INFORMATION

Declaration of lack of reserve conditions

Final determination and final rule published

The Australian Energy Market Commission (AEMC) has made a final rule that promotes short-term reliability in the NEM by modifying the existing framework for the declaration of lack of reserve (LOR) conditions to be more flexible and transparent.

Background

Reserves in the National Electricity Market (NEM) refer to spare capacity – they indicate the difference between available capacity that could be used to supply energy and the level of energy demanded at a particular point in time. This "buffer" of supply assists with maintaining a reliable supply of electricity for consumers. These reserves participate in the market and are distinct from out-of-market reserve contracts, which are interventions.

The declaration of lack of reserve (LOR) conditions is a key mechanism by which Australian Energy Market Operator (AEMO) communicates the short-term risk of involuntary load shedding (i.e. the need to reduce or disconnect load from the power system) to the market. AEMO issuing a market notice announcing the declaration of LORs signals to the market that the demand-supply balance is tight at a particular point in time. The purpose of issuing a market notice is to encourage a response from the market in order to address this: generators may offer in more supply, or consumers can reduce their demand. Both responses have the effect of providing more reserve and so minimising the risk of load shedding.

This framework is therefore an important information mechanism that helps to maintain a reliable and secure electricity system through the promotion of efficient market responses to tight demand-supply conditions.

Overview of the final rule

The existing LOR framework is based on deterministic descriptions of three LOR conditions (LOR1, LOR2 and LOR3) set out in the NER. In an energy sector that is changing, this existing, deterministic framework, is no longer fit for purpose.

The draft rule removes the current deterministic descriptions of lack of reserve from the National Electricity Rules (NER) and replaces them with a single high-level definition for lack of reserve, as well as a requirement for AEMO to make guidelines that set out how it will determine, at least three, lack of reserve conditions. Specifically, the final rule:

- introduces the definition of lack of reserve conditions as: "when AEMO determines, in accordance with the reserve level declaration guidelines, that the probability of load shedding (other than the reduction or disconnection of interruptible load) is, or is forecast to be, more than remote."
- includes the factors that AEMO must take into account when creating and amending the methodology to declare LORs
- requires AEMO to:
  - declare at least three LOR levels that indicate an increasing probability
  - explain how it will declare LORs
  - consult with all parties, rather than with a limited group of stakeholders, when amending the guidelines
  - review the guidelines at least once every four years.
- allows stakeholders to request an amendment to the guidelines
- promotes the education process around the operation of the framework by requiring AEMO to publish a report summarising the leading causes or factors of LOR declarations every quarter.

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The final rule requires AEMO to develop and publish the reserve level declaration guidelines by 9 January 2018 and sets out that the new LOR framework will be in place from 16 January 2018.

The Commission's rationale

The final rule promotes short-term reliability by modifying the framework for declaration lack of reserve conditions to be more flexible and transparent.

Prior to this rule change, LORs were declared based on the concept of credible contingency events only. For example, AEMO would declare a LOR2 if available reserves fell below the size of the largest credible contingency (typically, the loss of the largest generating unit in a particular region).

However, the power system is changing. Developments in technology are transforming energy efficiency and the way that consumers interact with, and use electricity. At the same time, the increasing penetration of both variable renewable generation and distributed energy resources is impacting the supply side. Nowadays, it is possible for forecast and availability errors, both on the demand and on the supply side, to be larger than the largest credible contingency, particularly on extreme weather days. These errors are not related to credible contingency events. Therefore, the contingency-based LOR framework did not consider such errors.

The final rule introduces a more flexible way for AEMO to declare lack of reserve conditions, including enabling it to incorporate changes occurring in the power system, while maintaining the existing clear transparency of the current framework. A probabilistic approach enables AEMO to take into account all the relevant risk factors that could affect reserve levels, without limiting it to the singular concept of a credible contingency.

New reporting regime

In response to stakeholder feedback on the draft determination, under the final rule, AEMO is required to report on the operation of the lack of reserve framework every quarter. This new, ongoing reporting requirement is justified to improve the transparency of the new framework and facilitate stakeholder education and information processes.

This reporting requirement provides an additional layer of transparency with regards to the LOR framework going forward, including by highlighting what is driving LOR declarations. Specifically, the final rule requires that each lack of reserve framework report must include the following information for each quarter:

- AEMO's observations of any trends in when and why lack of reserve conditions are being declared under the reserve level declaration guidelines
- a summary of the leading factors or causes of any lack of reserve conditions declared.

The intervention framework is unchanged

The NER confers on AEMO the ability to intervene to maintain system security and reliability, typically as a last resort. This intervention framework is separate from the LOR framework and is unchanged by this rule change.

Further, *how* AEMO intervenes has not changed either – AEMO will continue to trigger interventions based on the principles and procedures that are included in various guidelines, such as the AEMO's *Reliability Standard Implementation Guidelines* and the Reliability Panel's *Reliability and Emergency Reserve Trader Guidelines*.

In terms of the various intervention mechanisms available to it, the NER require AEMO to exercise these in a least-cost manner. For example, AEMO can only procure the RERT in response to a predicted shortfall in reserves. To trigger interventions such as directions and the RERT, AEMO must take into account a number of factors, some of which are at its discretion. This has not changed.

The new framework will likely lead to a rise in the number of LORs declared. However, this does not automatically translate to more interventions. In fact, the new approach will better capture the risks of involuntary load shedding, as well as promoting more efficient market responses to potential shortfalls in the short-term. Such a framework increases the possibility of a market response to LORs and could minimise the risk of interventions.

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