Draft National Electricity Amendment (Emergency frequency control schemes) Rule 2017

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; 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.

John Pierce
Chairman
Australian Energy Market Commission

Draft National Electricity Amendment (Emergency frequency control schemes) Rule 2017

1 Title of Rule

This Rule is the *Draft National Electricity Amendment (Emergency frequency control schemes) Rule 2017*.

2 Commencement

This Rule commences operation on [COMMENCEMENT_DATE].

3 Amendment of the National Electricity Rules

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

4 Amendment of the National Electricity Rules

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

5 Amendment of the National Electricity Rules

The National Electricity Rules are amended as set out in Schedule 3.

6 Amendment of the National Electricity Rules

The National Electricity Rules are amended as set out in Schedule 4.

7 Amendment of the National Electricity Rules

The National Electricity Rules are amended as set out in Schedule 5.

Schedule 1 Amendment to the National Electricity Rules

(Clause 3)

[1] Clause 3.9.3C Reliability standard

In clause 3.9.3C(b)(2)(i), omit "multiple *contingency events*" and substitute "multiple *contingency events*, *protected events*".

Schedule 2 Amendment to the National Electricity Rules

(Clause 4)

[1] Clause 4.2.3 Credible and non-credible contingency events

In clause 4.2.3, omit the heading and substitute "Credible and non-credible contingency events and protected events".

[2] Clause 4.2.3 Credible and non-credible contingency events

In clause 4.2.3(f), omit **[deleted]** and substitute:

(f) A ***protected event*** means a *non-credible contingency event* that has been and remains classified as a *protected event* by *AEMO* under clause 8.8.5(a).

[3] Clause 4.2.3A Re-classifying contingency events

In clause 4.2.3A(b)(2) and 4.2.3A(c), after "a *non-credible contingency event*" insert "or a *protected event*" wherever so appearing.

[4] Clause 4.2.3A Re-classifying contingency events

In clause 4.2.3A(c)(2), omit "*non-credible contingency event*" and substitute "event".

[5] Clause 4.2.3A Re-classifying contingency events

In clause 4.2.3A(c)(3), omit "this *non-credible contingent event*" and substitute "the relevant event".

[6] Clause 4.2.3A Re-classifying contingency events

In clause 4.2.3A(d), omit "*non-credible contingency event*" and substitute "relevant event".

[7] Clause 4.2.3A Re-classifying contingency events

In clause 4.2.3A(e), after "identifies a *non-credible contingency event*" insert "or a protected event".

[8] Clause 4.2.3A Re-classifying contingency events

In clause 4.2.3A(e), omit "the occurrence of that *non-credible contingency event*" and substitute "the occurrence of the relevant event".

[9] Clause 4.2.3A Re-classifying contingency events

In clause 4.2.3A(g), omit "a *non-credible contingency event*" and substitute "the relevant event".

[10] Clause 4.2.3A Re-classifying contingency events

In clause 4.2.3A(h), omit "reclassifying a *non-credible contingency event*" and substitute " reclassifying the relevant event".

[11] Clause 4.2.3A Re-classifying contingency events

In clause 4.2.3A(h), after "be a *non-credible contingency event*" insert "or *protected event* according to its original classification".

[12] Clause 4.2.3A Re-classifying contingency events

In clause 4.2.3A(i), omit "*non-credible contingency events* to be" and substitute "events as".

[13] Clause 4.2.3B Criteria for re-classifying contingency events

After clause 4.2.3B(a), insert:

(aa) Within six months of the commencement of this clause 4.2.3B(aa), *AEMO* must establish criteria that it must use when considering whether the existence of *abnormal conditions* make the occurrence of a *protected event* reasonably possible under clause 4.2.3A(e).

[14] Clause 4.2.3B Criteria for re-classifying contingency events

In clause 4.2.3B(b) and (c), omit "under clause 4.2.3B(a)" and substitute "under this clause 4.2.3B" wherever appearing.

[15] Clause 4.2.4 Secure operating state and power system security

In clause 4.2.4(a)(1), omit "and".

[16] Clause 4.2.4 Secure operating state and power system security

In clause 4.2.4(a)(2), after "*credible contingency event*" insert "or *protected event*".

[17] Clause 4.2.4 Secure operating state and power system security

In clause 4.2.4(a)(2), omit "*power system security standards*." and substitute "*power system security standards*; and".

[18] Clause 4.2.4 Secure operating state and power system security

After 4.2.4(a)(2), insert:

(3) following the occurrence of any *protected event*, the *power system* will return to the *post-contingency operating state* applicable to that *protected event*.

[19] Clause 4.2.4 Secure operating state and power system security

In clause 4.2.4(b)(2), after "*credible contingency events*" insert "or *protected events*".

[20] Clause 4.2.6 General principles for maintaining power system security

In clause 4.2.6(b)(1), after "within thirty minutes" insert "or (in the case of a *protected event*) the time determined by the *Reliability Panel* for that *protected event*".

[21] Clause 4.2.6 General principles for maintaining power system security

In clause 4.2.6(b)(2), after "within at most thirty minutes" insert "or (in the case of a *protected event*) the time determined by the *Reliability Panel* for that *protected event*".

[22] Clause 4.2.6 General principles for maintaining power system security

Omit clause 4.2.6(c) and substitute:

(c) Adequate *emergency frequency control schemes* should be available and in service.

[23] Clause 4.3.1 Responsibility of AEMO for power system security

In clause 4.3.1(k)(2), after "(affecting up to 60% of the total *power system load*)" insert "or any *protected event*".

[24] Clause 4.3.1 Responsibility of AEMO for power system security

After clause 4.3.1(p), insert:

(pa) to propose and have approved *emergency frequency control schemes* for provision by *Network Service Providers* in accordance with specifications determined by *AEMO* and to determine the intended sequence of response by those schemes;

[25] Clause 4.3.2 System security

In clause 4.3.2(f)(1)(i),omit "and".

[26] Clause 4.3.2 System security

After clause 4.3.2(f)(1)(ii), insert:

(iii) the *loads* (if any) for which the approval of the *Jurisdictional System Security Coordinator* must be obtained by *AEMO* under clause 4.3.2(m) in relation to the inclusion of that *load* in *EFCS implementation procedures*; and

[27] Clause 4.3.2 System security

After clause 4.3.2(l), insert:

(m) Notwithstanding any other provision of the *Rules*, *AEMO* must seek the approval of the relevant *Jurisdictional System Security Coordinator* for the order in which a *sensitive load* is included in *EFCS implementation procedures* (which approval must not be unreasonably withheld).

[28] Clause 4.3.4 Network Service Providers

After clause 4.3.4(b), insert:

(ba) Each *Network Service Provider* must, in accordance with clause S5.1.10a of schedule 5.1 and the applicable *EFCS design specifications* and *EFCS implementation procedures*, procure, commission, maintain, monitor, test, modify and report to *AEMO* in respect of each *emergency frequency control scheme* for which an *EFCS standard* has been determined and which is applicable in respect of the *Network Service Provider*'s *transmission system* or *distribution system*.

Note

The AEMC proposes to recommend that this clause be classified as a civil penalty provision under the National Electricity (South Australia) Regulations.

Note

The AEMC proposes to recommend that this clause and clause S5.1.10a be designated system operations functions and powers of TNSPs.

[29] Clause 4.3.4Network Service Providers

After clause 4.3.4(g), insert:

(ga) Each *Network Service Provider* must ensure that emergency controls are installed in accordance with clause S5.1.8 of schedule 5.1.

[30] Clause 4.4.2 Operational frequency control requirements

In clause 4.4.2(b), omit "Each" and substitute "each".

[31] Clause 4.4.3 Generator protection requirements

After clause 4.4.3, insert:

4.4.4 Emergency Frequency Control Schemes

(a) *AEMO* must develop, update and maintain the *EFCS design specification* and *EFCS implementation procedures* for each *emergency frequency control scheme* for which an *EFCS standard* has been determined.

(b) *EFCS design specifications* and *EFCS implementation procedures* must be developed, updated and maintained so as to ensure the availability and operation of the *emergency frequency control scheme* in accordance with the applicable *EFCS standard*.

(c) In performing its obligations under paragraph (a), *AEMO* must consult with affected *Network Service Providers* and:

(1) the relevant *Jurisdictional System Security Coordinators*, in the case of the *EFCS implementation procedures* for an *under frequency scheme*; and

(2) affected *Generators*, in the case of the *EFCS implementation procedures* for an *over frequency scheme*.

(d) The *EFCS design specification* for an *emergency frequency control scheme* must contain:

(1) the functional specification for the scheme describing in reasonable detail the required operational performance of the scheme consistent with the *target capabilities*;

(2) commissioning arrangements;

(3) the requirements for ongoing monitoring and testing of the scheme once it is in operation; and

(4) the requirements for reporting to *AEMO* in relation to the scheme.

(e) The *EFCS implementation procedures* for an *under frequency scheme* must set out the manner in which *loads* are to be shed and restored. *AEMO* must determine the manner in which *loads* are to be shed and restored having regard to the schedules of *sensitive loads*

provided by *Jurisdictional System Security Coordinators* under clause 4.3.2(f)(1) and must obtain approval under clause 4.3.2(m).

(f) The *EFCS implementation procedures* for an *over frequency scheme* must set out the manner in which *generating units* will be interrupted or have output reduced and the *frequency* at which this will occur in relation to each *generating unit*. *AEMO* must determine the above in a manner that *AEMO* determines is best calculated to be consistent with the *power system security* principles in clause 4.2.6 and to that end may determine a sequence and settings that will:

(1) first, restore the *power system* to a *secure operating state*; and

(2) then, restore the *power system* to a *reliable operating state*.

(g) *AEMO* must *publish* the *EFCS design specification* for each *emergency frequency control scheme*. Subject to paragraph (h), the *EFCS implementation procedures* are *confidential information*.

(h) *AEMO* must provide the *Jurisdictional System Security Coordinator* for a *participating jurisdiction* with a copy of the *EFCS implementation procedures* for the *under frequency scheme* affecting each *region* in that *participating jurisdiction*, as amended from time to time.

(i) A *Network Service Provider* must only apply, or allow the application of, settings for an *emergency frequency control scheme* if the settings are consistent with the applicable *EFCS implementation procedures* and *EFCS design specification*.

Note

The AEMC proposes to recommend that this clause 4.4.4(i) be classified as a civil penalty provision under the National Electricity (South Australia) Regulations.

(j) Each year, *AEMO* must prepare, in consultation with *Network Service Providers*, and *publish*, a report on the operation and efficacy of the *emergency frequency control schemes* established under the *Rules*.

[32] Clause 4.5.1 Power system voltage control

In clause 4.5.1(b), after '*credible contingency event*' insert 'or *protected event*'.

[33] Clause 4.6.1 Power system fault levels

In clause 4.6.1(b), after '*credible contingency events*' insert 'and *protected events*'.

[34] Clause 4.8.5A Determination of the latest time for AEMO intervention

In clause 4.8.5A(a), (c), (g), omit "a *AEMO intervention event*" and substitute "an *AEMO intervention event*".

[35] Clause 4.8.5B Notifications of last time of AEMO intervention

In clause 4.8.5B(1)(ii) and (2), omit "a *AEMO intervention event*" and substitute "an *AEMO intervention event*".

[36] Clause 4.8.15 Review of operating incidents

In clause 4.8.15(a)(1)(ii), omit "*non-credible contingency event* or" and substitute "*non-credible contingency event*, *protected event* or".

[37] Clause 4.8.15 Review of operating incidents

In clause 4.8.15(ca), omit "*non-credible contingency event*" and substitute "*non-credible contingency event* or *protected event*" wherever so appearing.

[38] Clause 4.10.1 Power system operating procedures

In clause 4.10.1(a)(3), after 'those relating to *sensitive loads*" insert "and *emergency frequency control schemes*".

[39] Clause 4.14 Acceptance of Performance Standards

In clause 4.14(q), omit "a *AEMO advisory matter*" and substitute "an *AEMO advisory matter*".

Schedule 3 Amendment to the National Electricity Rules

(Clause 5)

[1] Clause 5.9.3 Involuntary disconnection

After clause 5.9.3(c), insert:

(d) A *Registered Participant's facilities* or *market loads* may be *disconnected* from a *network* by automatic operation of an *emergency frequency control scheme*.

[2] Clause 5.9.6 Obligation to reconnect

After clause 5.9.6(a)(3), insert:

(4) *AEMO* is reasonably satisfied that there no longer exists the *power system* conditions due to which the *Registered Participant's facilities* or *loads* were *disconnected* by operation of an *emergency frequency control scheme*.

[3] Clause S5.1a.3 of Schedule 5.1a System Stability

In subclause S5.1a.3(a) of Schedule 5.1a, insert "or *protected event*" after "*credible contingency event*".

[4] Clause S5.1a.3 of Schedule 5.1a System Stability

In subclause S5.1a.3(c) of Schedule 5.1a, insert "or any *protected event*" after "*credible contingency event*".

[5] Clause S5.1a.4 of Schedule 5.1a Power frequency voltage

In the second paragraph of clause S5.1a.4 of Schedule 5.1a, insert "or *protected event*" after "*credible contingency event*".

[6] Clause S5.1a.7 of Schedule 5.1a Voltage unbalance

In the second paragraph of clause S5.1a.7 of Schedule 5.1a, insert "or *protected event*" after "*credible contingency event*".

[7] Clause S5.1a.7 of Schedule 5.1a Voltage unbalance

In Column 3 of Table S5.1a.1 in clause S5.1a.7 of Schedule 5.1a, insert "or protected event" after "credible contingency event".

[8] Clause S5.1.3 of Schedule 5.1 Frequency variations

At the end of the first paragraph of clause S5.1.3 of Schedule 5.1, insert "or is required to be switched or *disconnected* for operation of an *emergency frequency control scheme*" after "purposes".

[9] Clause S5.1.4 of Schedule 5.1 Magnitude of power frequency voltage

In subclause S5.1.4(b)(1) of Schedule 5.1, insert "or a *protected event*" after "*credible contingency event*".

[10] Clause S5.1.4 of Schedule 5.1 Magnitude of power frequency voltage

In the second to last paragraph of S5.1.4 of Schedule 5.1, insert "or *protected event*" after "*credible contingency event*".

[11] Clause S5.1.8 of Schedule 5.1 Stability

In the third paragraph of S5.1.8 of Schedule 5.1, insert "or any *protected event*" after "*credible contingency event*".

[12] Clause S5.1.8 of Schedule 5.1 Stability

In the fifth paragraph of S5.1.8 of Schedule 5.1, insert "or any *protected event*" after "*credible contingency event*".

[13] Clause S5.1.8 of Schedule 5.1 Stability

Omit the sixth paragraph of S5.1.8 of Schedule 5.1, and substitute:

> In planning a *network* a *Network Service Provider* must consider *protected events* and *non-credible contingency events* as appropriate such as *busbar* faults which result in tripping of several circuits, uncleared faults, double circuit faults and multiple contingencies which could potentially endanger the stability of the *power system*. In those cases where the consequences to any *network* or to any *Registered Participant* of such events are likely to be severe disruption (and disregarding any actual or possible *emergency frequency control scheme* that might otherwise mitigate the risk of that disruption) a *Network Service Provider* and/or a *Registered Participant* must in consultation with *AEMO* install emergency controls within the *Network Service Provider's* or *Registered Participant's* system or in both, as necessary, to minimise disruption to any *transmission network* or *distribution network* and to significantly reduce the probability of cascading failure.
>
> A *Network Service Provider* must each year report to *AEMO* about emergency controls under this clause S5.1.8, including the *Network Service Provider's* assessment of the need for new or altered emergency controls. The report may be included in the *Network Service Provider's* report to *AEMO* under an *EFCS design specification*.

[14] Clause S5.1.10 of Schedule 5.1 Load and network control facilities

Omit the heading and substitute:

S5.1.10 Load, generation and network control facilities

[15] Clause S5.1.10.1 of Schedule 5.1 General

Omit clause S5.1.10.1 of Schedule 1, and substitute:

S5.1.10.1 General

Each *Network Service Provider* in consultation with *AEMO* must ensure that:

(a) sufficient *load* is under the control of underfrequency relays or other *facilities* where required to ensure that in the event of the sudden, unplanned simultaneous occurrence of multiple *contingency events*, the *power system frequency* does not move outside the *extreme frequency excursion tolerance limits*;

(b) where determined to be necessary, sufficient *load* is under the control of undervoltage relays to minimize or reduce the risk of voltage collapse on the occurrence of multiple *contingency events*; and

(c) there is sufficient *load* under manual or automatic control either locally or from remotely located *control centres* to allow the *load shedding procedures* to be implemented on instruction from *AEMO* to enable *AEMO* to maintain *power system security*.

A *Network Service Provider* may require *load shedding* arrangements to be installed to cater for abnormal operating conditions including abnormal operating conditions in which *emergency frequency control schemes* are intended to operate.

Transmission Network Service Providers and *connected Distribution Network Service Providers* must cooperate to agree arrangements to implement *load shedding*. The arrangements may include the opening of circuits in either a *transmission* or *distribution network*.

The *Transmission Network Service Provider* must specify, in the *connection agreement*, control and monitoring requirements to be provided by a *Distribution Network Service Provider* for *load shedding facilities* including *emergency frequency control schemes*.

[16] Clause S5.1.10.1a of Schedule 5.1 Emergency frequency control schemes

After S5.1.10.1, insert:

S5.1.10.1a Emergency frequency control schemes

(a) A *Network Service Provider* must provide to *AEMO* all information and assistance reasonably requested by *AEMO* for the development and review of proposals for *emergency frequency control schemes* and for the development and review of proposed *EFCS standards*, *EFCS design specifications* and *EFCS implementation procedures*.

(b) Subject to paragraph (c), for an *emergency frequency control scheme*, a *Network Service Provider* may install new *facilities* or may, subject to the *Rules*, modify existing *facilities* or change settings on existing *facilities*.

(c) For an *over frequency scheme*:

(1) a *Network Service Provider* must identify which elements of the scheme (if any) can be implemented by *facilities* provided by a *Generator* for the *Generator's generating unit* or by modification to the *facilities* of the *Generator* or by changes to the settings of *protection systems* or *control systems* for the *Generator's generating units*.

(2) where those opportunities are identified, the *Network Service Provider* must notify the *Generator* concerned of the proposed modifications and must request the *Generator* to negotiate with the *Network Service Provider* to reach agreement on the modifications to be made and the other arrangements required by the *Network Service Provider* to comply with its obligations with respect to the scheme (including commissioning, testing, monitoring and future modification).

(3) if the *Generator* accepts the request, the *Generator* and the *Network Service Provider* must each negotiate in good faith with respect to the matters referred to above.

(4) if the *Generator* declines the request, or if the *Generator* agrees to the request but good faith negotiations do not result in agreement being reached in a reasonable time (having regard to the implementation timetable for the scheme), then the *Network Service Provider* may make other arrangements to implement the relevant elements of the scheme.

(d) Nothing in paragraph (c) is intended to prevent the exercise of rights under a *connection agreement*.

(e) Nothing in paragraph (c) is intended to constitute or require an *application to connect* for the purposes of rule 5.3 or rule 5.3A. If clause 5.3.9 applies in respect of alterations for an *over frequency scheme* the subject of negotiations under paragraph (c), the *Network Service Provider* cannot charge a fee under clause 5.3.9(e) for assessment of a submission in respect of those alterations.

[17] Clause S5.1.10.2 of Schedule 5.1 Distribution Network Service Providers

In subclause S5.1.10.2(b) of Schedule 5.1, insert "and *emergency frequency control schemes*," after "*facilities*".

[18] Clause S5.1.10.3 of Schedule 5.1 Transmission Network Service Providers

In subclause S5.1.10.3(a) of Schedule 5.1, insert "and *emergency frequency control schemes*" after "*facilities*".

[19] Clause S5.2.2 of Schedule 5.2 Application of Settings

In the second paragraph of clause S5.2.2 of Schedule 5.2, insert "then (except in the case of settings to be applied or changed by the *Generator* in connection with an *emergency frequency control scheme*)" after "setting".

[20] Clause S5.2.5.8 of Schedule 5.2 Protection of generating systems from power system disturbances

Omit subclause S5.2.5.8(e)(3) of Schedule 5.2, and substitute:

(3) where the *generating system* is automatically *disconnected* under paragraph (a), clause S5.2.5.9 or by an *emergency frequency control scheme*;

Schedule 4 Amendment to the National Electricity Rules

(Clause 6)

[1] Clause 8.8.1 Purpose of Reliability Panel

After clause 8.8.1(a)(2b), insert:

(2c) on the advice of *AEMO*, determine *EFCS standards*;

(2d) on the advice of *AEMO*, determine the *post-contingency operating state* for events to be classified as *protected events*;

[2] Clause 8.8.1 Purpose of Reliability Panel

In clause 8.8.1(a)(5), insert "(2c), (2d)" after "(2)".

[3] Clause 8.8.1 Purpose of Reliability Panel

Omit clause 8.8.1(c)(1) and substitute:

(1) must be developed, and may only be amended, in accordance with:

(i) the consultation process set out in clause 8.8.3; or

(iii) the process in clause 8.8.5, to the extent the *Reliability Panel* is developing specific principles and guidelines to apply in respect of a *protected event*;

[4] Clause 8.8.1 Purpose of Reliability Panel

After clause 8.8.1(c), insert:

(d) *EFCS standards* must be proposed, and may only be determined, in accordance with clause 8.8.4.

(e) The *post-contingency operating state* for an event to be classified as a *protected event* must be proposed, and may only be determined, in accordance with clause 8.8.5.

[5] Clause 8.8.3 Reliability Panel review process

In clause 8.8.3(aa), omit "system restart standard" and substitute "*system restart standard*".

[6] Clause 8.8.3 Reliability Panel review process

In clause 8.8.3(b), omit "and the guidelines referred to in clause 8.8.1(a)(9)" and substitute "the guidelines referred to in clause 8.8.1(a)(9) and *EFCS standards*".

[7] New Clause 8.8.4 Determination of EFCS standards

After clause 8.8.3, insert:

8.8.4 Determination of EFCS standards

(a) *AEMO* may develop and submit to the *Reliability Panel* proposals for *emergency frequency control schemes*. In developing a scheme under this paragraph, *AEMO* must consult with *Network Service Providers* likely to be directly affected by the scheme.

(b) Each proposal under paragraph (a) must specify the areas of the *power system* to which the *emergency frequency control scheme* will apply and whether it is an *over frequency scheme*, *under frequency scheme*, or both. The proposal must include:

(1) a general description of the proposed scheme including its functionality, the new, existing or modified *facilities* likely to comprise the scheme and the *Network Service Providers* and *Generators* likely to be affected directly by the scheme;

(2) the proposed *target capabilities* for the scheme (or sets of proposed *target capabilities*) and the corresponding expected *power system security* outcomes;

(3) *AEMO's* estimate of the costs to procure and commission the scheme and maintain its availability and performance, including upfront costs and ongoing maintenance costs; and

(4) other information *AEMO* considers reasonably necessary to assist the *Reliability Panel* to consider the proposal.

(c) The *Reliability Panel* must comply with the *Rules consultation procedures* in relation to its determination of the *EFCS Standard* for each proposal under paragraph (a). The final report of the *Reliability Panel* must include:

(1) the rationale for the approved *target capabilities* applicable to the scheme, which may include a consideration of the expected *power system security outcomes*;

(2) the estimated costs to procure, commission and maintain the availability and performance of the scheme; and

(3) where applicable, any other *target capabilities* considered and the corresponding expected *power system security* outcomes and costs.

(d) The *Reliability Panel* must only determine an *EFCS standard* where it is satisfied that the availability and operation of the proposed e*mergency frequency control scheme* in accordance with the *EFCS standard* meets the *EFCS Objective*.

(e) The *Reliability Panel* must *publish* each approved *EFCS standard*. The approved *EFCS standard* must specify, for the *emergency frequency control scheme* to which it applies:

(1) a general description of the proposed scheme including how it is proposed to operate and the new, existing or modified *facilities* likely to comprise the scheme; and

(2) the *target capabilities* applicable to the scheme.

[8] New Clause 8.8.5 Classification of Protected Events

After clause 8.8.4, insert:

8.8.5 Classification of Protected Events

(a) *AEMO* may classify a *non-credible contingency event* as a *protected event* where *AEMO* considers that:

(1) the *non-credible contingency event*, while not reasonably possible in the surrounding circumstances, is reasonably plausible; and

Note

A *contingency event* that *AEMO* considers to be reasonably possible in the surrounding circumstances is classified as a *credible contingency event* under clause 4.2.3(b).

(2) if the *non-credible contingency event* were to occur, a *cascading outage* resulting in or from a *major supply disruption* is at least reasonably likely; and

(3) taking into account the matters referred to in subparagraphs (1) and (2), the event should be classified as a *protected event*.

(b) *AEMO* may request the *Reliability Panel* to determine the *post-contingency operating state* for a *non-credible contingency event* that *AEMO* considers should be classified as a *protected event*.

(c) The *Reliability Panel* may only determine, or cancel the determination of, a *post-contingency operating state* at the request of *AEMO*.

(d) A request under paragraph (b) must include:

(1) information explaining the nature of the *non-credible contingency event* and the consequences for the *power system* if the event were to occur;

(2) a range of proposed *post-contingency operating states* for that *non-credible contingency event*;

(3) *AEMO*'s estimate of the cost of achieving each proposed *post-contingency operating state* including a description of the mechanisms that may be used to achieve the *post-contingency operating state*;

(4) *AEMO*'s proposals for the other matters that may be determined by the *Reliability Panel* under paragraph (f); and

(5) other information *AEMO* considers reasonably necessary to assist the *Reliability Panel* to consider the request.

(e) In making its determination, the *Reliability Panel* must consider the information provided by *AEMO* and may request further information or obtain such technical advice or assistance from time to time as it thinks appropriate including, without limitation, information, advice or assistance from *AEMO* and any *Registered Participant*.

(f) The *Reliability Panel* must comply with the *Rules consultation procedures* in relation to its determination of a *post-contingency operating state* in relation to each request from *AEMO* under paragraph (b).

(g) The *Reliability Panel* may determine a *post-contingency operating state* for the *non-credible contingency event* that is different to any proposed in the request from *AEMO*. When it makes its determination, the *Reliability Panel* may at the same time determine any other matters that the *Reliability Panel* considers necessary or appropriate in relation to *AEMO's* operation of the *power system* for that *protected event* which may include:

(1) the time to return the *power system* to a *secure operating state* for the purposes of clause 4.2.6(b);

(2) any principles and guidelines to apply in respect of the *protected event* for the purposes of clause 4.2.6(b) in addition to or in place of the principles and guidelines published under clause 8.8.1(a)(2a); and

(3) maximum levels of *load shedding* or *generation shedding* following the *protected event*.

(h) *AEMO* may request the *Reliability Panel* to cancel the determination of a *post-contingency operating state* for a *non-credible contingency event* if *AEMO* considers that the event should no longer be classified as a *protected event*. The *Reliability Panel* must cancel the determination at *AEMO's* request.

Schedule 5 Amendment to the National Electricity Rules

(Clause 7)

[1] Chapter 10 New Definitions

In Chapter 10, insert the following definitions in alphabetical order:

EFCS design specifications

For an *emergency frequency control scheme* means the design specification produced by *AEMO* for the scheme under clause 4.4.4.

EFCS implementation procedures

For an *emergency frequency control scheme* means the implementation procedures produced by *AEMO* under clause 4.4.4.

EFCS Objective

The objective for *emergency frequency control schemes* is for these schemes to be available and in operation to the extent appropriate having regard to the *national electricity objective*, to prevent or arrest *cascading outages*, *major supply disruptions* and uncontrolled increases or decreases in *frequency* (alone or in combination).

EFCS standard

For an *emergency frequency control scheme* means, the standard for the scheme determined by the *Reliability Panel* under clause 8.8.4 and containing the information specified in clause 8.8.4(e).

emergency frequency control scheme

facilities for initiating automatic *load shedding* or automatic *generation shedding* in an orderly fashion.

generation shedding

disconnecting, or reducing the transfer of *active power* to the *power system* from, one or more *generating systems* or *generating units*.

over frequency scheme

an *emergency frequency control scheme* with capability to respond when *frequency* is above or climbing above the *normal operating frequency band*.

post-contingency operating state

for a *protected event*, the target operating state of the *power system* following the occurrence of that *protected event*.

protected event

an event described in clause 4.2.3(f).

target capabilities

For an *emergency frequency control scheme* means the technical parameters required to define the intended (but not guaranteed) service provided by the scheme which may include:

(a) *power system* conditions within which the scheme is capable of responding;

(b) the nature of the scheme's response (*load shedding* or *generation shedding* for the purposes of managing *frequency*);

(c) the speed of the response;

(d) the amount of *load shedding* or *generation shedding* that may occur when the scheme responds; and

(e) capability to dynamically sense *power system* conditions.

under-frequency scheme

an *emergency frequency control scheme* with capability to respond when *power system frequency* is below or falling below the normal operating *frequency* band.