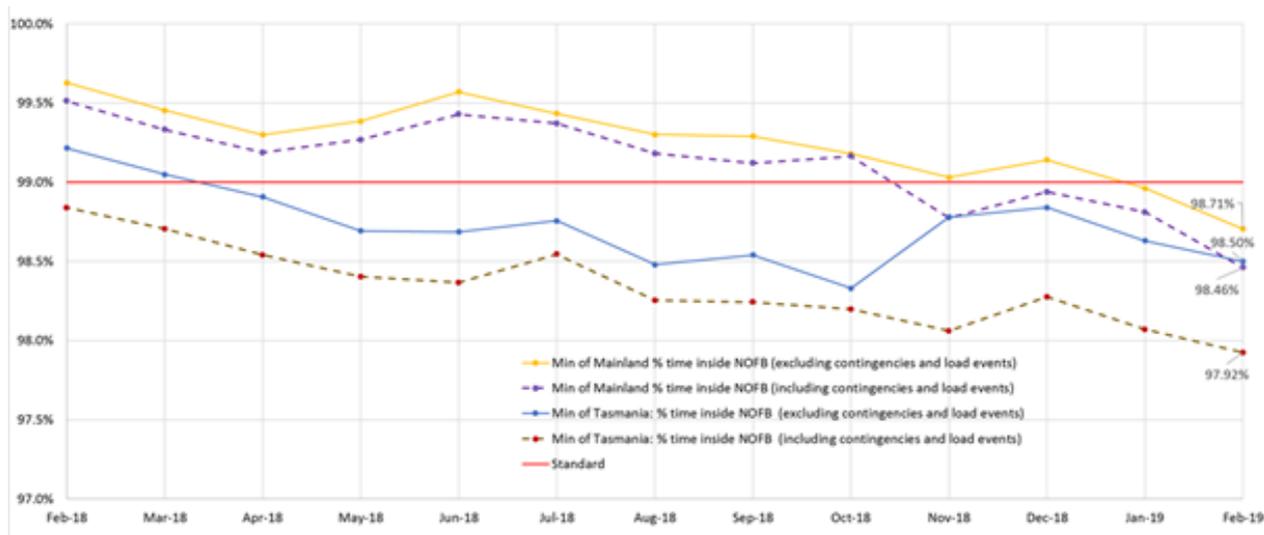


Regulation FCAS changes

AEMO is responding to an ongoing decline in power system frequency control. Over January and February 2019, power system frequency remained outside the normal operating frequency band (NOFB) more than 1% of the time in mainland regions of the National Electricity Market (NEM). From 22 March 2019, AEMO will increase the procurement of regulation frequency control ancillary services (FCAS)¹ across mainland regions by 50 megawatts (MW).

Background – decline in frequency control

The graph below shows the percentage of time the power system was in the NOFB each month since February 2018, as a minimum 30-day rolling average. The frequency operating standards (FOS) provide that power system frequency control should remain within the NOFB 99% of the time.



This decline is due to multiple factors, including:

- Reduction in regulation FCAS procured, due to relaxation of constraints governing time error (in line with FOS changes that relaxed time error standards).
- System conditions, including extreme weather.
- Increase in grid load and generation volatility.

¹ The 'Regulation FCAS' service involves AEMO sending periodic instructions to adjust the output of generators or loads to:

- slowly restore system frequency, and
- relieve facilities that have provided primary (fast local) frequency response.

The first step AEMO is taking respond to this unsatisfactory frequency performance is to increase the procurement of regulation FCAS.

Regulation frequency control trial, 2018

Through October and November 2018, AEMO ran a regulation frequency control trial, which involved AEMO increasing the baseline of regulation FCAS by 30 MW in the mainland NEM and measuring the effect on power system frequency.

Over the course of the trial only a small improvement in power frequency was observed. However, following the return to pre-trial levels of regulation FCAS, power system frequency control declined significantly. This led to a reconsideration of the results of the trial, indicating that the increase in regulation FCAS may well have prevented power system frequency from worsening during the trial period. AEMO will be publishing a report discussing the trial in the next week.

Increasing regulation FCAS procurement by 50 MW from 22 March 2019

AEMO will increase mainland NEM regulation FCAS volumes by 50 MW (to 180/170 MW raise/lower up from 130/120 MW). 50 MW was selected because it represents:

- The approximate overall decrease in January/February 2019, due to the cessation of the trial and changes associated with time error standard relaxation.
- A large enough change in volume to enable satisfactory impact assessment.

This change will take place from 22 March 2019.

AEMO will review power system frequency performance every four weeks, and decide whether to further increase or hold the amount of regulation FCAS procured. AEMO's decision will take into account whether frequency has remained in the NOFB for at least 99.5% of the time over the previous four weeks, together with any other relevant factors.

At this stage AEMO does not anticipate that the total regulation FCAS procured as a result of the ongoing reviews will exceed 250 MW – this was the level purchased several years ago, before it was progressively decreased based on observed frequency performance.

Costs will be closely monitored. As an indicative comparison, costs during 30 MW Oct-Dec 2018 trial saw a 4% net increase in Raise service costs (Raise Reg + Delayed Raise) and 11% net decrease in Lower service costs (Lower Reg + Delayed Lower). The 50 MW increase could be expected to produce similar outcomes under the current co-optimisation approach, noting that AEMO also intends to review existing co-optimisation constraints.

Every four weeks, AEMO will publish information on frequency performance showing how much time frequency remained in the NOFB. AEMO will also issue a market notice prior to any decision to further increase regulation FCAS levels.

AEMO will incorporate these changes to the Regulation FCAS arrangements in the appropriate NEM Power System Operating Procedures.

Monitoring and further actions

AEMO will regularly monitor performance, a review the effectiveness of actions taken and recommend any further changes. Reporting will be covered off on quarterly frequency reports, the first one will follow Q1 2019. Other ongoing and future activities directed at improving frequency management include:

- Reinforcing application of appropriate frequency response deadband settings by contingency FCAS providers.
- Reviewing time of day requirements for regulation FCAS.
- Reviewing co-optimisation constraints to ensure appropriate quantities of each service are procured to address the system requirements they are designed to meet.

- Consultation and potential rule change proposal to incentivise provision of primary frequency response (which underpins regulation FCAS/AGC) under normal operating conditions.
- External review of recent regulation FCAS and AGC performance, leading to revision of settings as appropriate.
- Reviewing contingency FCAS volumes, as required based on reassessed assumptions of estimated load relief.
- Evaluating the implementation and level of possible regional limits on regulation FCAS, to retain satisfactory levels of services in all regions at all times.