

CURRENT MEASURES TO MAINTAIN RELIABILITY IN THE NEM

TABLE 1 EXISTING REGULATORY MEASURES THAT ADDRESS INEFFICIENT EXIT

Measure	Role	Risks of inefficient exit this helps address
Notice of closure requirements	<ul style="list-style-type: none"> Scheduled and semi-scheduled generators to notify AEMO of the year they expect a generating unit to cease supplying electricity, and regularly update. Closing date to be provided at least 42 months in advance, unless granted an exemption by the AER. Penalty is up to \$100,000 per breach, but COAG EC will consider increasing this to \$1 million. Does not prevent plant owners from mothballing or otherwise making them temporarily unavailable. There is a five-year notice of closure requirement for coal plants in Victoria (applied through licences) 	<ul style="list-style-type: none"> Reduces risk of insufficient notice Reduces level of uncertainty for replacement investment
Retailer reliability obligation (RRO)	<ul style="list-style-type: none"> If AEMO forecasts a material breach of the reliability standard three years ahead, then it applies to the AER to trigger the RRO. If the RRO is triggered, then retailers must enter into contracts that will increase contracting of existing generators and/or unlock new investment. 	<ul style="list-style-type: none"> Encourages contracting, which reduces uncertainty for existing assets
Electricity Statement of Opportunities (ESOO)	<ul style="list-style-type: none"> AEMO annual forecast for next 10 years of whether reliability standard will be met Highlights potential revenue opportunities following supply shortfalls. 	<ul style="list-style-type: none"> Reduces level of uncertainty for replacement investment
Integrated System Plan (ISP)	<ul style="list-style-type: none"> Whole-of-system plan that provides an integrated roadmap for the efficient development of the NEM over the next 20 years Updated every two years Can lead to streamlined processes for transmission upgrades 	<ul style="list-style-type: none"> Reduces level of uncertainty on future network capacity
Energy Adequacy Assessment Projection (EAAP)	<ul style="list-style-type: none"> Provides information on the impact of potential energy constraints over a two-year outlook, particularly those relating to inputs to production, for example, water shortages or constraints on fuel supply. Published every 12 months. 	<ul style="list-style-type: none"> Can help to identify short-term impacts of closure or mothballing
Projected Assessment of System Adequacy (PASA)	<ul style="list-style-type: none"> MT PASA forecasts USE over a two-year projection, published on a weekly basis based on participants' best expectation of generation availability and outage scheduling. ST PASA is published every 2 hours and provides detailed disclosure of short-term power-system supply/demand balance prospects for six days following the next trading day. 	<ul style="list-style-type: none"> Can help to identify short-term impacts of closure or mothballing

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Reliability and Emergency Reserve Trader (RERT)	<ul style="list-style-type: none"> The primary intervention mechanism used by AEMO to manage reliability when the market response is inadequate is the Reliability and Emergency Reserve Trader (RERT) framework RERT. The RERT allows AEMO to contract for reserves (generation or demand side capacity that is not otherwise available to the market) ahead of a period when available supply is projected to be insufficient to meet the reliability standard. At present, AEMO can contract for reserves from three hours to 12 months ahead of the projected shortfall.^{1,2} 	<ul style="list-style-type: none"> Helps to avoid reliability issues due to an early closure
Directions and instructions	<ul style="list-style-type: none"> AEMO can issue directions or instructions to certain registered participants to increase (or decrease) their output or a scheduled load to decrease (or increase) its consumption. Clause 4.8.9 of the NER provides for AEMO to require a registered participant to 'do any act or thing' when AEMO is satisfied that it is necessary to do so to maintain or return the power system to a secure, satisfactory or reliable operating state. AEMO may direct participants to provide one or a combination of different services, including: <ul style="list-style-type: none"> Energy. Market ancillary services. System strength. Other services. Instructions are most commonly used as last resort and involve instructions to network service providers to shed load when available supply is insufficient to meet demand. 	<ul style="list-style-type: none"> Helps avoid reliability or security issues in the short term due to an early closure where resources are available.

Within one year

The ST PASA forecasts reliability for the following seven days. If AEMO assesses that there is a risk of a reliability shortfall, it can issue lack of reserve (LOR) notices calling for a market response. If AEMO has already procured emergency reserves, these could also be used.

In the lead up to real time, pre-dispatch provides market participants with projections of prices and generation based on bids and offers, forecasts of system demand and other system conditions.

Wholesale market prices in real time provide incentives for high cost generation and demand reductions by spot-exposed participants. The market price cap (MPC) is currently set at

¹ In March 2020, the AEMC made a rule to provide AEMO with the flexibility to enter into multi-year contracts of up to three years under the RERT mechanism in Victoria. This will help address the short to medium term reliability challenges facing that state. The time-limited derogation will end in June 2023 and apply only in Victoria. The rule contains robust checks and balances so that multi-year contracts are only entered into in circumstances where they minimise costs to consumers. See AEMC, *Victorian jurisdictional derogation – RERT contracting*, Rule determination, 12 March 2020.

² In March 2020, following advice from the Energy Security Board, COAG Energy Council agreed to implement interim measures to deliver further reliability by establishing an interim out-of-market capacity reserve and amending triggering arrangements for the Retailer Reliability Obligation (RRO). The measure, which the Energy Security Board is currently developing, allows AEMO to procure reserves for contract terms of up to three years, replacing the long notice RERT. They aim to keep unserved energy to no more than 0.0006% in any region in any year. See COAG Energy Council, Meeting communique, 20 March 2020, p1.

\$15,000/MWh for financial year 2020-21, providing a strong incentive for any available capacity to bid into the market and for any spot-exposed load to reduce their demand.

New generation capacity, in particular wind and solar, is increasingly modular and can be deployed in small increments with short lead times.³ Likewise, utility scale batteries – which may be better suited for meeting short periods of high demand – can be deployed in short timeframes. One example is the 100MW/129MWh Hornsdale Power Reserve, which was famously completed in less than 100 days in 2017.

Open cycle gas turbine (OCGT) generators could also be constructed to meet reliability shortfalls. In a report for AEMO's 2020 Draft ISP, Aurecon estimates that the development time for OCGT generators is around two years.⁴

Even more responsive generation, such as AGL's 210MW Barker Inlet Power Station (which was completed in 18 months), uses multiple small reciprocating engines units capable of operating at full capacity within five minutes.

In the sudden exit scenario, there will not be sufficient time for the RRO instruments, including the RRO T-1 instrument as part of the new interim measures, to account for the plant closure.

This means that in the event of a sudden plant closure, AEMO will only be able to rely on the RERT, directions, or instructions to increase reliability at short notice.

AEMO maintains a panel of RERT providers that can provide short notice (between three hours and seven days) and medium notice (between seven days and 10 weeks) reserve if required, and for whom technical details are pre-agreed.

When considering whether to enter medium notice RERT contracts, AEMO must take into account the low reserve condition declared in accordance with clause 4.8.4 of the National Electricity Rules (NER) for a forecast breach of the Reliability Standard.

To enter short term notice RERT contracts, AEMO must take into account the lack of reserve condition (such as a LOR2 or LOR3).

If market signals short and medium notice RERT are insufficient for meeting a reliability shortfall, AEMO can issue directions (e.g. for available plants to run) or instructions (e.g. to shed load) to participants to maintain reliability.

In addition, if AEMO has any long notice RERT contracted, it can use these resources to mitigate against any shortages of supply in real time.

Longer term measures (more than one year)

In the sudden exit scenario, there would not be sufficient time for the plant exit to be accounted for in the longer term reliability measures, i.e. the ESOO and the RRO T-3 and T-1 instruments. (The ESOO can be rerun if there is a material change in scenarios – it is likely that the closure of a large plant would constitute this.)

³ See NEM structure in light of technology and policy changes, available at: <https://www.energycouncil.com.au/media/14945/20181213-final-report-advice-on-nem-structure-in-light-of-technology-change-stc.pdf>

⁴ Aurecon report for 2020 Draft ISP: https://aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/inputs-assumptions-methodologies/2019/aurecon-2019-cost-and-technical-parameters-review-draft-report.pdf?la=en

The new interim reliability measures, agreed at the March 2020 COAG Energy Council, implemented an out of market mechanism and changes to the RRO that are targeted around the interim reliability measure, of having no more than 0.0006% unserved energy in any region in any financial year. This measure is intended to act as an interim measure to support reliability in the NEM by allowing the RRO to be triggered by a forecast exceedance of this measure, and allow AEMO to procure emergency reserves in the event that this measure is expected to be exceeded, while an enduring market design is developed through the Post-2025 work. The interim reliability reserve will consist of emergency reserves contracted from outside the market to mitigate the risk of the interim reliability measure being exceeded.

Because the RRO and the new out of market mechanism are triggered by the ESOO, they are unlikely to be able to respond quickly enough in the event of a sudden plant closure.

The sudden plant exit would be accounted for in the following MT PASA weekly update. This would help inform participants of risks to system reliability and may incentivise generators to make greater capacity available and may provide an incentive for investment in new generation capacity as retailers manage their expected exposure to higher wholesale prices.