

25 March 2022

Dear Charles,

Review of the guidelines for identifying reviewable operating incidents

On 01 April 2021, AEMO contacted the AEMC with a proposal for a number of changes to the Reliability Panel's Guidelines for identifying reviewable operating incidents (Guidelines), last published in 2013. This letter confirms the changes AEMO is seeking, primarily to allow AEMO and Network Service Providers to focus their resources on those incidents which have a significant impact on the power system and require more detailed investigation.

AEMO proposes that the Guidelines remove the requirement to review some types of incidents where there is no significant impact on the power system. AEMO believes these proposed changes are in the interests of the industry and consumers as the changes seek to:

- Ensure that investigation resources are effectively utilised in deeper analysis of those incidents which have a significant impact on the system or are likely to result in learnings for the industry and AEMO.
- Allow the investigation team more time to identify and formulate recommendations with the benefit of input and discussion with affected participants.
- Improve the overall timeliness of review and reporting on all events that have a significant impact on the power system .

The schedule to this letter summarises AEMO's five key proposals to achieve these objectives. We have also attached a slightly updated version of the suggested mark-up of the Guidelines previously provided to the AEMC, which also includes some clarifications of the existing wording. AEMO looks forward to assisting the Reliability Panel with its review of the Guidelines. In the meantime, please let me know if you have any further questions about our proposal.

Yours sincerely,



Luke Robinson

A/GM Modelling and Engineering

Attachment 1: AEMO suggested mark-up of Guidelines

Schedule – Summary of AEMO proposals

AEMO has identified a number of scenarios where the requirement for AEMO to review is either not specifically or clearly identified in the Guidelines or where the Guidelines require AEMO to review incidents that do not have a significant impact on the power system.

1. SIMPLE AUTO-RECLOSE EVENTS

Where an event involves a non-credible contingency, but normal auto-reclose operation returns the equipment to service within a few seconds and there is no significant impact on the power system.

For example, on 26/2/2020¹ there was a simultaneous single phase trip and reclose on two 275kV transmission lines in Queensland. The event was caused by lightning, with both lines being returned to service within six seconds and there was no significant impact on the power system.

Proposal 1

The Guidelines be amended to exclude non-credible contingencies where successful auto-reclose occurred and where no other power system security issues are identified. AEMO considers these events do not meet the intent of the NER in that the event is not of significance to the power system.

2. TRANSMISSION LINE OPEN AT ONE END ONLY OR SINGLE CIRCUIT BREAKER TRIP ONLY

The trip of a transmission line at both ends is considered as a credible contingency and not normally reviewable under the Guidelines. However, the trip of a transmission line at one end only is considered by AEMO to be a non-credible contingency and therefore potentially reviewable as AEMO considers, as per clause 4.2.3(b) of the NER, these events to be not reasonably possible on the basis that a transmission line would normally be expected to trip at both ends. For the vast majority of this type of event the trip of the transmission line at one end only has no greater impact on the power system than the trip at both ends.

Very occasionally there are events where the trip of a transmission line at one end only does have a significant impact on the power system. For example, on 3 October 2013 the trip of a 330kV line at one end resulted in voltage levels at the other end exceeding satisfactory levels², and AEMO reports on these events.

Additionally, there are occasional events on the power system where a single circuit breaker trips with no resulting loss of a transmission element such as a transmission line or transformer and therefore have no significant impact on the power system. Again, these events are considered by AEMO to be non-credible contingencies and potentially reviewable under the current Guidelines.

Proposal 2

¹ Report available: https://www.aemo.com.au/-/media/files/electricity/nem/market_notices_and_events/power_system_incident_reports/2020/trip-of-8873-and-8874-lines-on-26-feb-2020.pdf?la=en

² Report available: https://www.aemo.com.au/-/media/files/electricity/nem/market_notices_and_events/power_system_incident_reports/2013/power_system_operating_incident_report_over_voltage_on_kangaroo-valley_330_kv_busbar_v2.pdf

The Guidelines be amended to exclude events where a transmission line trips at one end only or a single circuit breaker trips and where no other power system security issues are identified. AEMO considers these events do not meet the intent of the NER in that the event is not of significance to the power system.

3. LOSS OF MULTIPLE GENERATING UNITS

The current Guidelines do not require AEMO to report on events resulting in the loss of multiple generating units unless the event results in frequency exceeding normal limits or under frequency load shedding, or comprises the trip of *embedded* generation totalling more than the largest single generating unit in any region. AEMO considers that other multiple generation contingencies can have a significant impact on the power system and potentially also the market. For example on 11 April 2020 the trip of a single 220kV transmission line connecting an auxiliary supply transformer at Yallourn Power Station to the Yallourn substation tripped resulting in the unexpected trip of three of the four generating units at Yallourn and four of the six collector groups at the Macarthur wind farm resulting in the loss of 1021 MW of generation³. The frequency remained within normal limits only because the Yallourn generating units did not all trip at the same time but rather a few minutes apart. AEMO chose to review this incident using its discretionary powers under the Guidelines. The review uncovered a number of issues involving the Yallourn and Macarthur generating units.

Proposal 3

The Guidelines be amended to require AEMO to review incidents that result in the loss of multiple generating units which are assessed as having a significant impact on a transmission system. AEMO considers this type of event meets the intent of the NER as they can have a significant impact on the operation of the power system.

4. UNDER FREQUENCY LOAD SHEDDING SCHEMES

The current Guidelines⁴ require AEMO to report on events that result in the operation of under frequency protection and control schemes. There are a number of control schemes in place, such as the adaptive under frequency load shed (AUFLS) scheme in Tasmania, that are designed to trip blocks of contracted load in response to frequency events resulting from either credible or non-credible contingencies. AEMO considers the Guidelines should clarify whether reporting on the correct or normal operation of these types of control schemes in response to a frequency event is required. AEMO considers that if this type of protection/control scheme operates as designed and trips only contracted load blocks there is no significant impact on the power system.

Proposal 4

The Guidelines be amended to confirm that AEMO is not required to report on incidents involving the correct or normal operation of under frequency control schemes where only contracted load blocks are tripped.

³ Report available: https://www.aemo.com.au/-/media/files/electricity/nem/market_notices_and_events/power_system_incident_reports/2020/yallourn-134-and-macarthur-wf-investigation-report-11-april-2020.pdf?la=en

⁴ Clause 6(d)

5. SECURE OR SATISFACTORY OPERATING STATE

The current Guidelines⁵ require AEMO to report on incidents where the power system is not in a secure operating state or more than 30 minutes, or not in a satisfactory operating state for more than 5 minutes. These requirements are not limited by reference to their potential impact on the operation of critical transmission elements. Because the definition of a satisfactory operating state extends to operating conditions of all plant forming part of the *power system*, it is possible for this requirement to be triggered in respect of an issue in the distribution system that presents no material risk for the transmission system. AEMO considers the Guidelines should not require review of these incidents.

Proposal 5

The Guidelines be amended to show that AEMO is only required to report on incidents involving non-secure or non-satisfactory operation of the power system where critical transmission elements are impacted or affected.

⁵ Clause 4 and 6(a)