Guidelines for identifying reviewable operating incidents

These guidelines are set by the Reliability Panel under clause 8.8.1 (a)(9) of the National Electricity Rules (NER) and are to be used by the Australian Energy Market Operator (AEMO). ~~Italicised terms are defined under the NER.~~

Definitions

Italicised terms are defined in the NER and have the same meaning in these guidelines. In addition:

(a) **multiple *contingency events*** is an incident comprising *contingency events*, including any inappropriate automatic or manual operation of a *transmission element*, that occur within 30 minutes of each other and the residual impact of an earlier *contingency event* interacts with a later *contingency event*;

(b) **critical *transmission elements*** are *transmission elements* with a *nominal voltage* of 220 kilovolts or above or *transmission elements* of a lower *nominal voltage* that are critical to the supply of electricity in or between *regions*.

Guidelines to be applied by AEMO

When determining whether a *power system* operating incident is of significance under clause 4.8.15(a~~),~~) of the NER, and hence reviewable, AEMO should apply the following guidelines:

1. Under clause 4.8.15(a)(1)(i): A reviewable operating incident is an incident comprising a *non-credible contingency event* or multiple *contingency events* that impact critical *transmission elements* or that impact the *transmission system* of multiple *National Electricity Market regions*. Under this provision:

   ~~(a) apply the definition of a *non-credible contingency* in clause 4.2.3 of the NER; and~~

   ~~a) define a multiple *contingency event* as an incident comprising of *contingency events*, including any inappropriate automatic or manual operation of a *transmission element*, that occur within 30 minutes of each other and the residual impact of an earlier *contingency event* interacts with a later contingency *event*; and that only involve a sudden and unplanned change to the level of output, consumption or power flow of *plant*;~~

   a) ~~define critical *transmission elements* as elements with a *nominal voltage* of 220 kilovolts or above or *transmission elements* of a lower *nominal voltage* that are critical to the supply of electricity in or between *regions*.~~ exclude events where a successful auto-reclose occurs or where a *transmission element* is de-loaded but remains energised and there is no significant impact on the *power system*;

   b) exclude events where a *transmission element* trips at one end only or a single circuit breaker trips, and where no other *power system security* issues are identified.

2. Under clause 4.8.15(a)(1)(ii): An incident comprising of a *black system* condition is a reviewable operating incident. ~~Under the provision, apply the definition of "*black system*" in Chapter 10 of the NER.~~ For this purpose, a *major supply disruption* affecting a significant number of customers is considered as one resulting in loss of at least 60 per cent of the predicted regional load with the exception of:

   a) the Queensland region, where the loss of 60 per cent of the load (excluding the pot line loads) in any of the Northern Queensland, Central Queensland or Southern Queensland areas (as defined in Appendix A) is also considered to be a *major supply disruption*.

3. Under clause 4.8.15(a)(1)(iii): Define as reviewable operating incidents all incidents where the *frequency* is outside the *operational frequency tolerance band*, which is set out in the Reliability Panel's frequency operating standards.

4. Under clause 4.8.15(a)(1)(iv): Define as reviewable operating incidents all incidents ~~that impact critical *transmission elements* and~~ where the *power system* is not in a *secure operating state* for more than 30 minutes.
5. Under clause 4.8.15(a)(1)(v): Define as reviewable operating incidents all incidents where there is *load shedding* due to a clause 4.8.9 instruction.
6. Under clause 4.8.15(a)(3): The Reliability Panel has determined that reviewable operating incidents include all incidents that satisfy one or more of the following descriptions:
   a) the *power system* is not in a *satisfactory operating state* for more than 5 minutes (excluding issues involving potential oscillatory or transient stability); ~~or that do not impact critical *transmission elements*~~;
   b) AEMO's on-line oscillatory and transient stability monitoring systems detecting a potential instability for 30 minutes, continuously~~.~~;
   c) incidents on a distribution network that impact critical *transmission elements*[1] including (but not limited to~~)~~):
      i) faults of extended duration within the *distribution network* where these have had a material impact on the *transmission system*; and
      ii) loss of multiple ~~embedded~~ *generating units* of which the total capacity exceeds the capacity of the largest generating unit within any region including an affected *generating unit*~~.~~;
   ~~d)~~ incidents that result in the operation of under frequency or over-frequency protection and control schemes ~~including:~~involving:
   ~~e)~~d)
   ~~f)~~ automatic under frequency *load shedding*, except where under-frequency *load shedding* occurs under a contract (or other arrangement), ~~except where AEMO has determined that the scheme operated correctly and tripped only contracted *loads*~~;~~;~~ ~~and~~
      i) or
      ii) automatic tripping of a *generating unit* due to over-frequency, except where over-frequency generation tripping occurs under a contract (or other arrangement)~~.~~; ~~or~~;
   ~~g)~~e) incidents that~~where~~ the ~~AEMC~~ Reliability Panel requests AEMO to review and report on ~~an incident~~ under clauses 4.8.15(b) and (c)[2], after considering whether:
      i) the incident represented a threat to *power system security*; and
      ii) the benefits to the *NEM* are likely to exceed the cost to AEMO and the affected participants;
   f) ~~AEMO should review~~ any other *power system* event that AEMO~~it~~ considers of significance to the operation of the *power system*. This includes (but is not limited to) recurring minor incidents where there may be underlying systemic issues or incidents involving material loss of *load* or *generation*.

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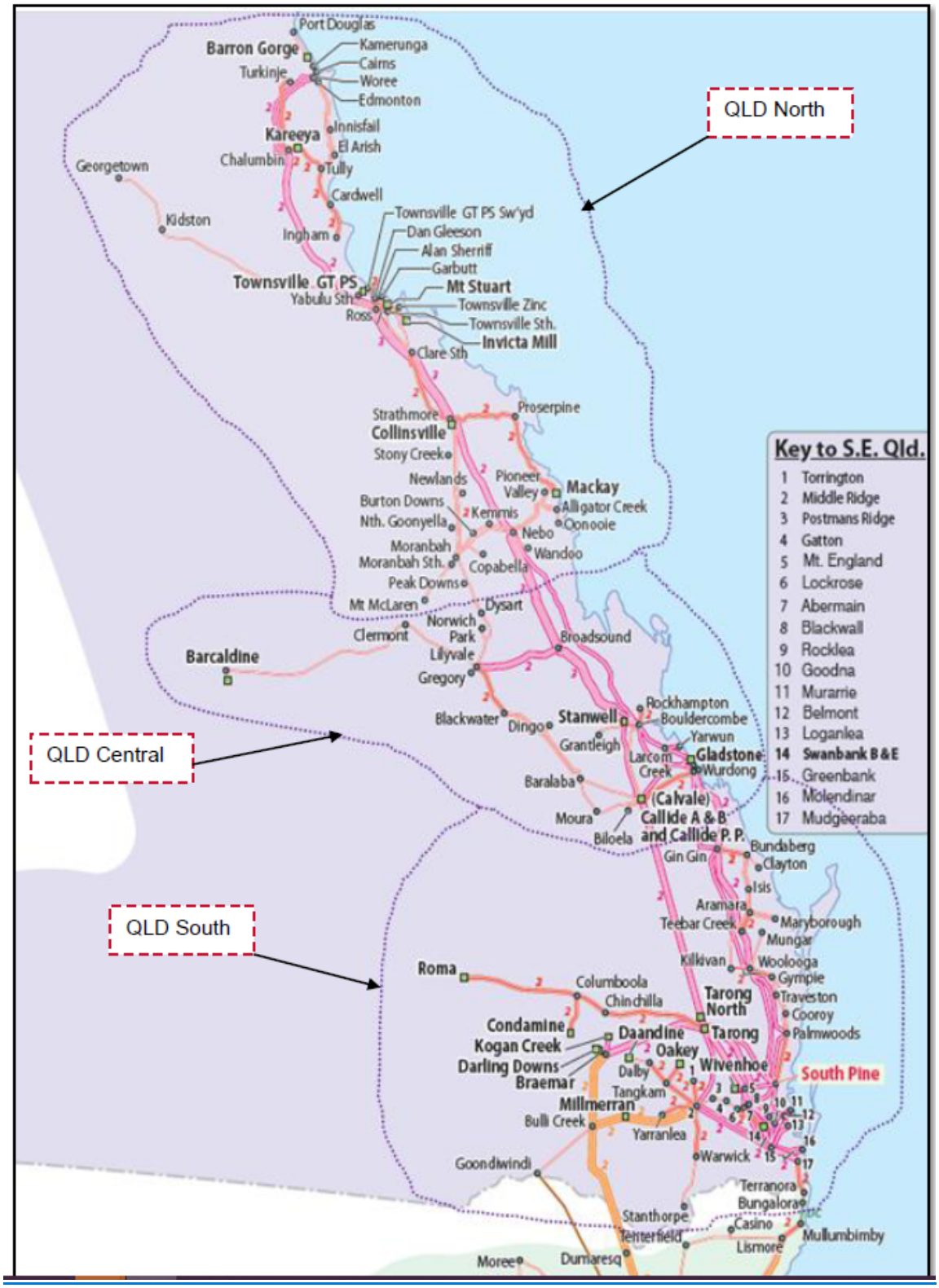
[1] ~~Critical transmission elements is as defined in item (1) of these guidelines~~

[2] The Panel considers that the following parties should be able to apply to the Panel for it to request AEMO to investigate an incident:

- a registered participant, or group of registered participants.
- a participating jurisdiction, or group of participating jurisdictions; or
- AEMO (for clarification).

Appendix A

For the purposes of identifying reviewable operating incidents according to section 2(a) of the guidelines, the 2013 Queensland electrical sub-networks will be applied.



Source: AEMO 2013, Queensland SRAS Electrical subnetworks map