity Statement of Opportunities (ESOO), published in August 2020[1].

This ESOO Update focuses on implications for the supply demand balance over the two-year period 2028-29 to 2029-30 for Victoria and South Australia, as these are the only two regions materially impacted by the withdrawal. All inputs and model assumptions used in this ESOO Update match the 2020 ESOO, other than updates to Yallourn Power Station and other new generator information changes (see Section 1.1 for details).

The withdrawal of Yallourn Power Station may also have implications for system security, however these impacts are yet to be studied in detail.

Expected unserved energy (USE) is compared against both the Interim Reliability Measure (IRM) which aims to keep involuntary load shedding (loss of customer supply) to below 0.0006% of energy demand in a region in any given year, and the reliability standard with targets a maximum of 0.002% USE.

This update to the 2020 ESOO outlines that the earlier withdrawal of Yallourn Power Station increases the forecast of expected unserved energy (USE) above the reliability standard in Victoria from 2028-29, unless there is further commitment of dispatchable capacity.

1.1 Generator information

In addition to the new information about the withdrawal of Yallourn Power Station, this ESOO Update incorporates changes from AEMO's Generation Information publication, released in January 2021[2]. Table 1 shows capacity now considered committed[3] that was not included in the 2020 ESOO, including the Victorian Big Battery with 300 megawatts (MW) of capacity. In total over five gigawatts (GW) of capacity is committed for operation across the NEM[4]. While announcing the Yallourn withdrawal, EnergyAustralia also announced it will build a 350 MW battery in 2026[5], however this project does not yet meet AEMO's commitment criteria. Nor does EnergyAustralia's recently announced 300 MW Tallawarra B peaking power plant in the Illawarra in New South Wales[6].

[1] See https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-and-reliability/nem-electricity-statement-of-opportunities-esoo.

[2] See https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-and-planning-data/generation-information.

[3] Commitment criteria are on AEMO's Generation Information page, under 'Background information'.

[4] As at January 2021. Further detail available at https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-and-planning-data/generation-information.

[5] See https://www.energyaustralia.com.au/about-us/energy-generation/yallourn-power-station/energy-transition.

[6] See https://www.energyaustralia.com.au/about-us/media/news/energyaustralia-gives-green-light-australias-first-net-zero-emissions

Table 1 Changes in committed nameplate capacity in this update, for 2028-29 forecast year

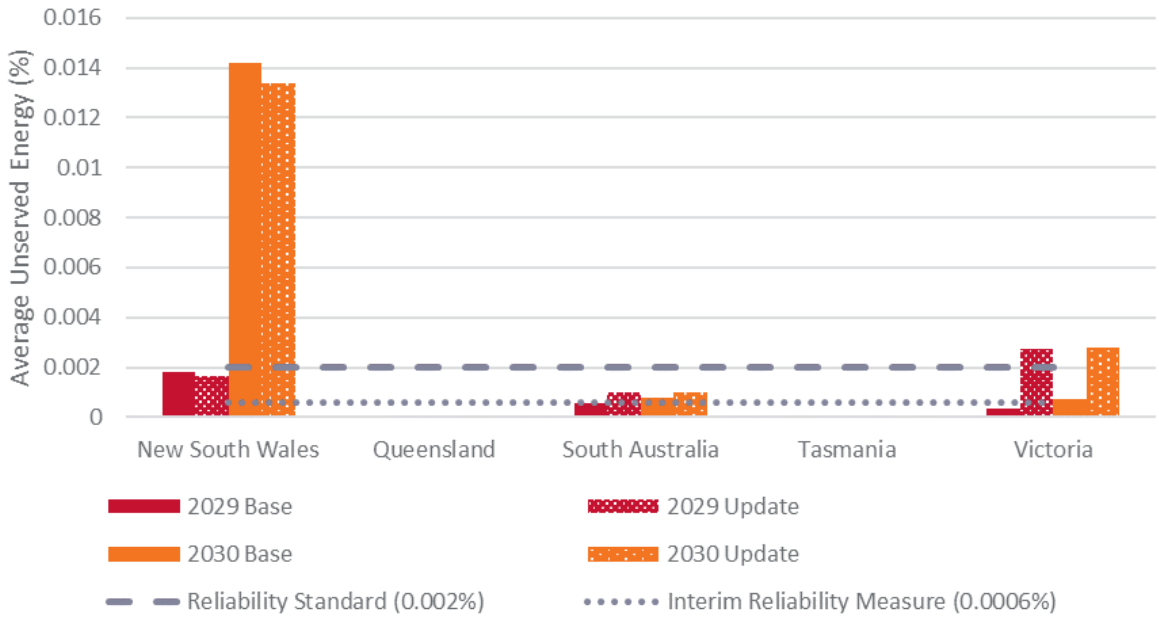
	New South Wales^	Queensland	South Australia	Tasmania	Victoria
Wind capacity	85		210		209
Solar capacity	253	400	87		
Battery capacity					300
Other capacity					-1,450*

* This reduction includes all four Yallourn units; however, the 2020 ESOO assumed one 350 MW unit was retired in 2029-30.
^ Excludes capacity for the Tallawarra B and Kurri Kurri OCGT generation projects as they do not yet meet AEMO's commitment criteria (as published in the January 2021 release of AEMO's Generation Information publication).

1.2 Expected unserved energy

The newly considered changes that are considered committed (including the earlier retirement of Yallourn) result in an increase to the forecast of expected USE for Victoria and South Australia. Expected USE for Victoria in 2028-29 and 2029-30 is forecast to exceed both the IRM and the reliability standard, while expected USE in South Australia is forecast to exceed the IRM in both years[7]. Compared to the 2020 ESOO, expected USE for New South Wales has decreased in both years due to newly committed generation projects in the region but still remains above the reliability standard. Figure 1 shows expected USE for this ESOO Update compared to the Central scenario 2020 ESOO outcomes, ('Base').

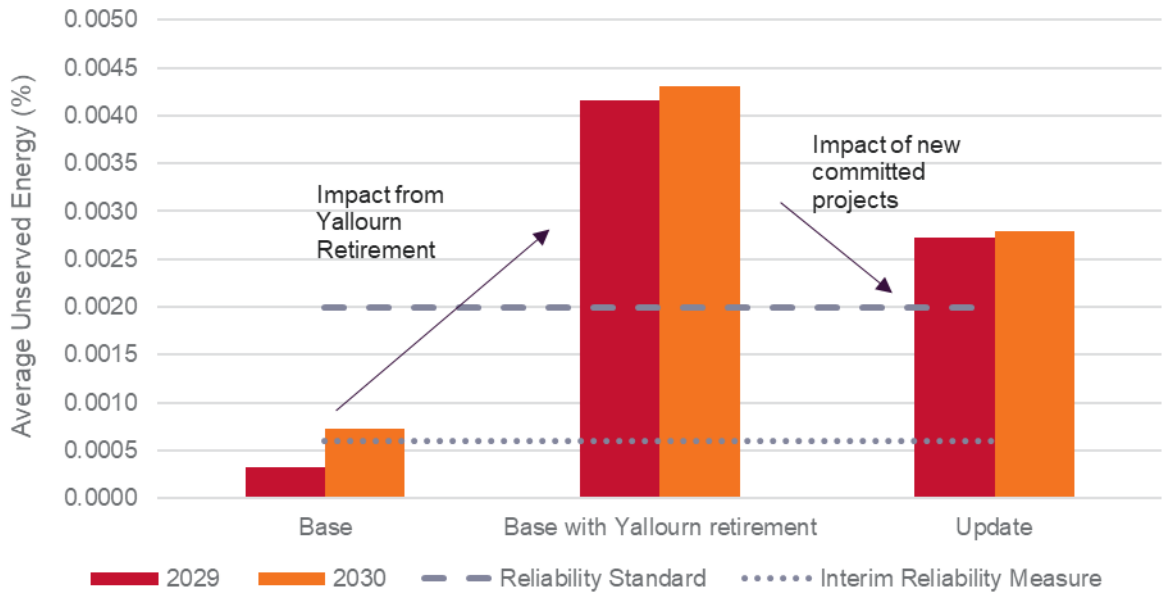
Figure 1 Indicative reliability forecast 2028-29 and 2029-30



The changes in expected USE for Victoria are further explored in Figure 2, which separately shows the impact of the Yallourn retirement and the newly considered committed generator changes. Figure 2 shows that the retirement of Yallourn power station increases the forecast of expected USE in Victoria, but the impact on expected USE has been offset by some of the recently committed projects (which were not considered in the 2020 ESOO). These projects include 209 MW of wind capacity and 300 MW of battery capacity in Victoria.

[7] See NER clause 3.9.3C for more information on the reliability standard and the Interim Reliability Measure

Figure 2 Impact of committed changes considered in this update on Victorian expected USE



Once committed, EnergyAustralia's proposed 350 MW battery in Victoria is estimated to reduce expected USE to below the reliability standard in Victoria, and its recently announced Tallawarra B 300 MW peaking plant would improve the reliability outlook in New South Wales. Further investment in dispatchable capacity will be needed by the end of the decade to bring expected USE down below the IRM in both regions.

1.3 Forecast reliability gap

Reliability gaps are forecast to occur against the IRM for the two updated years of 2028-29 and 2029-30. The indicative reliability forecast details associated with this forecast reliability gap are summarised in Table 2[8].

Table 2 Forecast reliability gap in the indicative reliability forecast (based on the 0.0006% IRM)

Region	Financial year	Size of forecast reliability gap (MW)	Forecast reliability gap period	Expected USE (GWh)
New South Wales	**2028-29**	840	1 January 2029 to 28 February 2029	0.94
	2029-30*	2,362	1 December 2029 to 28 February 2030, 1 June to 30 June 2030	8.91
South Australia	**2028-29^**	800	1 January 2029 to 31 January 2029	0.10
	2029-30*	355	1 January 2030 to 31 January 2030	0.10
Victoria	**2028-29**	1,011	1 January 2029 to 28 February 2029	0.95
	2029-30	1,340	1 January 2030 to 28 February 2030	0.98

* Calculated using a loss of load probability (LOLP) threshold of 8%, because the gap could not be calculated using a 10% LOLP threshold. For more information, see the updated ESOO and Reliability Forecast methodology on the selection of LOLP thresholds.
^ The reliability gap size in outer years can vary subject to the shape of LOLP distribution and the threshold utilised. The gap for South Australia in 2028-29 was based on a 10% LOLP threshold, as defined in the updated ESOO and Reliability Forecast methodology. If this had also been calculated using an 8% threshold the gap would have been lower than that reported for 2029-30 (195 MW).

[8] For more on calculations and definitions, see AEMO's updated ESOO and Reliability Forecast Methodology, February 2021, at https://www.aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2020/rfg/final-stage/esoo-and-reliability-forecast-methodology-document.pdf.