Changes to Contingency FCAS volumes

August 2019

AEMO is acting on a recent review of load relief in the National Electricity Market (NEM). Accordingly, from September 2019, AEMO will slowly reduce assumed mainland load relief from 1.5% to 0.5%, with a review point at 1%. This will result in increased procured Contingency Frequency Control Ancillary Services (FCAS) volumes.

Background – role of load relief in Contingency FCAS

In the NEM, there are six Contingency FCAS markets, designed to ensure there is enough frequency response in the system to deal with a single credible contingency, which is typically the loss of a large generating unit or major industrial load.

The amount of Contingency FCAS procured is equal to the size of the largest credible contingency minus assumed **load relief**. **Load relief** is an assumed change in load that occurs when power system frequency changes. It relates to how particular types of load (particularly traditional motors, pumps, and fans) draw less power when frequency is low, and more power when frequency is high. Since the NEM commenced, mainland load relief has been assumed to be 1.5%; this means that for a 1% change in frequency (0.5 Hertz), the total mainland demand is assumed to change by 1.5%[1].

Review of load relief

The nature of load has been changing, driven by new technology and changing customer preferences and behaviour. These changes might be expected to impact load relief. As part of AEMO's ongoing review of frequency control in the NEM, over the past 12 months AEMO has conducted a detailed analysis of load relief in the NEM mainland system. This indicated that observed load response is inconsistent, but significantly lower than the 1.5% level that has been in place since the commencement of the FCAS markets in 2001. On the basis of the analysis, AEMO proposes to move progressively to a new mainland load relief assumption of 0.5%.

AEMO intends to review the analysis periodically and will also advocate for improved and expanded high-speed monitoring capability throughout the network to better support analysis of phenomena like load relief.

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The reduction of assumed load relief will increase the required volumes of all Contingency FCAS products. Fast and slow services will increase more than delayed services, as the assumed frequency change (and thus assumed load relief) is greater for those services[2].

To allow the market to adjust appropriately to the increased Contingency FCAS requirements, on 12 September 2019 AEMO will start reducing the assumed mainland load relief by 0.1% each fortnight. A hold and review point at 1% is proposed, when AEMO will provide an update to market on the process. Overall it will take around five months to settle at the expected value of 0.5%.

Contingency FCAS volumes are highly dynamic, because they depend on contingency size and prevailing conditions. The figures over the page (for contingency raise and lower respectively) provide an indication of the impact of changing load relief. They show procurement volumes compared with the size of the largest contingency over June 2019. The gap between these is the effect of load relief. For example, at 1% load relief, Contingency FCAS volumes would be one-third closer to the size of the largest contingency. In most cases, this represents a material increase in procured contingency FCAS volumes; for instance, Fast Raise FCAS (R6) would increase by an average of approximately 100 megawatts (26%).

[1] Tasmania is operated using an assumption of 1% load relief. Tasmania has a substantially different load composition, and the current review was limited to the mainland only. Tasmania will be considered separately later.

[2] This is because the Frequency Operating Standard (FOS) sets out different frequency tightness obligations for different timeframes.

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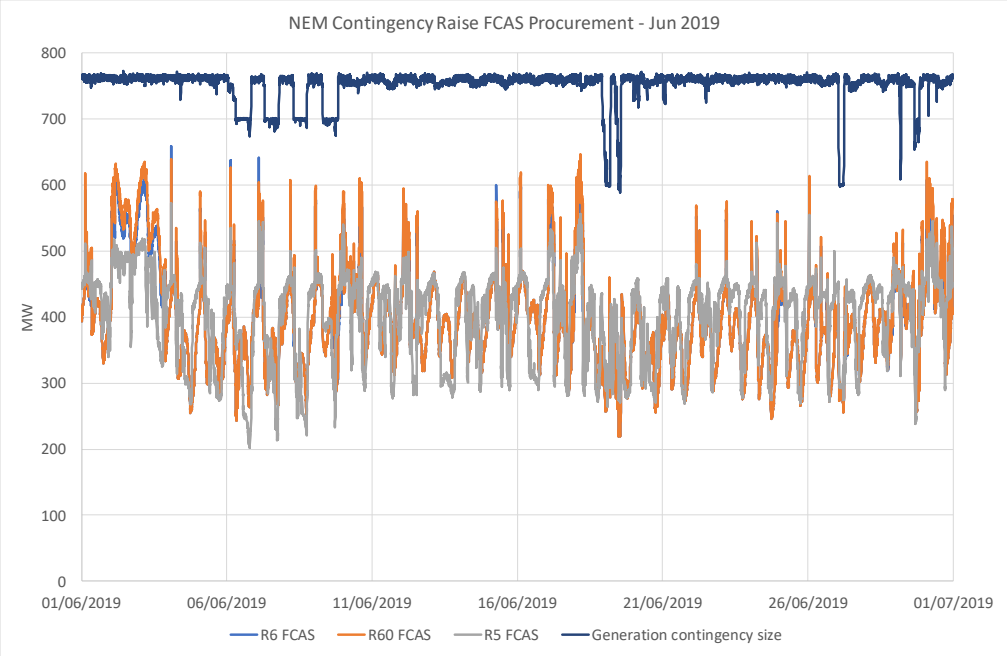

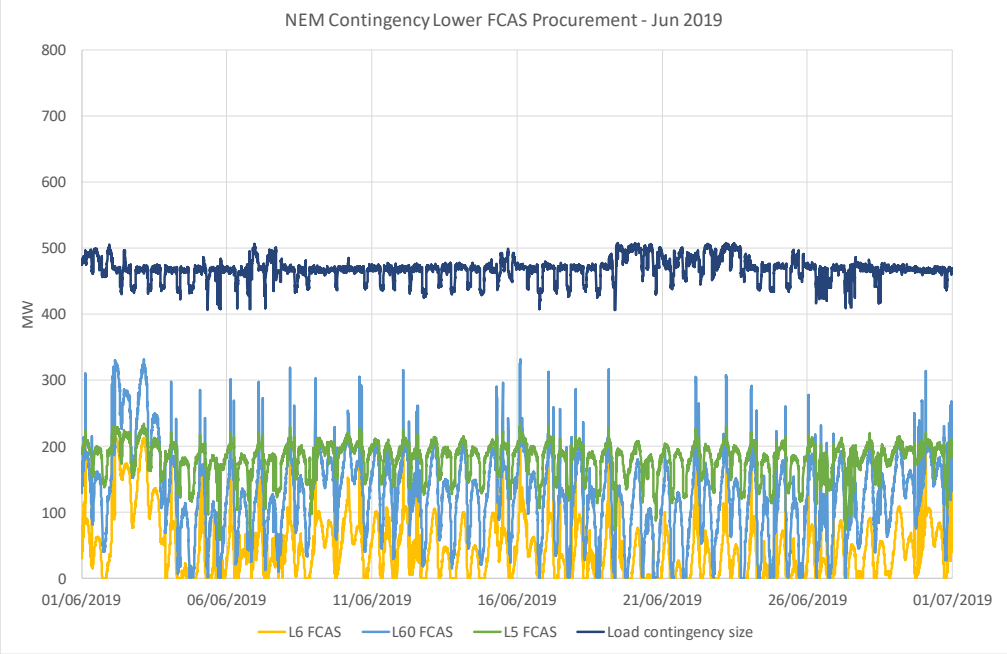

Note that all changes contemplated here affect Contingency FCAS only. No changes to Regulation FCAS are anticipated.

Monitoring and further actions

AEMO will regularly monitor Contingency FCAS performance and market activity throughout this process and may revise these plans if any unexpected outcomes are noted. Further work on load relief modelling is also anticipated, and this may feed back into further refinement of Contingency FCAS procurement volumes.