

18 March 2021

Ms Anna Collyer  
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Sydney South NSW 1235

By online submission  
AEMC Code: ERC0303

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Dear Ms Collyer

### **Implementing a General Power System Risk Review (GPSRR)**

AEMO welcomes the opportunity to provide feedback on the AEMC's draft determination and draft more preferable rule for implementing a general power system risk review, published on 4 February 2021.

AEMO notes this rule change would implement one of the AEMC's recommendations from its Black System Event review in 2019 (the BSE review). AEMO supports the objective of broadening the scope of the current Power System Frequency Risk Review (PSFRR) and acknowledges the value of a more holistic review of power system risks in the context of Australia's transforming energy landscape.

Based on AEMO's understanding of the intent of the draft determination, significant additional resources will be needed to undertake the data collection, consultation, modelling and analysis for a broader range of risks on an annual basis. If the clarifications and streamlined implementation measures suggested in this submission are adopted, our preliminary expectation is that AEMO's costs associated with the risk review would increase by approximately \$1.5 million per annum in current-year terms. This is in addition to costs attributed to TNSPs and DNSPs associated with additional planning obligations and support to AEMO in undertaking the annual review.

As AEMO is not currently funded to undertake this expanded review, it is crucial that market participants and NSPs support the rule change in order for a future GPSRR to succeed.

To maximise the benefits of this rule change and streamline implementation, AEMO suggests key improvements to the draft determination. These include:

- Removing specificity from risk areas in the draft rule, which may lead to ambiguities in the objective of the risk review. AEMO understands the objective of the review is a holistic, overarching, prioritised review of risks associated with a range of power system events. A number of the specified event types in the draft rule would require AEMO to include risks that are already considered and addressed in other bodies of work. Many

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of these have been implemented or expanded since the original BSE review recommendations. AEMO will look for opportunities to realise efficiencies and combine reporting where appropriate.

- Delaying publication of the first GPSRR to mid-2023 to allow the GPSRR to consider outcomes of TNSP APR's delivered in October 2022. This would also enable AEMO to deliver a PSFRR in mid-2022, in parallel to planning for delivery of the first GPSRR.
- Clarifying the allocation and definition of responsibilities between AEMO, TNSPs and DNSPs associated with:
  - Prioritisation of relevant power system risks within NSP areas of responsibility or coordination, including probability, consequence and mitigation options.
  - NSP joint planning associated with review of emergency controls.
  - Development and provision of modelling information (including models of emergency controls and emergency frequency controls) to support the GPSRR.
- Implementing changes to the protected event framework to enable a parallel process which does not rely on publication of a risk review, to maximise the efficiency and effectiveness of the protected events mechanism.

AEMO considers it may be prudent for the AEMC to incorporate additional industry consultation and collaboration with AEMO and NSPs on the practical scope and implementation of this rule change before its final determination. This will improve the prospect of delivering an efficient GPSRR in the long-term interests of consumers.

AEMO's detailed submission is provided in Attachment A, with comments on the Draft Rule in Attachment B.

Should you wish to discuss any of the matters raised in this submission, please contact Kevin Ly, Group Manager Regulation on [kevin.ly@aemo.com.au](mailto:kevin.ly@aemo.com.au).

Yours sincerely



Tony Chappel  
**Chief External Affairs Officer**

Attachment A – Detailed AEMO feedback

Attachment B – AEMO comments on the Draft Rule

## ATTACHMENT A: DETAILED AEMO FEEDBACK

### 1. Changes since the BSE review recommendations

Since the BSE review recommendations were proposed, the power system and NEM environment has continued to evolve rapidly. In addition to existing processes and reporting relating to assessment of operational constraints and supply adequacy, this has led to increased focus on power system risks in a number of areas, including:

- Publication of the Renewable Integration Study (RIS) in April 2020<sup>1</sup>.
- Release of the 2020 Inertia, System Strength and NSCAS reviews incorporating the latest changes observed in the NEM<sup>2</sup>.
- Review and changes to the NSCAS quantity description and procedure to better address the challenges introduced by the energy transition<sup>3</sup>.
- Adapting the determination and treatment of inertia requirements and shortfall assessments, most notably in the South Australian declaration made in August 2020<sup>4</sup>.
- Launch of a major program to develop a whole-of system engineering framework in 2021<sup>5</sup>.
- Implementing a framework for managing cyber security risks<sup>6</sup>.
- Continued expansion of AEMO's routine review of summer related risks and development of Summer Readiness Plans<sup>7</sup>.

AEMO would intend to implement the GPSRR in a manner that provides an overarching, prioritised review of high-impact, low-probability events<sup>8</sup> that are not likely to be mitigated through other rule requirements or processes. Given the broad scope of risks and increased frequency proposed, it is important that the rule does not implicitly require duplication of other activities.

### 2. Clarification of key risk areas proposed for the GPSRR

The AEMC has proposed the following additional five key risk areas to be incorporated into the GPSRR:

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<sup>1</sup> <https://aemo.com.au/energy-systems/major-publications/renewable-integration-study-ris>

<sup>2</sup> <https://aemo.com.au/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/planning-for-operability>

<sup>3</sup> <https://aemo.com.au/en/consultations/current-and-closed-consultations/network-support-and-control-ancillary-services-description-and-quantity-procedure-amendments>

<sup>4</sup> <https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/planning-for-operability>

<sup>5</sup> <https://aemo.com.au/initiatives/major-programs/engineering-framework>

<sup>6</sup> <https://aemo.com.au/en/initiatives/major-programs/cyber-security/aescsf-framework-and-resources>

<sup>7</sup> <https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/system-operations/summer-operations>

<sup>8</sup> For example, in the 2020 PSFRR five contingency events were prioritised for detailed assessment.

- (i) Increases or decreases in voltage.
- (ii) Levels of inertia.
- (iii) The availability of system strength services.
- (iv) The operation or interaction of emergency frequency control schemes and emergency controls.
- (v) Any other risks AEMO deems necessary, including risks arising on distribution networks.

The draft determination indicates that when conducting the GPSRR, AEMO may prioritise the most material risks, and that AEMO would not be required to identify or undertake a detailed assessment of all conceivable risks, but would have to consult on its choice of risks. Whilst the framework is intended to deliver effective management of the most serious risks to continuity of supply, it cannot guarantee that all risks will be identified, prioritised, and assessed. AEMO understands that mandating an annual review would allow it to focus on the detailed assessment and management of those most serious risks, which would generally be identified through other AEMO and NSP functions and processes.

AEMO feels that addressing the following would be useful in clarifying the intent of the rule and containing the level of increased costs and resourcing needed to deliver the GPSRR:

- Removing the references to specific types of risk listed in the draft Rule, noting many are already inputs to existing reviews or processes and responsibilities captured under existing NER obligations, to both simplify and clarify the scope of the GPSRR.
- Streamline the method, responsibilities and process for identifying, prioritising and assessing risks. An alternative suggestion is provided in Attachment B, which seeks to clarify that the GPSRR process itself does not require an extensive scan of all potential risks that could result in cascading failure before identifying the assessment priorities.

### 3. Framework for declaring protected events

In considering changes to the frequency and scope of a power system risk review, it is necessary to consider its outcomes. While a GPSRR could result in many different types of recommendations, like changes to emergency frequency control schemes or other investments, most of these can be (and are) driven through other processes or general system security responsibilities. The only outcome exclusively linked to the GPSRR is the ability to make protected event recommendations. This linkage could result in delays to the management of an urgent system need.

AEMO suggests that it be allowed to propose individual protected events to the Reliability Panel outside the GPSRR process, provided AEMO can present evidence to substantiate the need for a declaration. This could involve a two-track Reliability Panel approval process, depending on whether AEMO has already consulted through the GPSRR, or another NER review or reporting process.

#### 4. The GPSRR process

AEMO suggests some improvements to the proposed GPSRR process outlined in the draft determination and rule.

##### ***Clarity of AEMO and NSP responsibilities***

AEMO proposed, in its BSE review submission, the following for consideration in the development of a framework to address NSP responsibilities:

- Clear obligations on NSPs to assist more actively and provide specific information to AEMO as part of the GPSRR process.
- A need for greater cooperation between NSPs (including TNSPs across all interconnected regions) to review the action and interaction of control schemes on different networks.

AEMO considers that the nature and allocation of responsibilities in the draft rule would benefit from improvement to better reflect these principles.

##### Allocation of proposed obligations

The NER assigns obligations to AEMO or NSPs in relation to several power system factors or phenomena which are also identified in 5.20A.1(b1)(1) of the draft rule. For example:

- Increases or decreases in voltage – TNSPs are responsible for the management of voltage in their respective jurisdictions under S5.1a and S5.1.8 of the NER, and provide limit advice to AEMO, which are reviewed and implemented as constraint equations in the central dispatch engine (NEMDE).
- Availability of system strength services – clause 5.20C.3(c) of the NER outlines the system strength service provider (TNSP) responsibility to make these services available to meet the requirements notified by AEMO. To the extent there is insufficient system strength to respond to non-credible contingencies, this would already be considered as part of the assessment of those non-credible events.
- Operation and interaction of EFCS and emergency controls – NSP responsibilities to provide and maintain these controls are outlined in rule 4.3 and schedule 5.1, while AEMO has a coordination role in relation to EFCS settings.
- ‘Other risks’ – TNSPs are responsible for managing stability risks under S5.1.8 of the NER.

As discussed above, AEMO recommends removing explicit reference to these risk areas to avoid ambiguity, and to stress the role of the GPSRR in providing an overarching and prioritised review of the most material risks. In relation to the initial assessment and prioritisation of risks within the NSPs’ key areas of operation – including interaction of EFCS and emergency controls identified in APRs - AEMO suggests a more efficient approach would be to require TNSPs to provide a prioritised assessment to AEMO.

AEMO’s identification of priority risks for a GPSRR would be informed by the TNSPs, having consulted with their respective regional DNSPs and, where relevant, other TNSPs, on their most

significant unmanaged risks that could result in cascading failures in the transmission network. NSP priority identification should include the NSPs' own assessment of both the risk and consequences of their identified events and conditions, and any relevant mitigation options already considered by NSPs.

To facilitate and support this NSP priority identification process, AEMO suggests it would be efficient to extend TNSP joint planning obligations under clause 5.14.3, to incorporate cooperation in reviewing EFCS and emergency control interactions between regional networks.

AEMO agrees there is benefit in routinely reviewing the performance of all EFCS and control schemes which impact power system security, and all such critical schemes should be assessed in detail and associated models developed and provided to AEMO. However, the requirement for NSPs to review or assess the settings of protection system or control systems of plant during every annual APR process may be particularly time consuming. AEMO suggests there could be benefit in clarifying the definition of protection systems and consulting further following feedback from NSPs on this matter.

#### Proposed obligations on DNSPs

While AEMO's ability to model distribution networks is currently limited, AEMO supports the engagement of DNSPs in the GPSRR process. DNSP contributions are likely to be particularly relevant in assessing DER response and the efficacy of automatic under-frequency load shedding (UFLS) schemes.

As such, AEMO suggests the following obligations for DNSPs in the review process:

- DNSPs should be required to provide the necessary information to TNSPs for priority risk identification as contemplated above, and provide any other assistance and information AEMO reasonably requests to effectively undertake the required GPSRR assessments for risks originating in distribution networks. the GPSRR.
- The framework should facilitate efficient expenditure by DNSPs if necessary to mitigate identified risks. Examples include frequency response of rooftop PV and preserving UFLS efficacy.

AEMO also recommends that the AEMC consider feedback from DNSPs on the most efficient means of engagement between themselves, TNSPs and AEMO so that AEMO is able to effectively consider risks originating in distribution networks to deliver the GPSRR, and that relevant recommendations can be implemented without undue delay.

#### NSP information and assistance

Clause 5.20A.2(e) of the draft Rule states that NSPs *must co-operate* with AEMO in conducting the GPSRR and provide *all information and assistance reasonably requested by AEMO*. While AEMO appreciates the intent of the proposed rule, past experience indicates further specificity would help to reduce delays in the provision of up to date data and information, and facilitate appropriate resourcing (including funding) to support assessments in a timely way.

Inclusion of the following requirements would assist (in addition to the requirements suggested above) to inform AEMO of identified and assessed priority risks in their regions:

- Provision of information and analysis of emergency controls developed under S5.1.8 of the NER (including how they have been developed or reviewed through joint planning).
- Provision of computer models under clause 5.2.3(d)(8), including models of emergency controls.
- Provision of compliance programs under clause 5.7.4(a1).
- Provision of information relating to implementation of Under Frequency Load Shedding schemes by TNSPs (including on behalf of DNSPs).
- Provision of information relating to Distributed Energy Resources.
- Provision of information relating to the probability, consequences and mitigation options associated with non-credible contingencies, event and conditions.

These additions would ensure the appropriate controls are in place to obtain the right information, facilitate appropriate due diligence on assessments, and support a more timely review process.

The importance of computer modelling information is particularly critical, with cost implications for AEMO and NSPs. There will be a heightened need to model and assess performance of emergency controls and emergency frequency control schemes, and undertake modelling in RMS and EMT simulation programs. Regard must also be had to the likelihood that AEMO and NSPs need to develop additional tools and models to support assessment of a broader range of events and conditions. AEMO's 2020 PSFRR report (section 7.2) provides further detail on the current and emerging modelling requirements.

### ***Timing of the first GPSRR***

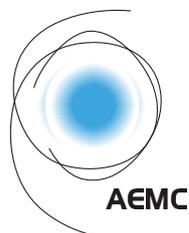
The proposed transitional provisions in Chapter 11 of the draft Rule would require the first GPSRR to be completed within 18 months of the date the Rule is made.

This would require AEMO to commence preparation for the review immediately after the Rule is made with its current resources. Additionally, all NSPs would need to commence preparation of their first APR that addresses the APR requirements as proposed in the draft Rule.

For these reasons, AEMO recommends the AEMC extend the timing of the first GPSRR to mid-2023. This would allow AEMO to deliver a PSFRR in mid-2022 (less than two years from the date of the 2020 PSFRR). Publication of the GPSRR in mid-2023 would also allow the GPSRR to consider outcomes of TNSP APRs to be delivered in October 2022.

### ***Definitions***

AEMO consider it would be beneficial to define the term emergency controls as relating to schemes developed under S5.1.8.



## **Draft National Electricity Amendment (Implementing a general power system risk review) Rule 2021**

under the National Electricity Law to the extent applied by:

- (a) the National Electricity (South Australia) Act 1996 of South Australia;
- (b) the Electricity (National Scheme) Act 1997 of the Australian Capital Territory;
- (c) the Electricity - National Scheme (Queensland) Act 1997 of Queensland;
- (d) the Electricity - National Scheme (Tasmania) Act 1999 of Tasmania;
- (e) the National Electricity (New South Wales) Act 1997 of New South Wales;
- (f) the National Electricity (Victoria) Act 2005 of Victoria;
- (g) the National Electricity (Northern Territory) (National Uniform Legislation) Act 2015 of the Northern Territory; and
- (h) the Australian Energy Market Act 2004 of the Commonwealth.

The Australian Energy Market Commission makes the following Rule under the National Electricity Law.

Anna Collyer  
Chairperson  
Australian Energy Market Commission

## **Draft National Electricity Amendment (Implementing a general power system risk review) Rule 2021**

### **1 Title of Rule**

This Rule is the *Draft National Electricity Amendment (Implementing a general power system risk review) Rule 2021*.

### **2 Commencement**

This Rule commences operation on [date rule is made].

### **3 Amendment to the National Electricity Rules**

The National Electricity Rules are amended as set out in Schedule 1.

### **4 Savings and Transitional Amendment to the National Electricity Rules**

The National Electricity Rules are amended as set out in Schedule 2.

**Schedule 1      Amendment to the National Electricity Rules**  
(Clause 3)

**[1] Clause 5.12.1      Transmission annual planning review**

After clause 5.12.1(b)(1), insert:

- (1a) include a review of, and interactions between:
- (i) any *emergency frequency control schemes* or **emergency controls** on its *network*; and
  - (ii) the settings of *protection systems* or *control systems of plant connected to its network* (including consideration of whether such settings are fit for purpose for the future **operation** of its *network*);

**Commented [A1]:** Review of interactions between control schemes on different networks is equally important. In this respect clause 5.14.3 (joint planning between TNSPs) is not adequate for the current power system. Practically, AEMO cannot efficiently coordinate this review through the GPSRR, and it is proposed that 5.14.3 is expanded to include a joint planning requirement to identify and review interactions between emergency control schemes in different regions.

**Commented [A2]:** Clarify that 'emergency controls' refers to schemes developed by NSPs under S5.1.8 – a definition would assist.

**Commented [A3]:** Suggest seeking specific TNSP feedback on whether this is likely to be interpreted consistently or requires any clarification

**[2] Clause 5.12.1      Transmission annual planning review**

In clause 5.12.1(b)(3), omit "*power system frequency risk review*" and substitute "*general power system risk review*".

**[3] Clause 5.12.2      Transmission Annual Planning Report**

In clause 5.12.2(c)(6A), omit "*power system frequency risk review*" and substitute "*general power system risk review*".

**[4] Clause 5.12.2      Transmission Annual Planning Report**

After clause 5.12.2(c)(9), insert:

- (9a) the analysis of the interactions between:
- (i) any *emergency frequency control schemes* or emergency controls on its *network*; and
  - (ii) the settings of *protection systems* or *control systems of plant connected to its network* (including consideration of whether such settings are fit for purpose for the future operation of its *network*);

undertaken under clause 5.12.1(b)(1a), including a description of proposed actions to be undertaken to address any adverse interactions between those schemes or settings.

**[5] Clause 5.13.1      Distribution annual planning review**

In clause 5.13.1(d)(3)(ii), omit "and".

**[6] Clause 5.13.1      Distribution annual planning review**

In clause 5.13.1(d)(4), omit "." and substitute ";".

**[7] Clause 5.13.1 Distribution annual planning review**

After clause 5.13.1(d)(4), insert:

- (5) take into account the most recent *general power system risk review*; and
- (6) include a review of, and interactions between:
  - (i) any *emergency frequency control schemes* or emergency controls on its *network*; and
  - (ii) the settings of *protection systems* or *control systems* of *plant connected* to its *network* (including consideration of whether such settings are fit for purpose for the future operation of its *network*).

**[8] Clause 5.14.1 Joint planning obligations of Transmission Network Service Providers and Distribution Network Service Providers**

After clause 5.14.1(d)(3), insert:

- (3a) assess the interactions between:
  - (i) any *emergency frequency control schemes* or emergency controls on their *respective networks*; and
  - (ii) the settings of *protection systems* or *control systems* of *plant connected* to their *respective networks*,(as identified under clauses 5.12.1(b)(1a) and 5.13.1(d)(6)) with a view to addressing any adverse impacts through joint planning;

**[9] Clause 5.14.1 Joint planning obligations of Transmission Network Service Providers and Distribution Network Service Providers**

In clause 5.14.1(d)(4), omit "subparagraph (3)" and substitute "subparagraphs (3) or (3a)".

**[10] Rule 5.20A Frequency management planning**

Omit the title of rule 5.20A and substitute "Frequency and other power system risk management planning".

**[11] Clause 5.20A.1 Power system frequency risk review**

Omit the title of clause 5.20A.1 and substitute "General power system risk review".

**Commented [A4]:** Corresponding assessment is highly desirable between TNSPs as well, under 5.14.3

**Commented [A5]:** Suggest 'respective' is deleted, otherwise can be read as assessing interactions of schemes on the respective networks, not between them

**Commented [A6]:** Or just 'Power system risk planning'?

### [12] Clause 5.20A.1 General power system risk review

Omit clause 5.20A.1(a) and substitute:

- (a) AEMO must, through a *general power system risk review* under this rule, *prioritising the most material risks*, review:
  - (1) *non-credible contingency events* the occurrence of which AEMO expects, alone or in combination, would be likely to involve uncontrolled increases or decreases in *frequency* leading to *cascading outages*, or *major supply disruptions*;
  - (1a) *events and conditions not referred to in subparagraph (1), including contingency events*, the occurrence of which AEMO expects, alone or in combination, would be likely to lead to *cascading outages*, or *major supply disruptions*;
  - (2) current arrangements for management of the events and conditions described in sub-paragraphs (1) and (1a);
  - (3) options for future management of the *non-credible contingency events* referred to in paragraph (1); and
  - (4) options for future management of the events and conditions referred to in paragraph (1a).

**Commented [A7]:** AEMO has proposed an alternative suggestion for rule 5.20A.1 to address the concerns expressed here. This is included immediately after the draft rule wording.

**Commented [A8]:** Qualification not effective given requirement to review/consider all material events/conditions in the broad categories identified in this paragraph and (b1). To minimize the cost and resourcing consequences, it should be clear that AEMO is not required to review of all events falling into this category and instead only study known contingencies/risks that have already been identified as priority concerns in terms of both likelihood and consequence through actual events, near misses and TNSP/AEMO studies undertaken for other purposes.

**Commented [A9]:** This paragraph and (1a) should be combined for simpler drafting and to avoid ambiguity arising from the overlap.

### [13] Clause 5.20A.1 General power system risk review

After clause 5.20A.1(b), insert:

- (b1) For the purposes of subparagraph (a)(1a):
  - (1) AEMO must consider events and conditions that present a material risk of *cascading outages* or *major supply disruptions* associated with any or a combination of:
    - (i) increases or decreases *in voltage*;
    - (ii) levels of *inertia*;
    - (iii) the availability of *system strength services*;
    - (iv) the operation or interaction of *emergency frequency control schemes* and emergency controls, *including* as identified by:
      - (A) *Transmission Network Service Providers* in their *Transmission Annual Planning Report* under clause 5.12.2, and
      - (B) *Distribution Network Service Providers* in their *Distribution Annual Planning Report* under clause 5.13.2; and

**Commented [A10]:** Given the intent evident from (2) that this review not be restrictive in terms of the types of risk, it seems preferable not to itemize them. This also addresses the point that most of the itemized risks are likely to be mitigated through other processes under the NER and may not need to be considered for the GPSRR

**Commented [A11]:** Noting voltage, inertia and system strength management are TNSP responsibilities, again it is important for the priority and impact assessment to be led by TNSPs. Also consider overlap with other reporting, assessment and procurement obligations

**Commented [A12]:** 'including' requires AEMO to undertake additional analysis. This would be inefficient and duplicative.

**Commented [A13]:** Suggest TNSPs identify priority interaction risks after consulting with DNSPs, together with impact assessment. Noting the APRs do not have a materiality threshold

- (2) *AEMO* may consider events and conditions that present a material risk of *cascading outages* or *major supply disruptions* associated with any factors other than those listed in subparagraph (1) that *AEMO* considers appropriate, including events or conditions arising on *distribution networks*.

**[14] Clause 5.20A.1 General power system risk review**

In clause 5.20A.1(c), omit "*power system frequency risk review*" and substitute "*general power system risk review*".

**[15] Clause 5.20A.1 General power system risk review**

In clause 5.20A.1(c)(1), before "referred to in paragraph (a)", insert "or events or conditions".

**[16] Clause 5.20A.1 General power system risk review**

In clause 5.20A.1(c)(1)(i), (ii) and (iii), after "event", insert "or conditions".

**[17] Clause 5.20A.1 General power system risk review**

In clause 5.20A.1(c)(2), after "events", insert "and conditions".

**[18] Clause 5.20A.1 General power system risk review**

In clause 5.20A.1(c)(2)(i), after "event", insert "or condition".

**[19] Clause 5.20A.1 General power system risk review**

In clause 5.20A.1(c)(2)(ii), after ";" omit " and".

**[20] Clause 5.20A.1 General power system risk review**

In clause 5.20A.1(c)(2)(iii), after "options;" insert " and".

**[21] Clause 5.20A.1 General power system risk review**

After clause 5.20A.1(c)(2)(iii), insert:

- (iv) after consultation with *Transmission Network Service Providers* and *Distribution Network Service Providers*, include an explanation of the reason why certain events and conditions were, or were not, considered by *AEMO* to be priorities for assessment.

**AEMO suggested alternative for revised 5.20A.1**

**5.20A.1 General power system risk review**

- (a) *AEMO* must undertake a *general power system risk review* under this rule in respect of a prioritised set of risks (**priority risks**)

**Commented [A14]:** This does not follow from the existing clause, which refers to events/conditions identified under paragraph (a). AEMO understands the intent is that these are only the prioritised risks identified for assessment as part of the review. In particular, use of "or were not" would imply a need for AEMO/NSPs to have identified and sufficiently assessed **all** known events/conditions within each of the specified types to be in a position to justify ruling them out. Explanation of the prioritisation choices belongs in the process and approach rules in 5.20A.2, which should also streamline the consultation requirements so that this process is coordinated through TNSPs as far as possible.

- comprising events or conditions, identified in accordance with paragraph (b1), the occurrence of which AEMO expects, alone or in combination, would be likely to lead to cascading outages, or major supply disruptions.
- (b) For each priority risk included in a *general power system risk review*, AEMO must:
- (1) assess the current arrangements for management of the priority risk; and
  - (2) assess technically and economically feasible options for future management of the priority risk, to significantly reduce the likelihood of occurrence or the probability of *cascading outages* or *major supply disruptions* following occurrence, which may include:
    - (i) new or modified *emergency frequency control schemes* or *emergency controls* [*Note: to be defined*];
    - (ii) declaration of the event as a *protected event*;
    - (iii) *network augmentation*; and
    - (iii) *non-network* alternatives to *augmentation*;
  - (3) assess the expected costs and time for implementation of each option and any other factors that AEMO considers should be taken into account in selecting a recommended option; and
  - (4) identify a recommended option or range of options.
- (b1) AEMO's identification of priority risks for a *general power system risk review* must have regard to:
- (1) the severity of the likely *power system security* outcomes if the event or conditions occur, and the likelihood of the event or conditions occurring;
  - (2) whether, in AEMO's opinion, technically and economically feasible options for management of the event or conditions are likely to be available;
  - (3) submissions from *Transmission Network Service Providers* in accordance with clause 5.20A.2; and
  - (4) any other considerations AEMO considers relevant.
- (c) In addition to the assessment of priority risks, a *general power system risk review* must, for current *protected events*:
- (1) assess the adequacy and costs of the arrangements for management of the event;
  - (2) consider whether to recommend a request to the *Reliability Panel* to revoke the declaration of the event as a *protected event*; and
  - (3) except where a recommendation is to be made under subparagraph (2), identify any need for changes to the arrangements for management of the event and where applicable, identify the options for change and in relation to each option, the matters referred to in paragraphs (b)(3) and (b)(4). and

[Note: it is proposed that existing clause 5.20A.1(c)(4) is removed; the performance of EFCS as part of the GPSRR is required where relevant to the management of a priority risk. Performance assessment in general is to be undertaken by the NSPs in their APRs under 5.12 and 5.13 and may then inform prioritization submissions under 5.20A.2]

**[22] Clause 5.20A.2 Power system frequency risk review process**

Omit the title of clause 5.20A.2 and substitute "General power system risk review process".

**[23] Clause 5.20A.2 General power system risk review process**

Omit clause 5.20A.2(a) and substitute:

- (a) AEMO must undertake a *general power system risk review* no less than annually.

**[24] Clause 5.20A.2 General power system risk review process**

In clause 5.20A.2(b), before "*Transmission Network Service Providers*", insert "relevant".

**[25] Clause 5.20A.2 General power system risk review process**

In clause 5.20A.2(b), after "*Transmission Network Service Providers*", insert "and relevant *Distribution Network Service Providers*".

**[26] Clause 5.20A.2 General power system risk review process**

In clause 5.20A.2(b), omit "*power system frequency risk review*" and substitute "*general power system risk review*".

**[27] Clause 5.20A.2 General power system risk review process**

Omit clause 5.20A.2(d) and substitute:

- (d) When undertaking a *general power system risk review* (including the assessment of the risks identified in clause 5.20A.1(b1)):
- (1) AEMO must consult with relevant *Network Service Providers*;
  - (2) AEMO may consult with any other parties it considers appropriate, including without limitation, *Jurisdictional System Security Coordinators*; and

**Commented [A15]:** Consistent with established practice in other areas, TNSPs would incorporate DNSP information and assessment into their submissions to AEMO. It is expected AEMO would need to liaise directly with DNSPs for detailed information on the performance and (re-)design of their EFCSS. Accordingly this change would not be required. Paragraph (c) could include reference to emergency controls in addition to EFCS

**Commented [A16]:** As an alternative 5.20A.2(d) should require the following process to identify priority risks:

- DNSPs to provide their priorities and supporting information to the relevant TNSP (identified from DAPR/joint planning) where it considers the distribution/control system risk in its network has likely cascading outage impacts for the transmission network
- TNSPs to consolidate with their own identified risks using the same probability and consequence criteria, and provide shortlist of prioritised risks to AEMO.
- Where NSPs have identified potential mitigation options for priority risk, relevant details should be included in the assessment.
- AEMO must consult with TNSPs on both the selection of priority risks and the mitigation options, and may consult JSSCs and any other relevant participants.

(3) *AEMO* must, on commencement of the *general power system risk review*, publish an **approach paper** setting out:

(i) The:

(A) *non-credible contingency events* identified by *AEMO* under clause 5.20A.1(a)(1); and

(B) the events and conditions identified by *AEMO* under clause 5.20A.1(a)(1a),

to be assessed by *AEMO* in the *general power system risk review*, **and an explanation for why** *AEMO* considers those *non-credible contingency events* and other events and conditions should be priorities for assessment;

(ii) the approach and methodologies used in assessing each *non-credible contingency event* and other events and conditions;

(iii) information inputs and assumptions used by *AEMO* in assessing each *non-credible contingency event* and other events and conditions; and

(iv) *AEMO's* approach to consulting with relevant *Transmission Network Service Providers* and relevant *Distribution Network Service Providers* for the purposes of the *general power system risk review*,

and invite submissions within a period of at least 10 *business days* of the date specified in the approach paper.

**Commented [A17]:** AEMO to publish approach paper to explain reasons for selection of the priority risks and how the selection was informed by the information provided by TNSPs and consultation with other parties. Having undertaken the above process already, there would be no requirement to invite feedback on the approach paper

### **[28] Clause 5.20A.2 General power system risk review process**

After clause 5.20A.2(d), insert:

(e) **A Network Service Provider must co-operate** with *AEMO* in the conduct of *general power system risk reviews* and provide to *AEMO* all information and assistance reasonably requested by *AEMO* in connection with *general power system risk reviews* to enable *AEMO* to undertake *general power system risk reviews* expeditiously.

**Commented [A18]:** Clearer and more specific requirements are necessary – differentiated between input to the priority risk identification process (as above) and the review itself, including to facilitate assessment of feasible options for mitigation.

As explained in the submission there are some specific information requirements that it would be helpful to itemize, to assist timeliness and NSP resourcing of the effort involved. TNSPs (and in relation to relevant EFCS, DNSPs) must provide specified information and models, and additional information and assistance AEMO reasonably requires to undertake risk and option assessment.

### **[29] Clause 5.20A.3 Power system frequency risk review report**

Omit the title of clause 5.20A.3 and substitute "General power system risk review report".

### **[30] Clause 5.20A.3 General power system risk review report**

Omit clause 5.20A.3(a) and substitute:

(a) As soon as reasonably practicable following the completion of a *general power system risk review*, *AEMO* must publish a report setting

out its findings and recommendations on the matters set out in clause 5.20A.1.

**[31] Clause 5.20A.3 General power system risk review report**

In clause 5.20A.3(b), omit "*power system frequency risk review*" and substitute "*general power system risk review*".

**[32] Clause 5.20A.3 General power system risk review report**

In clause 5.20A.3(c), omit "*power system frequency risk review*" and substitute "*general power system risk review*".

**[33] Clause 5.20A.4 Request for protected event declaration**

In clause 5.20A.4(a), omit "*power system frequency risk review*" and substitute "*general power system risk review*".

**[34] Clause 5.20A.5 Request to revoke a protected event declaration**

In clause 5.20A.5(a), omit "*power system frequency risk review*" wherever occurring and substitute "*general power system risk review*".

**[35] Clause 5.22.10 Preparation of ISP**

After clause 5.22.10(a)(5)(vi), insert:

(viA) outcomes of the *general power system risk review*;

**[36] Clause 5.22.10 Preparation of ISP**

After clause 5.22.10(b)(7), insert:

(7a) the most recent *general power system risk review*;

**[37] Clause S5.1.10.1a Emergency frequency control schemes**

Omit clause S5.1.10.1a(a)(1) and substitute "[Deleted]".

**[38] Clause S5.1.10.1a Emergency frequency control schemes**

In clause S5.1.10.1a(c), omit "*power system frequency risk review*" and substitute "*general power system risk review*".

**[39] Schedule 5.8 Distribution Annual Planning Report**

At the end of Schedule 5.8(n)(2), omit "." and substitute "; and".

**[40] Schedule 5.8      Distribution Annual Planning Report**

After paragraph (n) of Schedule 5.8, insert:

- (o) the analysis of the interactions between:
  - (1) any *emergency frequency control schemes* or emergency controls on its *network*; and
  - (2) the settings of *protection systems* or *control systems of plant connected to its network* (including consideration of whether such settings are fit for purpose for the future operation of its *network*);

undertaken under clause 5.13.1(d)(6), including a description of proposed actions to be undertaken to address any adverse interactions between these schemes or settings.

**[41] Clause 8.8.1      Purpose of Reliability Panel**

In clause 8.8.1(a)(2d), omit "*power system frequency risk reviews*" and substitute "*general power system risk reviews*".

**[42] Chapter 10      New Definition**

In Chapter 10, insert the following new definition in alphabetical order:

***general power system risk review***

A review described in clause 5.20A.1(c).

**[43] Chapter 10      Omitted definition**

In Chapter 10, omit the following definition:

***power system frequency risk review***

**Schedule 2 Savings and Transitional Amendment to the National Electricity Rules**

(Clause 4)

**[1] New Part ZZZZ[X] Implementing a general power system risk review**

In Chapter 11, after Part ZZZZ[X], insert:

**Part ZZZZ[X] Implementing a general power system risk review**

**11.[XXX] Rules consequential on the making of the National Electricity Amendment (Implementing a general power system risk review) Rule 2021**

**11.[XXX].1 Definitions**

For the purposes of this rule 11.[XXX]:

**Commencement Date** means [the date the National Electricity Amendment (Implementing a general power system risk review) Rule 2021 is made].

**11.[XXX].2 First general power system risk review**

Despite clause 5.20A.2(a), *AEMO* must complete the first *general power system risk review* within 18 months of the Commencement Date.

**Commented [A19]:** 18 months time to **complete** the first is not practically achievable, and will not fit in with NSPs preparing their first APRs incorporating the new requirements, which will inform the priority risks for the GPSRR.