



AEMC

INFORMATION

Mandatory primary frequency response

Final determination for Mandatory primary frequency response published

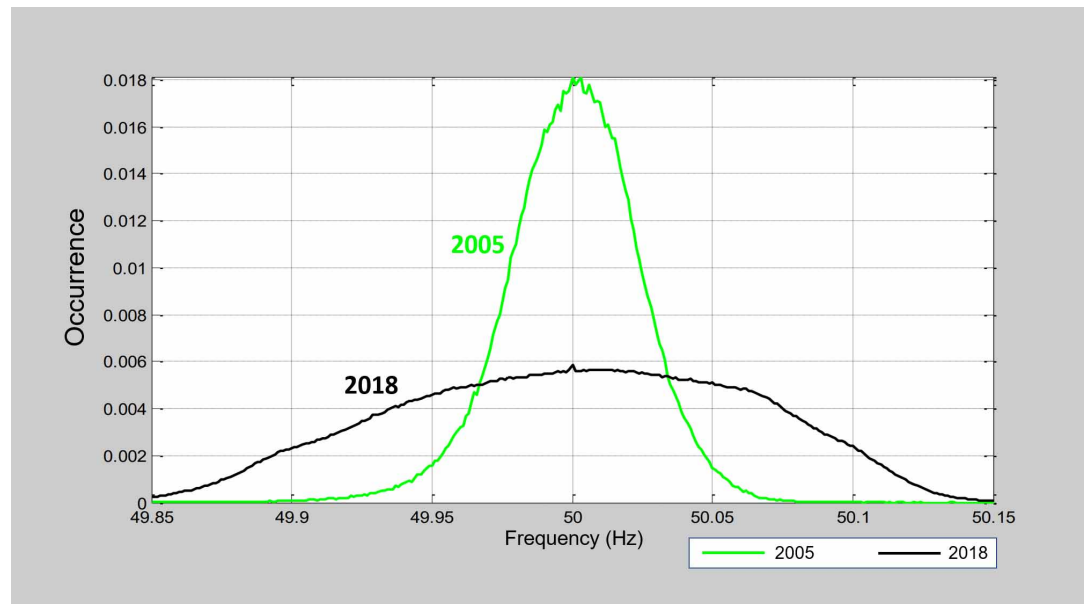
The Commission has made a final rule to introduce a mandatory obligation for all scheduled and semi-scheduled generators in the national electricity market (NEM) to help to control power system frequency. The final rule will improve the security of the national electricity sector and give AEMO greater confidence that it is maintaining the power system in a secure operating state.

Addressing a need for improved power system security

Stable frequency is an important part of maintaining a secure power system. Frequency varies whenever electricity supply does not exactly match consumer demand. A large disturbance can cause an uncontrolled change in frequency, resulting in a significant disruption to the power system.

In its 2018 *Frequency control frameworks review*, the Commission concluded that frequency performance under normal operating conditions had been declining in recent times as shown in the figure below. The final report included a frequency control work plan that set out actions and reforms to be undertaken by the market bodies to support effective frequency control in the national electricity system, including regulatory reforms to increase the provision of primary frequency response from generators.

NEM Mainland Frequency Distribution - 2005 and 2018



Historically in the NEM, only synchronous generators, such as coal, gas and hydro, have provided primary frequency response. However, non-synchronous generators such as wind, batteries and solar PV, can also provide primary frequency response.

In early 2019, separate and related rule change requests were submitted from AEMO and Dr. Peter Sokolowski. Both of these proponents identified in their rule change requests that the reduction in primary frequency response by generators in the NEM has made it more difficult for AEMO to maintain the power system in a secure operating state and has reduced the system resilience to disturbances. The Commission has consolidated the two rule change requests and has published a single final determination and final rule.

Overview of the final determination and rule

The Commission considers that a mandatory requirement for generators to activate an existing capability to provide primary frequency response will address the immediate need for improved frequency control in the NEM.

However, the Commission recognises that a mandatory requirement for narrow band primary frequency response is not a complete solution for the long term and, on its own, will not incentivise the provision of primary frequency response. Further work needs to be done to understand the power system requirements for maintaining good frequency control, building on AEMO's *Renewable Integration Study*. This work should also consider the appropriateness of the mandatory requirement for narrow band primary frequency response and other alternative and complementary measures, including the potential for new market and incentive-based mechanisms for frequency control.

Therefore, the final rule includes a sunset on the mandatory primary frequency response requirement three years in the future on 4 June 2023. The inclusion of the sunset demonstrates the Commission's commitment to the implementation of further reforms prior to June 2023 to appropriately value and reward the provision of frequency control services.

The key aspects of the final rule in addition to those set out above are:

- All scheduled and semi-scheduled generators, who have received a dispatch instruction to generate greater than 0 MW, must operate their plant in accordance with the performance parameters set out in AEMO's Primary frequency response requirements (PFRR).
- AEMO must consult on and publish the PFRR, which will specify the required performance criteria for generator frequency response, which may vary by plant type.
- The PFRR cannot require a generator to maintain additional stored energy for the purpose of providing primary frequency response.
- Generators may request, and AEMO may approve, variations or exemptions to the PFRR for individual generating plant.
- AEMO must consult on and publish an interim PFRR prior to 4 June 2020, following which the requirement for mandatory primary frequency response will begin. The interim PFRR will document the process for coordinating changes to generation plant and the date(s) by which each generator must comply.

Next steps for the frequency control work plan

The final determination includes an updated frequency control work plan developed in collaboration with the ESB, AEMO and the AER. The work plan sets out a pathway for the development of future arrangements to appropriately incentivise and reward frequency control in the NEM. The AEMC will continue to work with the ESB and market bodies on these matters.

The development of incentive arrangements will be considered through the assessment of AEMO's remaining rule change request, *Removal of disincentives to primary frequency response* and any other relevant rule change requests that are received. The Commission intends to publish a draft determination on this rule change request by September 2020. The Commission will publish a directions paper and consult with stakeholders in advance of the publication of the draft determination.

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26 March 2020