



## Review of the Frequency Operating Standards – Terms of Reference

Revised – 12 September 2017

### Introduction

Under section 38 of the National Electricity Law (NEL) and clause 8.8.3(c) of the National Electricity Rules (NER), the Australian Energy Market Commission (AEMC) requests that the Reliability Panel (the Panel) undertake a review of the frequency operating standards that apply in the National Electricity Market (NEM). This review is related to and is intended to complement the ongoing work program that the AEMC is undertaking to enable the maintenance of power system security in the NEM.

### Background

**The frequency operating standards (FOS):** NER clause 8.8.1(a)(2) requires the Reliability Panel to review and, on the advice of AEMO, determine the power system security standards. These standards may include various matters but at present include standards for the range of allowable frequency of the power system under different conditions, including normal operation and following contingencies. These standards are set out in the FOS.

The FOS set out the frequency standards to which AEMO operates the power system. This includes defined frequency bands and timeframes in which the system frequency must be restored to these bands following different events, such as the failure of a transmission line or separation of a region from the rest of the NEM. These requirements then inform how AEMO operates the power system, including through applying constraints to the dispatch of generation or procuring ancillary services.

The FOS currently consists of two separate standards: one for the mainland NEM, and one for Tasmania. This reflects the different physical and market characteristics of the Tasmanian region as opposed to the mainland NEM. The frequency operating standard for Tasmania was last reviewed and determined by the Reliability Panel on 18 December 2008. The frequency operating standard for the mainland was last reviewed and determined by the Reliability Panel on 16 April 2009.

**The Panel's role and responsibility in relation to the FOS:** Clause 8.8.1(a)(2) of the National Electricity Rules (NER or the rules) requires the Reliability Panel to: "review and, on the advice of AEMO, determine the power system security standards". The reliability panel is required to determine the FOS as a subset of the power system security standards.

**The Emergency frequency control scheme rule change:** On 30 March 2017 the AEMC published the final rule and accompanying final determination for the Emergency Frequency Control Schemes rule change (ERC0212).

A number of issues relevant to the Panel’s review of the FOS were identified or addressed in the final rule determination of the emergency frequency control schemes rule change. These include:

- A review of the appropriateness of the requirements in the FOS that relate to multiple contingency events.<sup>1</sup> Currently, the FOS defines the standard to which AEMO manages the power system following any multiple contingency event. AEMO has argued that this is impractical, as it is not possible to maintain the FOS for all multiple contingencies.
- How the new event classification for “protected events” can best be incorporated into the FOS. The Emergency frequency control schemes rule change introduced a new category of contingency event, the “protected event”. AEMO is now required to maintain the frequency of the power system within certain bands for these events. These requirements will be defined in the FOS.

The final rule for the Emergency frequency control schemes rule change includes an interim frequency standard that shall apply for any protected event(s) that may be declared prior to this review of the FOS being completed. Accordingly, following the review, the revised FOS for protected events may replace this interim requirement.

### **Scope of the review**

The Panel is requested to undertake a review of the NEM mainland and the Tasmanian frequency operating standards.

In undertaking this review, the Panel should give consideration to key system security issues currently being addressed by the AEMC and AEMO. This should include, but is not limited to, the consequences of the changing NEM generation fleet, including the impacts of decreased system inertia and associated rates of change of frequency following a contingency event.

Relatedly, the Panel should give consideration to the findings and recommendations of the following work programs:

- AEMC’s system security market framework review;
- AEMO’s Future Power System Security review;
- AEMC Frequency Control Frameworks Review
- Rule change requests currently on foot that are relevant to the issues that will need to be considered in the review, including the *Managing the rate of change of power system frequency* rule change.

Given these key issues and the ongoing work programs, in undertaking this review, the Panel should give consideration to:

- Whether the terminology, standards and settings and definitions in the FOS remain appropriate.

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<sup>1</sup> Part B(f) of the Frequency Operating Standard for the mainland.  
Part B(g) of the Frequency Operating Standard for Tasmania.

- What amendments to the FOS may be necessary in light of the AEMC's final determination of the Emergency frequency control schemes rule change published on 30 March 2017
- Whether further guidance can be provided regarding the definition of what part of the power system the FOS is to be applied following separation from the rest of the NEM. Specifically, whether the FOS should refer to a separated region, or some smaller sub-section of a region, for maintenance of frequency following a separation event.
- Other issues related to the FOS as determined by the Panel.

The Panel's review of the FOS must consider and determine FOS to apply to both Tasmania and the mainland regions of the NEM. This must include consideration of the different physical and market characteristics relating to the power system. Given that Tasmania and the mainland are electrically separated in terms of frequency, the review shall consider the different physical and market characteristics of each of these regions in determining the settings for the FOS.

### **Timing and Consultation Process**

In conducting this review the Panel may determine its own approach, including the staging of issues to be addressed, but must carry out the review to develop the FOS in accordance with the following consultation processes:

- Give notice to all registered participants of commencement of this review.
- Publish an issues paper for consultation with stakeholders following the notification of the commencement of the review and invite submissions for a period of at least three weeks. This paper should outline the key issues and questions the Panel will consider when determining the FOS.
- Publish a draft report or reports and invite submissions for a period of at least four weeks.
- At the time of publishing the draft report(s), notify stakeholders that they may request a public meeting on the draft report(s) within five business days of the draft report(s) being published.
- If stakeholders have requested a public meeting, notify stakeholders that a public meeting will be held. At least two weeks' notice of the public meeting must be given.
- Publish a final report or reports and submit this report(s) to the AEMC no later than six weeks after the period for consultation on the draft report(s) has closed.

The Panel may decide on its own timing for delivery of the review, provided the review is completed by 31 July 2018.